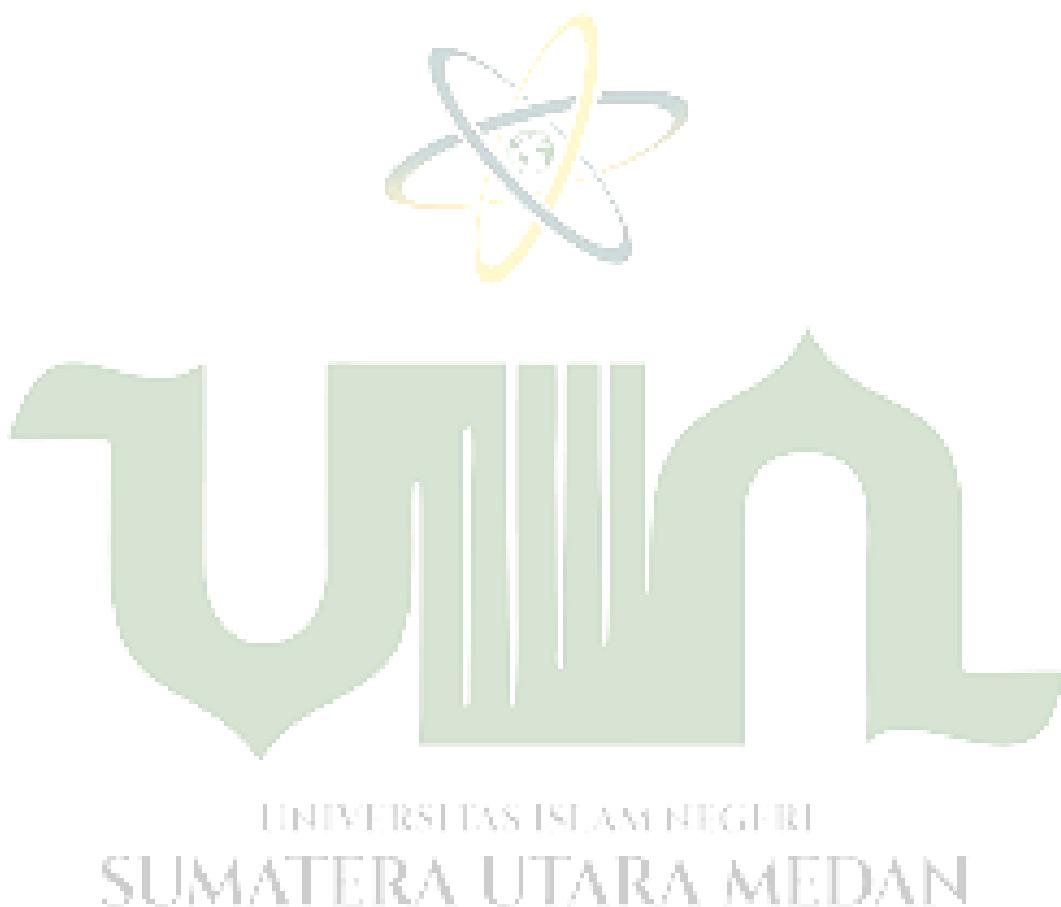# DAFTAR PUSTAKA

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LAMPIRAN
Listing Program

1. MainActivity.Java

```java
import android.Manifest;
import android.app.Activity;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.support.v4.app.ActivityCompat;
import android.support.v4.content.ContextCompat;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;

import com.shania.watermark.R;
import com.shania.watermark.activities.AboutActivity;
import com.shania.watermark.activities.DecodeActivity;
import com.shania.watermark.activities.EncodeActivity;
import com.shania.watermark.activities.SettingsActivity;
import com.shania.watermark.configuration.Configuration;
import com.shania.watermark.configuration.Preferences;
import com.shania.watermark.error.ErrorManager;
import com.shania.watermark.wifi.WifiActivity;

import java.util.ArrayList;
import java.util.List;

public class MainActivity extends Activity {

    private Button _btnEncode;
    private Button _btnDecode;
    private Button _btnSettings;
    private Button _btnAbout;
    private Button _btnSendVideo;


    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Configuration.getInstance().loadData(this);
        Preferences.getInstance(this).loadData();

        _btnEncode = (Button)
findViewById(R.id.btn_main_choose_encode);
        _btnDecode = (Button)
findViewById(R.id.btn_main_choose_decode);
        _btnSettings = (Button)
findViewById(R.id.btn_main_choose_settings);
        _btnAbout = (Button)
findViewById(R.id.btn_main_choose_about);
        _btnSendVideo = (Button)
findViewById(R.id.btn_main_send_video);

        _btnSendVideo.setOnClickListener(onClickListener);
        _btnEncode.setOnClickListener(onClickListener);
        _btnDecode.setOnClickListener(onClickListener);
        _btnSettings.setOnClickListener(onClickListener);
        _btnAbout.setOnClickListener(onClickListener);

        checkAndRequestPermissions();
```

```java
    }

    private  boolean checkAndRequestPermissions() {
        int cameraPermission =
ContextCompat.checkSelfPermission(this,Manifest.permission.CAMERA
);
        int writeExternalStoragePermission =
ContextCompat.checkSelfPermission(this,
Manifest.permission.WRITE_EXTERNAL_STORAGE);
        int readExternalStoragePermission =
ContextCompat.checkSelfPermission(this,
Manifest.permission.READ_EXTERNAL_STORAGE);
        List<String> listPermissionsNeeded = new ArrayList<>();
        if (cameraPermission !=
PackageManager.PERMISSION_GRANTED) {

listPermissionsNeeded.add(Manifest.permission.CAMERA);
        }
        if (writeExternalStoragePermission !=
PackageManager.PERMISSION_GRANTED) {

listPermissionsNeeded.add(Manifest.permission.WRITE_EXTERNAL_STOR
AGE);
        }
        if (readExternalStoragePermission !=
PackageManager.PERMISSION_GRANTED) {

listPermissionsNeeded.add(Manifest.permission.READ_EXTERNAL_STORA
GE);
        }
        if (!listPermissionsNeeded.isEmpty()) {
            ActivityCompat.requestPermissions(this,
listPermissionsNeeded.toArray(new
String[listPermissionsNeeded.size()]),1);
            return false;
        }
        return true;
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if
it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    private void createActivities(Class<?> claz) {
        Intent intent = new Intent(getApplicationContext(),
claz);
        startActivity(intent);
    }

    private OnClickListener onClickListener = new
OnClickListener() {

        @Override
        public void onClick(View arg0) {
            switch (arg0.getId()) {
                case R.id.btn_main_choose_encode:
                    createActivities(EncodeActivity.class);
                    break;
                case R.id.btn_main_choose_decode:
                    createActivities(DecodeActivity.class);
```

```java
                        break;
                    case R.id.btn_main_choose_settings:
                        createActivities(SettingsActivity.class);
                        break;
                    case R.id.btn_main_choose_about:
                        createActivities(AboutActivity.class);
                        break;
                    case R.id.btn_main_send_video:
                        createActivities(WifiActivity.class);
                        break;
                    default:

        ErrorManager.getInstance().addErrorMessage("[Main Activity]
        Requested activity not known");

        ErrorManager.getInstance().displayErrorMessages(arg0.getContext()
        );
                        break;
                }
            }
        };
    }
```

2. EncodeActivity.Java

```java
import android.app.Activity;
import android.app.ProgressDialog;
import android.content.ClipData;
import android.content.ClipboardManager;
import android.content.Context;
import android.content.Intent;
import android.graphics.Color;
import android.net.Uri;
import android.os.Build;
import android.os.Bundle;
import android.os.Environment;
import android.os.Handler;
import android.os.Message;
import android.provider.MediaStore;
import android.support.design.widget.Snackbar;
import android.support.v7.widget.CardView;
import android.text.Editable;
import android.text.TextWatcher;
import android.util.Base64;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.CompoundButton;
import android.widget.CompoundButton.OnCheckedChangeListener;
import android.widget.EditText;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.LinearLayout;
import android.widget.RadioButton;
import android.widget.TextView;
import android.widget.Toast;

import com.shania.watermark.R;
import com.shania.watermark.configuration.Preferences;
import com.shania.watermark.controller.EncodeParametersController;
import com.shania.watermark.directorydialog.ChoosenDirectoryListener;
import com.shania.watermark.directorydialog.DirectoryDialog;
import com.shania.watermark.error.ErrorManager;
import com.shania.watermark.parameters.EncodeParameters;
import com.shania.watermark.process.EncodeProcess;
```

```java
import com.shania.watermark.tools.Utils;

import java.io.File;
import java.security.Key;
import java.security.KeyFactory;
import java.security.KeyPair;
import java.security.KeyPairGenerator;
import java.security.PrivateKey;
import java.security.PublicKey;
import java.security.spec.KeySpec;
import java.security.spec.PKCS8EncodedKeySpec;
import java.security.spec.X509EncodedKeySpec;
import java.text.DecimalFormat;

import javax.crypto.Cipher;
import java.math.BigInteger;
import java.security.SecureRandom;
import java.util.Scanner;


public class EncodeActivity extends Activity{


    private final int CHOOSE_FILE_CONTENT = 0;
    private final int CHOOSE_VIDEO_CONTAINER = 1;
    private final int RECORD_VIDEO = 2;
    private final int SETTINGS_ACCESS = 3;
    private static final int ERROR_IN_PROCESS = 0;
    private static final int PROCESS_OK = 1;

    // Graphical components
    private ImageButton _btnBack;
    private ImageButton _btnCamera;
    private ImageButton _btnSettings;
    private Button _btnSelectSourceVideo;
    private Button _btnSelectVideoDestination;
    private Button _btnSelectFileToHide;
    private Button _btnEncode, _btnEncrypt, _btnDecrypt;
    private RadioButton _checkBoxFileToHide;
    private RadioButton _checkBoxTextToHide;
    private RadioButton _noCompressio;
    private RadioButton _radioCompressTextLZW;
    private RadioButton _radioCompressTextDeflate;
    private EditText _editTextContentToHide, _editTextContentToHide2,
_editTextP, _editTextQ, _editTextD;
    private EditText _editTextCryptographyKeyEncode;
    private TextView _sourcePath;
    private TextView _destinationPath;
    private TextView _filePath;
    private LinearLayout _linearLayoutEncode;
    private CardView _cardLayoutCryptographyKeyEncode;
    private CardView _cardLayoutCompressionText;
    String _public, _private, _plaintext;


    private ProgressDialog _progressDialog;
    private EncodeParameters _encodeParameters;

    private Handler _processHandler = new Handler()
    {
        @Override
        public void handleMessage(Message msg)
        {
            _progressDialog.cancel();
             if (msg.what == ERROR_IN_PROCESS)
```

```java
                {
                    displayProcessErrors();
                } else {
                    displayProcessSuccess();
                }
            }
        };

        @Override
        protected void onCreate(Bundle savedInstanceState) {
            super.onCreate(savedInstanceState);
             setContentView(R.layout.activity_encode);

            _sourcePath=(TextView)findViewById(R.id.sourcePath);
            _destinationPath=(TextView)findViewById(R.id.destinationPath);
            _filePath=(TextView)findViewById(R.id.filePath);
            _btnBack = (ImageButton) findViewById(R.id.btn_back_encode);
            _btnCamera = (ImageButton) findViewById(R.id.btn_camera);
            _btnSettings = (ImageButton)
findViewById(R.id.btn_settings_encode);
            _btnSelectSourceVideo = (Button)
findViewById(R.id.btn_select_video_source_encode);
            _btnSelectVideoDestination = (Button)
findViewById(R.id.btn_select_video_destination_encode);
            _btnSelectFileToHide = (Button)
findViewById(R.id.btn_select_file_to_hide);
            _btnEncode = (Button) findViewById(R.id.btn_encode);
            _btnEncrypt = (Button) findViewById(R.id.btn_encrypt);
            _btnDecrypt = (Button) findViewById(R.id.btn_decrypt);
            _checkBoxFileToHide = (RadioButton)
findViewById(R.id.chk_box_file_to_hide);
            _checkBoxTextToHide = (RadioButton)
findViewById(R.id.chk_box_text_to_hide);
            _radioCompressTextLZW = (RadioButton)
findViewById(R.id.lzwCompressText);
            _radioCompressTextDeflate = (RadioButton)
findViewById(R.id.deflateCompressText);
            _noCompressio=(RadioButton)findViewById(R.id.radio_no_compression);
            _editTextContentToHide = (EditText)
findViewById(R.id.edit_text_content_to_hide);
            _editTextContentToHide2 = (EditText)
findViewById(R.id.edit_text_content_to_hide2);
            _editTextP = (EditText) findViewById(R.id.edit_text_p);
            _editTextQ = (EditText) findViewById(R.id.edit_text_q);
            _editTextD = (EditText) findViewById(R.id.edit_text_d);
            _editTextCryptographyKeyEncode = (EditText)
findViewById(R.id.edit_text_cryptography_key_encode);
            _linearLayoutEncode = (LinearLayout)
findViewById(R.id.linearLayoutEncode);
            _cardLayoutCryptographyKeyEncode=(CardView)
findViewById(R.id.card_layout_cryptography_key_encode);

_cardLayoutCompressionText=(CardView)findViewById(R.id.card_layout_compre
ssion);
            _btnBack.setOnClickListener(onClickListener);
            _btnCamera.setOnClickListener(onClickListener);
            _btnSettings.setOnClickListener(onClickListener);
            _btnSelectSourceVideo.setOnClickListener(onClickListener);
            _btnSelectVideoDestination.setOnClickListener(onClickListener);
            _btnSelectFileToHide.setOnClickListener(onClickListener);
            _btnEncode.setOnClickListener(onClickListener);
            _btnEncrypt.setOnClickListener(onClickListener);
            _btnDecrypt.setOnClickListener(onClickListener);
            _checkBoxFileToHide.setChecked(false);
              _checkBoxTextToHide.setChecked(true);
```

```java
        _radioCompressTextLZW.setChecked(true);
        _radioCompressTextDeflate.setChecked(false);

_checkBoxFileToHide.setOnCheckedChangeListener(onCheckedChangeListener);

_checkBoxTextToHide.setOnCheckedChangeListener(onCheckedChangeListener);

_editTextCryptographyKeyEncode.addTextChangedListener(onTextChangedListen
erCryptographyKey);

_editTextContentToHide.addTextChangedListener(onTextChangedListenerTextTo
Hide);
        _encodeParameters = new EncodeParameters();

        updateImageViews();
        updateLinearLayoutCryptographyVisibility();


    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.encode, menu);
        return true;
    }

    private void displayProcessErrors() {
        ErrorManager.getInstance().displayErrorMessages(this);
    }

    private void displayProcessSuccess() {
        final Uri contentUri;
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.KITKAT) {
            final Intent scanIntent = new
Intent(Intent.ACTION_MEDIA_SCANNER_SCAN_FILE);
            contentUri = Uri.fromFile(new File("file://" +
Environment.getExternalStorageDirectory()));
            scanIntent.setData(contentUri);
            sendBroadcast(scanIntent);
        } else {
            final Intent intent = new Intent(Intent.ACTION_MEDIA_MOUNTED,
Uri.parse("file://" + Environment.getExternalStorageDirectory()));
            sendBroadcast(intent);
        }

        Snackbar snackbar = Snackbar.make(_linearLayoutEncode, "Video stego
telah disimpan.", Snackbar.LENGTH_LONG);

        snackbar.setActionTextColor(Color.parseColor("#008f30"));
        snackbar.show();
    }

    private void updateLinearLayoutCryptographyVisibility() {
        if (Preferences.getInstance() != null) {
            if (Preferences.getInstance().getUseCryptography()) {
              _cardLayoutCryptographyKeyEncode.setVisibility(View.VISIBLE);
            } else {
              _cardLayoutCryptographyKeyEncode.setVisibility(View.GONE);
            }
        }
    }

    private void updateImageViews() {
        EncodeParametersController controller = new
EncodeParametersController(true);
```

```java
        if (controller.controlSrcVideoPath(_encodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_video_source_encode)).setImageResource(R
.drawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
findViewById(R.id.img_view_valid_video_source_encode)).setImageResource(R
.drawable.ic_error_white_48dp);
        }

        if (controller.controlDestVideoPath(_encodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_video_destination_encode)).setImageResou
rce(R.drawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
findViewById(R.id.img_view_valid_video_destination_encode)).setImageResou
rce(R.drawable.ic_error_white_48dp);
        }

        if (controller.controlContentToHide(_encodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_content_to_hide_encode)).setImageResourc
e(R.drawable.ic_check_circle_white_48dp);
        } else {
        ((ImageView)
findViewById(R.id.img_view_valid_content_to_hide_encode)).setImageResourc
e(R.drawable.ic_error_white_48dp);
        }

        if (controller.controlCryptographyKey(_encodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_key_length_encode)).setImageResource(R.d
rawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
findViewById(R.id.img_view_valid_key_length_encode)).setImageResource(R.d
rawable.ic_error_white_48dp);
        }
    }

    private void recordVideo() {
        Intent takeVideoIntent = new
Intent(MediaStore.ACTION_VIDEO_CAPTURE);

        if (takeVideoIntent.resolveActivity(getPackageManager()) != null)
{
            startActivityForResult(takeVideoIntent, RECORD_VIDEO);
        }
    }

    private void showDirectoryChooser() {
        DirectoryDialog dialog = new DirectoryDialog(this);
        dialog.setChoosenDirectoryListener(onChoosenDirectoryListener);
        dialog.show();
    }

    private void showFileChooser(int code) {
        Intent intent = new Intent(Intent.ACTION_PICK);
        //intent.addCategory(Intent.CATEGORY_OPENABLE);

        if (code == CHOOSE_VIDEO_CONTAINER) {
            intent.setType("video/*");
        } else {
```

```java
            intent.setType("*/*");
        }
        try {
            startActivityForResult(Intent.createChooser(intent,
getResources().getString(R.string.destination_string)), code);
        } catch (android.content.ActivityNotFoundException ex) {
            Toast.makeText(this,
getResources().getString(R.string.error_file_manager_string),
Toast.LENGTH_SHORT).show();
        }
    }

    @Override
    public void onActivityResult(int requestCode, int resultCode, Intent
data) {
        super.onActivityResult(requestCode, resultCode, data);

        switch (requestCode) {
            case CHOOSE_VIDEO_CONTAINER:
                callbackFileChooserVideoContainer(requestCode, resultCode,
data);
                break;
            case CHOOSE_FILE_CONTENT:
                callbackFileChooserFileToHide(requestCode, resultCode, data);
                break;
            case SETTINGS_ACCESS:
                updateLinearLayoutCryptographyVisibility();
                updateImageViews();
                break;
            case RECORD_VIDEO:
                if (resultCode != 0)
                    Toast.makeText(this, "Video saved",
Toast.LENGTH_LONG).show();
                break;
            default:
                ErrorManager.getInstance().addErrorMessage("[Encode Activity]
Activity result not known");
                ErrorManager.getInstance().displayErrorMessages(this);
                break;
        }
    }

    private void callbackFileChooserVideoContainer(int requestCode, int
resultCode, Intent data) {
        Uri selectedVideoLocation;
        if (resultCode == Activity.RESULT_OK) {
            selectedVideoLocation = data.getData();
            if (selectedVideoLocation != null) {

_encodeParameters.setSourceVideoPath(Utils.getRealPathFromUri(this,
selectedVideoLocation));

_sourcePath.setText(_encodeParameters.getSourceVideoPath());
                if (_encodeParameters.getDestinationVideoDirectory() ==
null || _encodeParameters.getDestinationVideoDirectory().isEmpty()) {

_encodeParameters.setDestinationVideoDirectory(Utils.getBasenameFromPath(
_encodeParameters.getSourceVideoPath()));

_destinationPath.setText(_encodeParameters.getDestinationVideoDirectory()
);
                }
            } else {
                _encodeParameters.setSourceVideoPath("");
            }
```

```java
            updateImageViews();
        }
    }

    private void callbackFileChooserFileToHide(int requestCode, int
resultCode, Intent data) {
        Uri selectedFileLocation;

        if (resultCode == Activity.RESULT_OK) {
            selectedFileLocation = data.getData();
            if (selectedFileLocation != null) {

_encodeParameters.setFileToHidePath(Utils.getRealPathFromUri(this,
selectedFileLocation));
            } else {
                _encodeParameters.setFileToHidePath("");
            }
            _filePath.setText(_encodeParameters.getFileToHidePath());
            updateImageViews();
        }
    }

    private void process() {
        _progressDialog = ProgressDialog.show(this, "Loading", "Proses
penyisipan pesan...");

        new Thread(new Runnable() {
            public void run() {


                Message res = _processHandler.obtainMessage(PROCESS_OK);

                EncodeParametersController controller;
                String textToHide =
_editTextContentToHide.getText().toString();


_encodeParameters.setCompressLZW(_radioCompressTextLZW.isChecked());

_encodeParameters.setCompressDeflate(_radioCompressTextDeflate.isChecked(
));
                _encodeParameters.setTextToHide(textToHide);
                controller = new EncodeParametersController(false);
                if (controller.controlAllData(_encodeParameters)){
                    EncodeProcess process = new EncodeProcess();
                    if (!process.encode(_encodeParameters)) {
                        res = _processHandler.obtainMessage(ERROR_IN_PROCESS);
                    }
                } else {
                    res = _processHandler.obtainMessage(ERROR_IN_PROCESS);
                }

                _processHandler.sendMessage(res);

            }
        }).start();
    }

    private ChoosenDirectoryListener onChoosenDirectoryListener = new
ChoosenDirectoryListener() {

        @Override
        public void onChoosenDir(String directory) {
            _encodeParameters.setDestinationVideoDirectory(directory);
```

```java
            _destinationPath.setText(_encodeParameters.getDestinationVideoDirectory()
);
            updateImageViews();
        }
    };

    private OnCheckedChangeListener onCheckedChangeListener = new
OnCheckedChangeListener() {

        @Override
        public void onCheckedChanged(CompoundButton arg0, boolean arg1) {
            if (arg0.getId() == R.id.chk_box_file_to_hide && arg1) {
                _editTextContentToHide.setVisibility(View.GONE);
                _cardLayoutCompressionText.setVisibility(View.GONE);
                _btnSelectFileToHide.setVisibility(View.VISIBLE);
                _filePath.setVisibility(View.VISIBLE);
                _checkBoxTextToHide.setChecked(false);
                _encodeParameters.setHidingText(false);
            } else if (arg0.getId() == R.id.chk_box_file_to_hide) {
                _editTextContentToHide.setVisibility(View.VISIBLE);
                _cardLayoutCompressionText.setVisibility(View.VISIBLE);
                _btnSelectFileToHide.setVisibility(View.GONE);
                _filePath.setVisibility(View.GONE);
                _checkBoxTextToHide.setChecked(true);
                _encodeParameters.setHidingText(true);
            } else if (arg0.getId() == R.id.chk_box_text_to_hide && arg1) {
                _btnSelectFileToHide.setVisibility(View.GONE);
                _filePath.setVisibility(View.GONE);
                _editTextContentToHide.setVisibility(View.VISIBLE);
                _cardLayoutCompressionText.setVisibility(View.VISIBLE);
                _checkBoxFileToHide.setChecked(false);
                _encodeParameters.setHidingText(true);
            } else {
                _filePath.setVisibility(View.VISIBLE);
                _btnSelectFileToHide.setVisibility(View.VISIBLE);
                _editTextContentToHide.setVisibility(View.GONE);
                _cardLayoutCompressionText.setVisibility(View.GONE);
                _checkBoxFileToHide.setChecked(true);
                _encodeParameters.setHidingText(false);
            }
            updateImageViews();
        }
    };

    private OnClickListener onClickListener = new OnClickListener() {

        @Override
        public void onClick(View arg0) {
            switch (arg0.getId()) {
                case R.id.btn_back_encode:
                    finish();
                    break;
                case R.id.btn_camera:
                    recordVideo();
                    break;
                case R.id.btn_settings_encode:
                    Intent intent = new Intent(getApplicationContext(),
SettingsActivity.class);
                    startActivityForResult(intent, SETTINGS_ACCESS);
                    break;
                case R.id.btn_select_video_source_encode:
                    showFileChooser(CHOOSE_VIDEO_CONTAINER);
                    break;
                case R.id.btn_select_video_destination_encode:
                    showDirectoryChooser();
```

```java
                break;
        case R.id.btn_select_file_to_hide:
            showFileChooser(CHOOSE_FILE_CONTENT);
            break;
        case R.id.btn_encode:
            process();
            break;
        case R.id.btn_encrypt:
            //String pesan =
_editTextContentToHide.getText().toString();

            if (_editTextContentToHide.length() == 0) {
                Toast.makeText(getApplicationContext(), "Input pesan!",
Toast.LENGTH_SHORT).show();
            } else if (_editTextP.length() == 0) {
                Toast.makeText(getApplicationContext(), "Input nilai
P!", Toast.LENGTH_SHORT).show();
            } else if (_editTextQ.length() == 0) {
                Toast.makeText(getApplicationContext(), "Input nilai
Q!", Toast.LENGTH_SHORT).show();
            } else {
                BigInteger p = new
BigInteger(_editTextP.getText().toString());
                BigInteger q = new
BigInteger(_editTextQ.getText().toString());

                RSA rsa = new RSA(p, q);
                String ee ="";
                String dd ="";
                ee+=rsa.getE();
                dd+=rsa.getD();

                String text =
_editTextContentToHide.getText().toString();

                // Enkripsi setiap karakter
                StringBuilder encryptedText = new StringBuilder();
                for (char character : text.toCharArray()) {
                    BigInteger charValue = BigInteger.valueOf((int)
character);
                    BigInteger encryptedCharValue =
rsa.encrypt(charValue);

encryptedText.append(encryptedCharValue.toString()).append(" ");
                }


//_editTextContentToHide.setText(encryptedText.toString());

                // Dekripsi teks
                StringBuilder decryptedText = new StringBuilder();
                String[] encryptedValues =
encryptedText.toString().split(" ");
                for (String value : encryptedValues) {
                    BigInteger encryptedCharValue = new
BigInteger(value);
                    BigInteger decryptedCharValue =
rsa.decrypt(encryptedCharValue);
                    decryptedText.append((char)
decryptedCharValue.intValue());
                }


_editTextContentToHide.setText(encryptedText.toString());
                _editTextD.setText(dd);
```

```java
                }
                break;
            case R.id.btn_decrypt:
                //String pesan =
_editTextContentToHide.getText().toString();

                if (_editTextContentToHide.length() == 0) {
                    Toast.makeText(getApplicationContext(), "Input pesan!",
Toast.LENGTH_SHORT).show();
                } else if (_editTextP.length() == 0) {
                    Toast.makeText(getApplicationContext(), "Input nilai
P!", Toast.LENGTH_SHORT).show();
                } else if (_editTextQ.length() == 0) {
                    Toast.makeText(getApplicationContext(), "Input nilai
Q!", Toast.LENGTH_SHORT).show();
                } else {
                    BigInteger p = new
BigInteger(_editTextP.getText().toString());
                    BigInteger q = new
BigInteger(_editTextQ.getText().toString());


                    RSA rsa = new RSA(p, q);

                    // Dekripsi teks
                    StringBuilder decryptedText = new StringBuilder();
                    String[] encryptedValues =
_editTextContentToHide.getText().toString().split(" ");
                    for (String value : encryptedValues) {
                        BigInteger encryptedCharValue = new
BigInteger(value);
                        BigInteger decryptedCharValue =
rsa.decrypt(encryptedCharValue);
                        decryptedText.append((char)
decryptedCharValue.intValue());
                    }


_editTextContentToHide.setText(decryptedText.toString());
                }
                break;
            default:
                ErrorManager.getInstance().addErrorMessage("[Encode
Activity] Click event not known");

ErrorManager.getInstance().displayErrorMessages(arg0.getContext());
                break;
        }
    }
    };

    public static int gcd(int a, int h) {
        /*
         * This function returns the gcd or greatest common
         * divisor
         */
        int temp;
        while (true) {
            temp = a % h;
            if (temp == 0)
                return h;
            a = h;
            h = temp;
        }
    }
```

```java
    private TextWatcher onTextChangedListenerCryptographyKey = new
TextWatcher() {

        @Override
        public void onTextChanged(CharSequence s, int start, int before,
int count) {
        }

        @Override
        public void beforeTextChanged(CharSequence s, int start, int count,
int after) {
        }

        @Override
        public void afterTextChanged(Editable s) {
            if (s != null) {
                _encodeParameters.setCryptographyKey(s.toString());
            }
            updateImageViews();
        }
    };

    private TextWatcher onTextChangedListenerTextToHide = new
TextWatcher() {

        @Override
        public void onTextChanged(CharSequence s, int start, int before,
int count) {
        }

        @Override
        public void beforeTextChanged(CharSequence s, int start, int count,
int after) {
        }

        @Override
        public void afterTextChanged(Editable s) {
            if (s != null) {
                _encodeParameters.setTextToHide(s.toString());
            }
            updateImageViews();
        }
    };

}
```

3. DecodeActivity.Java

```java
import android.app.Activity;
import android.app.AlertDialog;
import android.app.ProgressDialog;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.support.v7.widget.CardView;
import android.text.Editable;
import android.text.TextWatcher;
import android.util.Base64;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.CompoundButton;
```

```java
import android.widget.CompoundButton.OnCheckedChangeListener;
import android.widget.EditText;
import android.widget.ImageButton;
import android.widget.ImageView;
import android.widget.RadioButton;
import android.widget.TextView;
import android.widget.Toast;

import com.shania.watermark.R;
import com.shania.watermark.configuration.Preferences;
import com.shania.watermark.controller.DecodeParametersController;
import com.shania.watermark.directorydialog.ChoosenDirectoryListener;
import com.shania.watermark.directorydialog.DirectoryDialog;
import com.shania.watermark.error.ErrorManager;
import com.shania.watermark.parameters.DecodeParameters;
import com.shania.watermark.process.DecodeProcess;
import com.shania.watermark.tools.Utils;

import java.math.BigInteger;
import java.security.Key;
import java.security.KeyFactory;
import java.security.spec.KeySpec;
import java.security.spec.PKCS8EncodedKeySpec;
import java.security.spec.X509EncodedKeySpec;

import javax.crypto.Cipher;

public class DecodeActivity extends Activity {

    private final int CHOOSE_VIDEO_CONTAINER = 0;
    private final int SETTINGS_ACCESS = 1;
    private static final int ERROR_IN_PROCESS = 0;
    private static final int PROCESS_OK = 1;

    // Graphical components
    private ImageButton _btnBack;
    private ImageButton _btnSettings;
    private Button _btnSelectSourceVideo;
    private Button _btnDecode, _btnDecrypt;
    private Button _btnSelectFileDestination;
    private RadioButton _checkBoxDisplayContent;
    private RadioButton _checkBoxSaveIntoFile;
    private RadioButton _radioCompressedTextLZW;
    private RadioButton _radioCompressedTextDeflate;
    private RadioButton _radioNoCompression;
    private TextView _sourcePath;
    private EditText _editTextCryptographyKeyDecode;
    private EditText _editTextFileExtension;
    private EditText _editTextContentToShow, _editTextKey, _editTextP,
_editTextQ;
    private CardView _cardViewCryptographyKeyDecode;
    private CardView _cardViewSaveIntoFileDest;
    private CardView _cardViewSaveInoFileExt;
    private CardView _card_layout_decompression;


    private ProgressDialog _progressDialog;
    private DecodeParameters _decodeParameters;

    private Handler processHandler = new Handler()
    {
        @Override
        public void handleMessage(Message msg)
        {
            _progressDialog.cancel();
```

```java
            if (msg.what == ERROR_IN_PROCESS)
            {
                displayProcessErrors();
            } else {
                displayProcessSuccess();
            }
        }
    };

    private void displayProcessErrors() {
        ErrorManager.getInstance().displayErrorMessages(this);
    }

    private void displayProcessSuccess() {
        String toastMsg = "Pesan telah di ekstrak.";

        if (_decodeParameters.getDisplay())
        {
            AlertDialog.Builder builder = new AlertDialog.Builder(this);
            builder.setTitle("PESAN PADA VIDEO");
            builder.setMessage(_decodeParameters.getDisplayText());

_editTextContentToShow.setText(_decodeParameters.getDisplayText());

//_editTextContentToShow.setText(_decodeParameters.getDisplayText());
            builder.setPositiveButton("OK", null);
            //builder.show();
        }
        Toast.makeText(this, toastMsg, Toast.LENGTH_LONG).show();
    }

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_decode);

        _sourcePath=(TextView)findViewById(R.id.sourcePath);
        _btnBack = (ImageButton) findViewById(R.id.btn_back_decode);
        _btnDecode = (Button) findViewById(R.id.btn_decode);
        _btnDecrypt = (Button) findViewById(R.id.btn_decrypt);
        _btnSelectSourceVideo = (Button)
findViewById(R.id.btn_select_video_source_decode);
        _btnSelectFileDestination = (Button)
findViewById(R.id.btn_select_file_destination_decode);
        _btnSettings = (ImageButton)
findViewById(R.id.btn_settings_decode);
        _checkBoxDisplayContent = (RadioButton)
findViewById(R.id.chk_box_display_content);
        _checkBoxSaveIntoFile = (RadioButton)
findViewById(R.id.chk_box_save_into_file);
        _radioCompressedTextLZW = (RadioButton)
findViewById(R.id.lzwDecompressedText);
        _radioCompressedTextDeflate = (RadioButton)
findViewById(R.id.deflateDecompressedText);

        _editTextCryptographyKeyDecode = (EditText)
findViewById(R.id.edit_text_cryptography_key_decode);
        _editTextFileExtension = (EditText)
findViewById(R.id.edit_text_file_extension);
        _editTextContentToShow = (EditText)
findViewById(R.id.edit_text_content_to_show);
        _editTextP = (EditText) findViewById(R.id.edit_text_p);
        _editTextQ = (EditText) findViewById(R.id.edit_text_q);
        _editTextKey = (EditText) findViewById(R.id.edit_text_key);
```

```java
_cardViewCryptographyKeyDecode=(CardView)findViewById(R.id.card_layout_cr
yptography_key_decode) ;
        _cardViewSaveIntoFileDest = (CardView)
findViewById(R.id.card_view_save_into_file_destination);
        _cardViewSaveInoFileExt = (CardView)
findViewById(R.id.card_view_save_into_file_extension);

_card_layout_decompression=(CardView)findViewById(R.id.card_layout_decomp
ression);

        _btnBack.setOnClickListener(onClickListener);
        _btnSettings.setOnClickListener(onClickListener);
        _btnSelectSourceVideo.setOnClickListener(onClickListener);
        _btnDecode.setOnClickListener(onClickListener);
        _btnDecrypt.setOnClickListener(onClickListener);
        _btnSelectFileDestination.setOnClickListener(onClickListener);
        _checkBoxDisplayContent.setChecked(true);
        _checkBoxSaveIntoFile.setChecked(false);
        _radioCompressedTextLZW.setChecked(true);
        _radioCompressedTextDeflate.setChecked(false);

_checkBoxDisplayContent.setOnCheckedChangeListener(onCheckedChangeListene
r);

_checkBoxSaveIntoFile.setOnCheckedChangeListener(onCheckedChangeListener)
;

_editTextCryptographyKeyDecode.addTextChangedListener(onTextChangedListen
erCryptographyKey);

_editTextFileExtension.addTextChangedListener(onTextChangedListenerFileEx
tension);
        _cardViewSaveInoFileExt.setVisibility(View.GONE);
        _cardViewSaveIntoFileDest.setVisibility(View.GONE);
        _decodeParameters = new DecodeParameters();

        updateImageViews();
        updateLinearLayoutCryptographyVisibility();

    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.decode, menu);
        return true;
    }

    private void updateLinearLayoutCryptographyVisibility() {
        if (Preferences.getInstance().getUseCryptography()) {
          _cardViewCryptographyKeyDecode.setVisibility(View.VISIBLE);
        } else {
          _cardViewCryptographyKeyDecode.setVisibility(View.GONE);
        }
    }

    private void updateImageViews() {
        DecodeParametersController controller = new
DecodeParametersController(true);

        if (controller.controlSrcVideoPath(_decodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_video_source_decode)).setImageResource(R
.drawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
```

```java
findViewById(R.id.img_view_valid_video_source_decode)).setImageResource(R
.drawable.ic_error_white_48dp);
        }

        if (controller.controlDestFilePath(_decodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_video_destination_decode)).setImageResou
rce(R.drawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
findViewById(R.id.img_view_valid_video_destination_decode)).setImageResou
rce(R.drawable.ic_error_white_48dp);
        }


        if (controller.controlCryptographyKey(_decodeParameters)) {
            ((ImageView)
findViewById(R.id.img_view_valid_key_length_decode)).setImageResource(R.d
rawable.ic_check_circle_white_48dp);
        } else {
            ((ImageView)
findViewById(R.id.img_view_valid_key_length_decode)).setImageResource(R.d
rawable.ic_error_white_48dp);
        }
    }

    private void showFileChooser(int code) {
        Intent intent = new Intent(Intent.ACTION_PICK);

        if (code == CHOOSE_VIDEO_CONTAINER) {
            intent.setType("video/*");
        } else {
            intent.setType("*/*");
        }

        try {
            startActivityForResult(Intent.createChooser(intent,
getResources().getString(R.string.destination_string)), code);
        } catch (android.content.ActivityNotFoundException ex) {
            Toast.makeText(this,
getResources().getString(R.string.error_file_manager_string),
Toast.LENGTH_SHORT).show();
        }
    }

    @Override
    public void onActivityResult(int requestCode, int resultCode, Intent
data) {
        super.onActivityResult(requestCode, resultCode, data);

        switch (requestCode) {
            case CHOOSE_VIDEO_CONTAINER:
                callbackFileChooserVideoContainer(requestCode, resultCode,
data);
                break;
            case SETTINGS_ACCESS:
                updateLinearLayoutCryptographyVisibility();
                updateImageViews();
                break;
            default:
                ErrorManager.getInstance().addErrorMessage("[Decode Activity]
Activity result not known");
                ErrorManager.getInstance().displayErrorMessages(this);
                break;
        }
```

```java
        }

    private void callbackFileChooserVideoContainer(int requestCode, int
resultCode, Intent data) {
        Uri selectedVideoLocation;

        if (resultCode == Activity.RESULT_OK) {
            selectedVideoLocation = data.getData();
            _decodeParameters.setVideoPath(Utils.getRealPathFromUri(this,
selectedVideoLocation));
            if (_decodeParameters.getDestinationVideoDirectory() == null ||
_decodeParameters.getDestinationVideoDirectory().isEmpty()) {

_decodeParameters.setDestinationVideoDirectory(Utils.getBasenameFromPath(
_decodeParameters.getVideoPath()));

_sourcePath.setText(_decodeParameters.getDestinationVideoDirectory());
            }
            updateImageViews();
        }
    }

    private void showDirectoryChooser() {
        DirectoryDialog dialog = new DirectoryDialog(this);
        dialog.setChoosenDirectoryListener(onChoosenDirectoryListener);
        dialog.show();
    }

    private void process() {
        _progressDialog = ProgressDialog.show(this, "Loading", "Ekstraksi
teks watermark...");

        new Thread(new Runnable() {
            public void run() {
                Message res = processHandler.obtainMessage(PROCESS_OK);

                DecodeParametersController controller;

_decodeParameters.setCompressLZW(_radioCompressedTextLZW.isChecked());

_decodeParameters.setCompressDeflate(_radioCompressedTextDeflate.isChecke
d());

_decodeParameters.setUseAudioChannel(Preferences.getInstance().getUseAudi
oChannel());

_decodeParameters.setUseVideoChannel(Preferences.getInstance().getUseVide
oChannel());
                controller = new DecodeParametersController(false);
                if (controller.controlAllData(_decodeParameters)){
                    DecodeProcess process = new DecodeProcess();
                    if (!process.decode(_decodeParameters)) {
                        ErrorManager.getInstance().addErrorMessage("[Decode
Activity] Impossible to find something in this file");
                        res = processHandler.obtainMessage(ERROR_IN_PROCESS);
                    }
                } else {
                    res = processHandler.obtainMessage(ERROR_IN_PROCESS);
                }
                processHandler.sendMessage(res);
            }
        }).start();
    }

    private OnClickListener onClickListener = new OnClickListener() {
```

```java
        @Override
        public void onClick(View arg0) {
            switch (arg0.getId()) {
                case R.id.btn_back_decode:
                    finish();
                    break;
                case R.id.btn_settings_decode:
                    Intent intent = new Intent(getApplicationContext(),
SettingsActivity.class);
                    startActivityForResult(intent, SETTINGS_ACCESS);
                    break;
                case R.id.btn_select_video_source_decode:
                    showFileChooser(CHOOSE_VIDEO_CONTAINER);
                    break;
                case R.id.btn_select_file_destination_decode:
                    showDirectoryChooser();
                    break;
                case R.id.btn_decode:
                    if (_editTextKey != null) {
                        process();
                    } else {
                        Toast.makeText(getApplicationContext(), "Input nilai
d!", Toast.LENGTH_SHORT).show();
                    }
                    break;
                case R.id.btn_decrypt:
                    if (_editTextContentToShow.length() == 0) {
                        Toast.makeText(getApplicationContext(), "Pesan tidak
ada!", Toast.LENGTH_SHORT).show();
                    } else if (_editTextP.length() == 0) {
                        Toast.makeText(getApplicationContext(), "Input nilai
p!", Toast.LENGTH_SHORT).show();
                    } else if (_editTextQ.length() == 0) {
                        Toast.makeText(getApplicationContext(), "Input nilai
q!", Toast.LENGTH_SHORT).show();
                    } else if (_editTextKey.length() == 0) {
                        Toast.makeText(getApplicationContext(), "Input nilai
d!", Toast.LENGTH_SHORT).show();
                    } else {
                        BigInteger p = new
BigInteger(_editTextP.getText().toString());
                        BigInteger q = new
BigInteger(_editTextQ.getText().toString());
                        BigInteger d = new
BigInteger(_editTextKey.getText().toString());

                        // Membuat objek RSA dengan nilai p, q
                        DRSA drsa = new DRSA(p, q, d);

                        String ciphertext =
_editTextContentToShow.getText().toString();
                        // Dekripsi teks
                        StringBuilder decryptedText = new StringBuilder();
                        String[] encryptedValues =
_editTextContentToShow.getText().toString().split(" ");
                        for (String value : encryptedValues) {
                            BigInteger encryptedCharValue = new
BigInteger(value);
                            BigInteger decryptedCharValue =
drsa.decrypt(encryptedCharValue);
                            decryptedText.append((char)
decryptedCharValue.intValue());
                        }
                        System.out.println("Teks asli setelah dekripsi: " +
```

```java
                                      decryptedText.toString());


_editTextContentToShow.setText(decryptedText.toString());
                }
                break;
            default:
                ErrorManager.getInstance().addErrorMessage("[Decode
Activity] Click event not known");

ErrorManager.getInstance().displayErrorMessages(arg0.getContext());
                break;
            }
        }
    };

    private ChoosenDirectoryListener onChoosenDirectoryListener = new
ChoosenDirectoryListener() {

        @Override
        public void onChoosenDir(String directory) {
            _decodeParameters.setDestinationVideoDirectory(directory);
            updateImageViews();
        }
    };

    private OnCheckedChangeListener onCheckedChangeListener = new
OnCheckedChangeListener() {

        @Override
        public void onCheckedChanged(CompoundButton arg0, boolean arg1) {
            if (arg0.getId() == R.id.chk_box_display_content && arg1) {
                _cardViewSaveInoFileExt.setVisibility(View.GONE);
                _cardViewSaveIntoFileDest.setVisibility(View.GONE);
                _checkBoxSaveIntoFile.setChecked(false);
                _card_layout_decompression.setVisibility(View.VISIBLE);
                _decodeParameters.setDisplay(true);
            } else if (arg0.getId() == R.id.chk_box_display_content) {
                _cardViewSaveInoFileExt.setVisibility(View.VISIBLE);
                _cardViewSaveIntoFileDest.setVisibility(View.VISIBLE);
                _card_layout_decompression.setVisibility(View.GONE);
                _checkBoxSaveIntoFile.setChecked(true);
                _decodeParameters.setDisplay(false);
            } else if (arg0.getId() == R.id.chk_box_save_into_file && arg1)
{
                _cardViewSaveInoFileExt.setVisibility(View.VISIBLE);
                _cardViewSaveIntoFileDest.setVisibility(View.VISIBLE);
                _card_layout_decompression.setVisibility(View.GONE);
                _checkBoxDisplayContent.setChecked(false);
                _decodeParameters.setDisplay(false);
            } else {
                _cardViewSaveInoFileExt.setVisibility(View.GONE);
                _cardViewSaveIntoFileDest.setVisibility(View.GONE);
                _card_layout_decompression.setVisibility(View.VISIBLE);
                _checkBoxDisplayContent.setChecked(true);
                _decodeParameters.setDisplay(true);
            }
            updateImageViews();
        }
    };

    private TextWatcher onTextChangedListenerCryptographyKey = new
TextWatcher() {

        @Override
```

```java
        public void onTextChanged(CharSequence s, int start, int before,
int count) {
        }

        @Override
        public void beforeTextChanged(CharSequence s, int start, int count,
int after) {
        }

        @Override
        public void afterTextChanged(Editable s) {
            _decodeParameters.setCryptographyKey(s.toString());
            updateImageViews();
        }
    };

    private TextWatcher onTextChangedListenerFileExtension = new
TextWatcher() {

        @Override
        public void onTextChanged(CharSequence s, int start, int before,
int count) {
        }

        @Override
        public void beforeTextChanged(CharSequence s, int start, int count,
int after) {
        }

        @Override
        public void afterTextChanged(Editable s) {
            updateImageViews();
        }
    };
}
```

4. AboutActivity.Java

```java
import android.app.Activity;
import android.os.Bundle;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.ImageButton;

import com.shania.watermark.R;
import com.shania.watermark.error.ErrorManager;

public class AboutActivity extends Activity {

    private ImageButton _btnBack;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_about);

        _btnBack = (ImageButton) findViewById(R.id.btn_back_about);
        _btnBack.setOnClickListener(onClickListener);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.about, menu);
        return true;
    }
```

```java
    private OnClickListener onClickListener = new OnClickListener() {

        @Override
        public void onClick(View arg0) {
            switch (arg0.getId()) {
              case R.id.btn_back_about:
                  finish();
                  break;
              default:
                  ErrorManager.getInstance().addErrorMessage("[About
Activity] Click event not known");

ErrorManager.getInstance().displayErrorMessages(arg0.getContext());
                  break;
            }
        }
    };

}
```

5. RSA.Java

```java
import java.math.BigInteger;
import java.security.SecureRandom;
import java.util.Scanner;

public class RSA {

    private BigInteger p, q, n, totient, e, d;

    public RSA(BigInteger p, BigInteger q) {
        this.p = p;
        this.q = q;
        n = p.multiply(q);
        totient =
p.subtract(BigInteger.ONE).multiply(q.subtract(BigInteger.ONE));
        e = BigInteger.probablePrime((p.bitLength() + q.bitLength()) / 2,
new SecureRandom());

        while (totient.gcd(e).compareTo(BigInteger.ONE) > 0 &&
e.compareTo(totient) < 0) {
            e = e.add(BigInteger.ONE);
        }

        d = e.modInverse(totient);
    }

    public BigInteger getE() {
        return e;
    }

    public BigInteger getD() {
        return d;
    }

    public BigInteger getN() {
        return n;
    }

    public BigInteger encrypt(BigInteger message) {
        return message.modPow(e, n);
    }

    public BigInteger decrypt(BigInteger encrypted) {
        return encrypted.modPow(d, n);
```

```java
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Input nilai p dan q secara manual
        System.out.println("Masukkan nilai p:");
        BigInteger p = new BigInteger(scanner.nextLine());
        System.out.println("Masukkan nilai q:");
        BigInteger q = new BigInteger(scanner.nextLine());

        RSA rsa = new RSA(p, q);

        // Input teks yang akan dienkripsi
        System.out.println("Masukkan teks yang akan dienkripsi:");
        String text = scanner.nextLine();

        // Enkripsi setiap karakter
        StringBuilder encryptedText = new StringBuilder();
        for (char character : text.toCharArray()) {
            BigInteger charValue = BigInteger.valueOf((int) character);
            BigInteger encryptedCharValue = rsa.encrypt(charValue);
            encryptedText.append(encryptedCharValue.toString()).append("
");
        }
        System.out.println("Teks terenkripsi dalam bentuk desimal: " +
encryptedText.toString());

        // Dekripsi teks
        StringBuilder decryptedText = new StringBuilder();
        String[] encryptedValues = encryptedText.toString().split(" ");
        for (String value : encryptedValues) {
            BigInteger encryptedCharValue = new BigInteger(value);
            BigInteger decryptedCharValue =
rsa.decrypt(encryptedCharValue);
            decryptedText.append((char) decryptedCharValue.intValue());
        }
        System.out.println("Teks asli setelah dekripsi: " +
decryptedText.toString());
    }
}
```

6. activity_main.xml

```xml
<android.support.constraint.ConstraintLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/main_layout"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center_vertical|center_horizontal|center"
        android:orientation="vertical"
        android:background="@color/light_blue_500">

        <TextView
            android:id="@+id/textView"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:fontFamily="@font/lemon"
            android:gravity="center_vertical|center_horizontal"
            android:layout_margin="8dp"
```

```xml
            android:textSize="16dp"
            android:text="Analisis Penyematan Pesan ke Dalam Video
Menggunakan Algoritma RSA Dan LSB2bit"
            android:textColor="@color/white"/>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:layout_gravity="center"
            android:gravity="center"
            android:layout_marginLeft="32dp"
            android:layout_marginRight="32dp"
            android:layout_marginBottom="32dp"
            android:layout_alignParentBottom="true">

            <Button
                android:layout_margin="8dp"
                android:padding="8dp"
                android:id="@+id/btn_main_choose_encode"
                android:layout_width="match_parent"
                android:layout_height="60dp"
                android:background="@color/white"
                android:text="PENGAMANAN"
                android:textColor="@color/black"
                android:fontFamily="@font/lemon"
                android:textSize="16sp" />

            <Button
                android:layout_margin="8dp"
                android:padding="8dp"
                android:id="@+id/btn_main_choose_decode"
                android:layout_width="match_parent"
                android:layout_height="60dp"
                android:background="@color/white"
                android:text="PENGEMBALIAN"
                android:textSize="16sp"
                android:textColor="@color/black"
                android:fontFamily="@font/lemon"/>

            <Button
                android:id="@+id/btn_main_send_video"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_margin="8dp"
                android:background="@color/grey_800"
                android:padding="8dp"
                android:text="@string/main_send_video"
                android:textSize="22sp"
                android:visibility="gone" />

            <Button
                android:id="@+id/btn_main_choose_settings"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_margin="8dp"
                android:background="@drawable/button_bg"
                android:padding="8dp"
                android:text="@string/settings_string"
                android:textSize="22sp"
                android:visibility="gone"/>

            <Button
                android:id="@+id/btn_main_choose_about"
                android:layout_width="match_parent"
```

```xml
            android:layout_height="60dp"
            android:layout_margin="8dp"
            android:background="@color/white"
            android:padding="8dp"
            android:text="PANDUAN"
            android:textSize="16sp"
            android:textColor="@color/black"
            android:fontFamily="@font/lemon"/>
        </LinearLayout>
    </RelativeLayout>
</android.support.constraint.ConstraintLayout>
```

7. activity_encode.xml

```xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:id="@+id/linearLayoutEncode"
    tools:context="activities.EncodeActivity"
    android:background="@color/light_blue_500">

    <!-- Title bar -->

    <RelativeLayout
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:background="@color/blue_500"
        android:minHeight="56dip">

        <ImageButton
            android:id="@+id/btn_back_encode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentLeft="true"
            android:layout_centerInParent="true"
            android:layout_marginLeft="7dp"
            android:background="@android:color/transparent"
            android:contentDescription="@string/back_string"
            android:minHeight="45dip"
            android:minWidth="25dip"
            android:src="@drawable/ic_ab_back_holo_dark_am" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:layout_toRightOf="@id/btn_back_encode"
            android:paddingBottom="10dp"
            android:paddingLeft="5dp"
            android:paddingTop="10dp"
            android:text="@string/encode_video_string"
            android:textColor="@color/white"
            android:textSize="16sp" />

        <ImageButton
            android:id="@+id/btn_camera"
            android:adjustViewBounds="true"
            android:cropToPadding="false"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:scaleType="fitXY"
            android:maxHeight="30dp"
            android:maxWidth="30dp"
```

```xml
            android:layout_centerInParent="true"
            android:layout_marginRight="8dip"
            android:layout_toLeftOf="@+id/btn_settings_encode"
            android:background="@android:color/transparent"
            android:contentDescription="@string/back_string"
            android:src="@drawable/ic_videocam_white_48dp"
            android:visibility="gone"/>

        <ImageButton
            android:id="@+id/btn_settings_encode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:scaleType="fitXY"
            android:maxHeight="30dp"
            android:maxWidth="30dp"
            android:adjustViewBounds="true"
            android:layout_alignParentRight="true"
            android:layout_centerInParent="true"
            android:layout_marginRight="8dip"
            android:background="@android:color/transparent"
            android:contentDescription="@string/record_video_string"
            android:src="@drawable/ic_settings_white_48dp"
            android:visibility="gone"/>
    </RelativeLayout>

    <ScrollView
xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="4dp">

            <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
                android:id="@+id/card_view"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:padding="8dp"
                card_view:cardBackgroundColor="@color/blue_500">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="match_parent"
                    android:orientation="vertical"
                    android:padding="4dp">

                    <RelativeLayout
                        android:layout_width="fill_parent"
                        android:layout_height="45dip">

                        <Button

android:id="@+id/btn_select_video_source_encode"
                            android:layout_width="fill_parent"
                            android:layout_height="wrap_content"
                            android:layout_alignParentLeft="true"
                            android:layout_centerVertical="true"

android:layout_toStartOf="@+id/img_view_valid_video_source_encode"
```

```xml
                        android:gravity="left|center_vertical"

android:text="@string/click_select_video_string"
                        android:textSize="18sp"
                        android:padding="8dp"
                        android:textColor="@color/black"
                        android:background="@color/white"/>

                    <ImageView

android:id="@+id/img_view_valid_video_source_encode"
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_alignParentRight="true"
                        android:layout_centerInParent="true"

android:contentDescription="@string/empty_string"
                        android:padding="4dp"
                        android:src="@drawable/ic_error_white_48dp"
                        android:visibility="gone"/>
                </RelativeLayout>

                <TextView
                    android:id="@+id/sourcePath"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:paddingLeft="10dp"
                    android:paddingRight="10dp"
                    android:text="Direktori file.."
                    android:textColor="@color/white"/>

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            android:visibility="gone"
            card_view:cardBackgroundColor="@color/blue_500">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical"
                android:padding="4dp">

                <RelativeLayout
                    android:layout_width="fill_parent"
                    android:layout_height="45dip">

                    <Button

android:id="@+id/btn_select_video_destination_encode"
                        android:layout_width="fill_parent"
                        android:layout_height="match_parent"
                        android:layout_alignParentTop="true"

android:layout_toStartOf="@+id/img_view_valid_video_destination_encode"
                        android:gravity="left|center_vertical"
```

```xml
                    android:text="@string/click_select_destination_string"
                                    android:textSize="18sp"
                                    android:padding="8dp"
                                    android:textColor="@color/black"
                                    android:background="@color/white"/>

                            <ImageView

                    android:id="@+id/img_view_valid_video_destination_encode"
                                    android:layout_width="wrap_content"
                                    android:layout_height="wrap_content"
                                    android:layout_alignParentRight="true"
                                    android:layout_centerInParent="true"

                    android:contentDescription="@string/empty_string"
                                    android:padding="4dp"
                                    android:src="@drawable/ic_error_white_48dp"
                                    android:visibility="gone"/>
                        </RelativeLayout>

                        <TextView
                            android:id="@+id/destinationPath"
                            android:layout_width="match_parent"
                            android:layout_height="wrap_content"
                            android:paddingLeft="10dp"
                            android:paddingRight="10dp"
                            android:text="Path lokasi.."
                            android:textColor="@color/white"/>
                    </LinearLayout>
                </android.support.v7.widget.CardView>

                <android.support.v7.widget.CardView
        xmlns:card_view="http://schemas.android.com/apk/res-auto"
                    android:id="@+id/card_view5"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_gravity="center"
                    android:layout_margin="8dp"
                    android:padding="8dp"
                    card_view:cardBackgroundColor="@color/blue_500">

                    <LinearLayout
                        android:layout_width="match_parent"
                        android:layout_height="match_parent"
                        android:orientation="vertical"
                        android:padding="4dp">

                        <TextView
                            style="?android:attr/listSeparatorTextViewStyle"
                            android:layout_width="match_parent"
                            android:layout_height="wrap_content"
                            android:paddingLeft="10dp"
                            android:text="INPUT PESAN"
                            android:textSize="20sp"
                            android:textColor="@color/white"/>

                        <RelativeLayout
                            android:layout_width="fill_parent"
                            android:layout_height="wrap_content"
                            android:visibility="gone">

                            <RadioButton
                                android:id="@+id/chk_box_file_to_hide"
                                android:layout_width="wrap_content"
                                android:layout_height="wrap_content"
```

```xml
                android:layout_alignParentLeft="true"
                android:layout_centerInParent="true"
                android:text="@string/file_hide_string" />

            <RadioButton
                android:id="@+id/chk_box_text_to_hide"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_alignParentRight="true"
                android:layout_centerInParent="true"
                android:layout_marginEnd="8dp"
                android:text="@string/text_hide_string"/>
        </RelativeLayout>

        <RelativeLayout

            android:id="@+id/relative_layout_content_hide_file"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content">

            <EditText
                android:id="@+id/edit_text_content_to_hide"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"

                android:layout_toLeftOf="@+id/img_view_valid_content_to_hide_encode"
                android:hint="Input Pesan.."
                android:inputType="textMultiLine"
                android:minLines="3"
                android:maxLines="10"
                android:gravity="top|left"
                android:visibility="visible"
                android:padding="8dp"
                android:textColor="@color/black"
                android:background="@color/white"/>

            <EditText
                android:id="@+id/edit_text_content_to_hide2"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"

                android:layout_toLeftOf="@+id/img_view_valid_content_to_hide_encode"
                android:hint="Input Pesan.."
                android:inputType="textMultiLine"
                android:minLines="3"
                android:maxLines="10"
                android:gravity="top|left"
                android:visibility="gone"
                android:padding="8dp"
                android:textColor="@color/black"
                android:background="@color/white"/>

            <Button
                android:id="@+id/btn_select_file_to_hide"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_alignParentStart="true"

            android:layout_below="@+id/edit_text_content_to_hide"
                android:gravity="left|center_vertical"

            android:text="@string/click_select_file_hide_string"
                android:textSize="18sp"
                android:visibility="gone" />
```

```xml
            <TextView
                android:id="@+id/filePath"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_alignParentStart="true"

android:layout_below="@+id/btn_select_file_to_hide"
                android:paddingLeft="10dp"
                android:paddingRight="10dp"
                android:text="File Path"
                android:visibility="gone" />

            <ImageView

android:id="@+id/img_view_valid_content_to_hide_encode"
                android:layout_width="wrap_content"
                android:layout_height="45dp"
                android:layout_alignParentEnd="true"
                android:layout_alignParentTop="true"

android:contentDescription="@string/empty_string"
                android:padding="4dp"
                android:src="@drawable/ic_error_white_48dp"
                android:visibility="gone"/>
        </RelativeLayout>

        <!-- Process button -->

    </LinearLayout>
</android.support.v7.widget.CardView>

<android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
        android:id="@+id/card_view6"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="8dp"
        android:padding="8dp"
        card_view:cardBackgroundColor="@color/blue_500">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="4dp">

        <TextView
            style="?android:attr/listSeparatorTextViewStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="NILAI P"
            android:textSize="20sp"
            android:textColor="@color/white"/>

        <EditText
            android:id="@+id/edit_text_p"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="p.."
            android:visibility="visible"
            android:padding="8dp"
            android:inputType="numberDecimal"
            android:textColor="@color/black"
            android:background="@color/white"/>
```

```xml
                </LinearLayout>
            </android.support.v7.widget.CardView>

            <android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
                android:id="@+id/card_view7"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:padding="8dp"
                card_view:cardBackgroundColor="@color/blue_500">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="match_parent"
                    android:orientation="vertical"
                    android:padding="4dp">

                    <TextView
                        style="?android:attr/listSeparatorTextViewStyle"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:text="NILAI Q"
                        android:textSize="20sp"
                        android:textColor="@color/white"/>

                    <EditText
                        android:id="@+id/edit_text_q"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:hint="q.."
                        android:visibility="visible"
                        android:padding="8dp"
                        android:inputType="numberDecimal"
                        android:textColor="@color/black"
                        android:background="@color/white"/>
                </LinearLayout>
            </android.support.v7.widget.CardView>

            <android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
                android:id="@+id/card_view9"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:padding="8dp"
                card_view:cardBackgroundColor="@color/blue_500">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="match_parent"
                    android:orientation="vertical"
                    android:padding="4dp">

                    <TextView
                        style="?android:attr/listSeparatorTextViewStyle"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:text="NILAI D"
                        android:textSize="20sp"
                        android:textColor="@color/white"/>

                    <EditText
```

```xml
                android:id="@+id/edit_text_d"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:hint="q.."
                android:visibility="visible"
                android:padding="8dp"
                android:inputType="numberDecimal"
                android:textColor="@color/black"
                android:background="@color/white"/>
        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        xmlns:card_view="http://schemas.android.com/apk/res-auto"
                android:id="@+id/card_layout_compression"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:padding="8dp"
                card_view:cardCornerRadius="8dp"
                android:visibility="gone">

        <LinearLayout
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="4dp">

            <TextView
                style="?android:attr/listSeparatorTextViewStyle"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="@string/text_compression"
                android:textSize="20sp" />

            <RadioGroup
        xmlns:android="http://schemas.android.com/apk/res/android"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:orientation="vertical">
            <RadioButton
                android:id="@+id/radio_no_compression"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="@string/none" />
            <RadioButton
                android:id="@+id/lzwCompressText"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="@string/lzw" />

            <RadioButton
                android:id="@+id/deflateCompressText"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="@string/deflate" />
            </RadioGroup>
        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        xmlns:card_view="http://schemas.android.com/apk/res-auto"
                android:id="@+id/card_layout_cryptography_key_encode"
                android:layout_width="match_parent"
```

```xml
                    android:layout_height="wrap_content"
                    android:layout_gravity="center"
                    android:layout_margin="8dp"
                    android:padding="8dp"
                    card_view:cardCornerRadius="8dp"
                    android:visibility="gone">

            <LinearLayout

android:id="@+id/linear_layout_cryptography_key_encode"
                    android:layout_width="fill_parent"
                    android:layout_height="wrap_content"
                    android:orientation="vertical"
                    android:padding="4dp">

                <TextView
                    style="?android:attr/listSeparatorTextViewStyle"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="@string/cryptography_string"
                    android:textSize="20sp" />

                <RelativeLayout
                    android:layout_width="fill_parent"
                    android:layout_height="45dip">

                    <EditText

android:id="@+id/edit_text_cryptography_key_encode"
                        android:layout_width="fill_parent"
                        android:layout_height="wrap_content"
                        android:layout_marginLeft="8dp"
                        android:layout_marginRight="8dp"

android:layout_toLeftOf="@+id/img_view_valid_key_length_encode"

android:background="@android:color/transparent"

android:hint="@string/enter_key_encrypt_string"
                        android:minHeight="45dip" />

                    <ImageView

android:id="@+id/img_view_valid_key_length_encode"
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_alignParentRight="true"
                        android:layout_centerInParent="true"

android:contentDescription="@string/empty_string"
                        android:padding="4dp"
                        android:src="@drawable/ic_error_white_48dp"
/>
                </RelativeLayout>
            </LinearLayout>
        </android.support.v7.widget.CardView>

        <Button
            android:id="@+id/btn_encrypt"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:background="@drawable/button_full"
            android:text="ENKRIPSI"
```

```xml
                android:textColor="@color/black"
                android:textSize="18sp"
                android:fontFamily="@font/lemon"/>

            <Button
                android:id="@+id/btn_decrypt"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:background="@drawable/button_full"
                android:text="DEKRIPSI"
                android:visibility="gone"
                android:textColor="@color/black"
                android:textSize="18sp"
                android:fontFamily="@font/lemon"/>

            <Button
                android:id="@+id/btn_encode"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_gravity="center"
                android:layout_margin="8dp"
                android:background="@drawable/button_full"
                android:text="SISIPKAN"
                android:textColor="@color/black"
                android:textSize="18sp"
                android:fontFamily="@font/lemon"/>
        </LinearLayout>
    </ScrollView>
</LinearLayout>
```

8. activity_decode.xml

```xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    tools:context="activities.DecodeActivity"
    android:background="@color/light_blue_500">
    <!-- Title bar -->
    <RelativeLayout
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:background="@color/blue_500"
        android:minHeight="56dp">

        <ImageButton
            android:id="@+id/btn_back_decode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:minHeight="45dip"
            android:minWidth="25dip"
            android:layout_marginLeft="7dp"
            android:layout_alignParentLeft="true"
            android:layout_centerInParent="true"
            android:contentDescription="@string/back_string"
            android:background="@android:color/transparent"
            android:src="@drawable/ic_ab_back_holo_dark_am" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:layout_toRightOf="@id/btn_back_decode"
```

```xml
                android:paddingBottom="10dp"
                android:paddingLeft="5dp"
                android:paddingTop="10dp"
                android:textColor="#FFFFFF"
                android:textSize="16sp"
                android:text="PENGEMBALIAN"/>

        <ImageButton
            android:id="@+id/btn_settings_decode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:scaleType="fitXY"
            android:maxHeight="30dp"
            android:maxWidth="30dp"
            android:adjustViewBounds="true"
            android:layout_alignParentRight="true"
            android:layout_centerInParent="true"
            android:layout_marginRight="8dip"
            android:background="@android:color/transparent"
            android:contentDescription="@string/record_video_string"
            android:src="@drawable/ic_settings_white_48dp"
            android:visibility="gone"/>
    </RelativeLayout>

    <ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content">

    <LinearLayout xmlns:card_view="http://schemas.android.com/apk/res-auto"
        xmlns:tools="http://schemas.android.com/tools"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="4dp">
        <android.support.v7.widget.CardView xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardBackgroundColor="@color/blue_500">

            <LinearLayout
                android:padding="4dp"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical">

                <RelativeLayout
                    android:layout_width="fill_parent"
                    android:layout_height="45dip">

                    <Button
                        android:id="@+id/btn_select_video_source_decode"
                        android:layout_width="fill_parent"
                        android:layout_height="wrap_content"
                        android:layout_alignParentLeft="true"
                        android:layout_centerVertical="true"

android:layout_toStartOf="@+id/img_view_valid_video_source_decode"
                        android:gravity="left|center_vertical"
                        android:text="@string/click_select_video_string"
```

```xml
                android:textSize="18sp"
                android:padding="8dp"
                android:textColor="@color/black"
                android:background="@color/white"/>

            <ImageView
                android:id="@+id/img_view_valid_video_source_decode"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_alignParentRight="true"
                android:layout_centerInParent="true"
                android:contentDescription="@string/empty_string"
                android:padding="4dp"
                android:src="@drawable/ic_error_white_48dp"
                android:visibility="gone"/>
        </RelativeLayout>

        <TextView
            android:id="@+id/sourcePath"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="Direktori file.."
            android:paddingLeft="10dp"
            android:paddingRight="10dp"
            android:textColor="@color/white"/>
    </LinearLayout>
</android.support.v7.widget.CardView>

<android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
        android:id="@+id/card_layout_cryptography_key_decode"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="8dp"
        android:padding="8dp"
        card_view:cardCornerRadius="8dp"
        android:visibility="gone">

    <LinearLayout
        android:padding="4dp"
        android:id="@+id/linear_layout_cryptography_key_decode"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical">

        <TextView
            style="?android:attr/listSeparatorTextViewStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="@string/cryptography_string"
            android:textSize="20sp" />

        <RelativeLayout
            android:layout_width="fill_parent"
            android:layout_height="45dip">

            <EditText
                android:id="@+id/edit_text_cryptography_key_decode"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_marginLeft="8dp"
                android:layout_marginRight="8dp"

android:layout_toLeftOf="@+id/img_view_valid_key_length_decode"
```

```xml
                    android:background="@android:color/transparent"
                    android:hint="@string/enter_key_decrypt_string"
                    android:minHeight="45dip" />

                <ImageView
                    android:id="@+id/img_view_valid_key_length_decode"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_alignParentRight="true"
                    android:layout_centerInParent="true"
                    android:padding="4dp"
                    android:contentDescription="@string/empty_string"
                    android:src="@drawable/ic_error_white_48dp" />
            </RelativeLayout>
        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
        android:id="@+id/card_view5"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_margin="8dp"
        android:padding="8dp"
        card_view:cardCornerRadius="8dp"
        android:visibility="gone">

        <LinearLayout
            android:padding="4dp"
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:orientation="vertical">

            <TextView
                android:id="@+id/textView3"
                style="?android:attr/listSeparatorTextViewStyle"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="Content"
                android:textSize="20sp" />

            <RelativeLayout
                android:layout_width="fill_parent"
                android:layout_height="wrap_content">

                <RadioButton
                    android:id="@+id/chk_box_display_content"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_alignParentLeft="true"
                    android:layout_centerInParent="true"
                    android:text="@string/content_string"/>

                <RadioButton
                    android:layout_alignParentRight="true"
                    android:layout_marginEnd="8dp"
                    android:id="@+id/chk_box_save_into_file"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_centerInParent="true"
                    android:text="@string/save_into_file_string"/>
            </RelativeLayout>
            <!-- Process button -->
        </LinearLayout>
```

```xml
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view_save_into_file_destination"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardCornerRadius="8dp"
            android:visibility="gone">

            <LinearLayout
                android:padding="4dp"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical">

                <TextView
                    style="?android:attr/listSeparatorTextViewStyle"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="@string/destination_string"
                    android:textSize="20sp" />

                <RelativeLayout
                    android:layout_width="fill_parent"
                    android:layout_height="45dip">

                    <Button
                        android:id="@+id/btn_select_file_destination_decode"
                        android:layout_width="fill_parent"
                        android:layout_height="wrap_content"
                        android:layout_alignParentLeft="true"
                        android:layout_centerVertical="true"

android:layout_toStartOf="@+id/img_view_valid_video_destination_decode"
                        android:gravity="left|center_vertical"
                        android:text="@string/click_select_destination_string"
                        android:textSize="18sp"/>

                    <ImageView

android:id="@+id/img_view_valid_video_destination_decode"
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_alignParentRight="true"
                        android:layout_centerInParent="true"
                        android:padding="4dp"
                        android:contentDescription="@string/empty_string"
                        android:src="@drawable/ic_error_white_48dp" />
                </RelativeLayout>
            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_layout_decompression"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardCornerRadius="8dp"
```

```xml
            android:visibility="gone">

        <LinearLayout
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical"
            android:padding="4dp">

            <TextView
                style="?android:attr/listSeparatorTextViewStyle"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:text="@string/text_decompression"
                android:textSize="20sp" />

            <RadioGroup
xmlns:android="http://schemas.android.com/apk/res/android"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:orientation="vertical">
                <RadioButton
                    android:id="@+id/radio_no_decompression"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="@string/none" />
                <RadioButton
                    android:id="@+id/lzwDecompressedText"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="@string/lzw" />

                <RadioButton
                    android:id="@+id/deflateDecompressedText"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="@string/deflate" />

            </RadioGroup>

        </LinearLayout>
    </android.support.v7.widget.CardView>

            <!-- Save the content found or display it -->
        <android.support.v7.widget.CardView
xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view_save_into_file_extension"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardCornerRadius="8dp"
            android:visibility="gone">

        <LinearLayout
            android:padding="4dp"
            android:id="@+id/linear_layout_cryptography_key_encode"
            android:layout_width="fill_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical">

            <TextView
                style="?android:attr/listSeparatorTextViewStyle"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
```

```xml
            android:text="@string/file_extension_string"
            android:textSize="20sp" />

        <RelativeLayout
            android:layout_width="fill_parent"
            android:layout_height="45dip">

            <EditText
                android:id="@+id/edit_text_file_extension"
                android:layout_width="fill_parent"
                android:layout_height="wrap_content"
                android:layout_marginLeft="8dp"
                android:layout_marginRight="8dp"

android:layout_toLeftOf="@+id/img_view_valid_key_length_encode"
                android:background="@android:color/transparent"
                android:hint="@string/enter_file_extension_string"
                android:minHeight="45dip" />
        </RelativeLayout>
    </LinearLayout>
</android.support.v7.widget.CardView>

<Button
    android:id="@+id/btn_decode"
    android:text="EKSTRAKSI"
    android:layout_margin="8dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:background="@drawable/button_full"
    android:textColor="@color/black"
    android:textSize="18sp"
    android:fontFamily="@font/lemon"/>

<android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    android:id="@+id/card_view7"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_margin="8dp"
    android:padding="8dp"
    card_view:cardBackgroundColor="@color/blue_500">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="4dp">

        <TextView
            style="?android:attr/listSeparatorTextViewStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="PESAN"
            android:textSize="20sp"
            android:textColor="@color/white"/>

        <EditText
            android:id="@+id/edit_text_content_to_show"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="Pesan.."
            android:visibility="visible"
            android:inputType="textMultiLine"
```

```xml
                    android:minLines="3"
                    android:maxLines="10"
                    android:gravity="top|left"
                    android:padding="8dp"
                    android:textColor="@color/black"
                    android:background="@color/white"/>
            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view8"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardBackgroundColor="@color/blue_500">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical"
                android:padding="4dp">

                <TextView
                    style="?android:attr/listSeparatorTextViewStyle"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:text="NILAI P"
                    android:textSize="20sp"
                    android:textColor="@color/white"/>

                <EditText
                    android:id="@+id/edit_text_p"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:hint="p.."
                    android:visibility="visible"
                    android:padding="8dp"
                    android:inputType="numberDecimal"
                    android:textColor="@color/black"
                    android:background="@color/white"/>
            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
            android:id="@+id/card_view9"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="8dp"
            android:padding="8dp"
            card_view:cardBackgroundColor="@color/blue_500">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical"
                android:padding="4dp">

                <TextView
                    style="?android:attr/listSeparatorTextViewStyle"
                    android:layout_width="match_parent"
```

```xml
            android:layout_height="wrap_content"
            android:text="NILAI Q"
            android:textSize="20sp"
            android:textColor="@color/white"/>

        <EditText
            android:id="@+id/edit_text_q"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="q.."
            android:visibility="visible"
            android:padding="8dp"
            android:inputType="numberDecimal"
            android:textColor="@color/black"
            android:background="@color/white"/>
    </LinearLayout>
</android.support.v7.widget.CardView>

<android.support.v7.widget.CardView
    xmlns:card_view="http://schemas.android.com/apk/res-auto"
    android:id="@+id/card_view6"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:layout_margin="8dp"
    android:padding="8dp"
    card_view:cardBackgroundColor="@color/blue_500">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:padding="4dp">

        <TextView
            style="?android:attr/listSeparatorTextViewStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:text="NILAI D"
            android:textSize="20sp"
            android:textColor="@color/white"/>

        <EditText
            android:id="@+id/edit_text_key"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:hint="d.."
            android:visibility="visible"
            android:padding="8dp"
            android:inputType="numberDecimal"
            android:gravity="top|left"
            android:textColor="@color/black"
            android:background="@color/white"/>
    </LinearLayout>
</android.support.v7.widget.CardView>

<Button
    android:id="@+id/btn_decrypt"
    android:text="DEKRIPSI"
    android:layout_margin="8dp"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:background="@drawable/button_full"
    android:textColor="@color/black"
```

```
                    android:textSize="18sp"
                    android:fontFamily="@font/lemon"/>
                </LinearLayout>
        </ScrollView>
    </LinearLayout>
```

9. activity_about.xml

```xml
<ScrollView android:layout_width="match_parent"
    android:layout_height="match_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical"
    tools:context="activities.SettingsActivity"
    android:background="@color/white">
        <!-- Title bar -->
    <RelativeLayout
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:background="@color/blue_500"
        android:minHeight="56dp">

        <ImageButton
            android:id="@+id/btn_back_about"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_alignParentLeft="true"
            android:layout_centerInParent="true"
            android:layout_marginLeft="7dp"
            android:background="@android:color/transparent"
            android:contentDescription="@string/back_string"
            android:minHeight="45dip"
            android:minWidth="25dip"
            android:src="@drawable/ic_ab_back_holo_dark_am" />

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:layout_toRightOf="@id/btn_back_about"
            android:paddingBottom="10dp"
            android:paddingLeft="5dp"
            android:paddingTop="10dp"
            android:text="PANDUAN"
            android:textColor="#FFFFFF"
            android:textSize="16sp" />
    </RelativeLayout>

    <RelativeLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="vertical">

            <TextView
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:gravity="center"
                android:text="@string/description_about_string"
                android:textColor="@android:color/black"
```

```xml
            android:textSize="16dp"
            android:fontFamily="@font/labsans"
            android:layout_margin="16dp"/>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:gravity="center"
            android:text="Panduan Penggunaan Aplikasi"
            android:textColor="@android:color/black"
            android:textSize="16dp"
            android:fontFamily="@font/labsans"/>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:gravity="left"
            android:padding="16dp"
            android:text="@string/pengamanan"
            android:textColor="@android:color/black"
            android:textSize="16dp"
            android:fontFamily="@font/labsans"
            android:layout_margin="10dp"/>

        <TextView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:gravity="left"
            android:padding="16dp"
            android:text="@string/pengembalian"
            android:textColor="@android:color/black"
            android:textSize="16dp"
            android:fontFamily="@font/labsans"
            android:layout_margin="10dp"/>
    </LinearLayout>
  </RelativeLayout>
  <!-- Content -->
</LinearLayout>
</ScrollView>
```

LAMPIRAN

Uji Coba Tingkat Keberhasilan

1. Pengujian Pertama

File Video   : 20240715_171051.mp4

Ukuran   : 1,27MB

Pesan   : Universitas

Hasil Enkripsi   : 1255 560 1575 472 821 984 655 1575 1166 13 655

Nilai P   : 59

Nilai Q   : 30

Nilai D   : 1505

Ukuran File Hasil : 1,27MB

Hasil Dekripsi   : Universitas

Hasil pengujian tersebut dapat dilihat pada gambar sebagai berikut :

2. Pengujian Kedua

File Video : 20240715_171058.mp4

Ukuran : 1,86MB

Pesan : Islam

Hasil Enkripsi : 47 3365 2322 3653 2179

Nilai P : 70

Nilai Q : 59

Nilai D : 1703

Ukuran File Hasil : 1,86MB

Hasil Dekripsi : Islam

PILIH FILE VIDEO

/storage/emulated/0/DCIM/Camera/
20240715_171058.mp4

INPUT PESAN

47 3365 2322 3653 2179

NILAI P

70

NILAI Q

59

NILAI D

1703

ENKRIPSI

SISIPKAN

PILIH FILE VIDEO

/storage/emulated/0/DCIM/Camera/

EKSTRAKSI

PESAN

Islam

NILAI P

70

NILAI Q

59

NILAI D

1703

DEKRIPSI

DAFTAR RIWAYAT HIDUP PENULIS

I. Data Pribadi

Nama	: Ibnu Faiz Abdillah
Tempat Tanggal Lahir	: Medan, 6 Juli 2001
Jenis Kelamin	: Laki-Laki
Kewarganegaraan	: Indonesia
Agama	: Islam
Status Perkawinan	: Belum Kawin
Alamat	: Jl. Budi Luhur Gg. Sepakat 73A LK XI No. 73A
Telepon	: 0895-1303-8564
Alamat Email	: ibnufaiz.abdillah1@gmail.com

II. Data Pendidikan Formal

1. 2007-2013   : SD IKAL MEDAN
2. 2013-2016   : SMP Negeri 7 Medan
3. 2016-2019   : SMK Negeri 9 Medan
4. 2019-2024   : Universitas Islam Negeri Sumatera Utara

III. Data Orang Tua

Nama Ayah	: Satriyadi
Nama Ibu	: Sri Suharti