Tugas ke : 1

Mata Kuliah : Keamanan Komputer/Kriptografi

Kriptografi Klasik



Disusun Oleh:

NAMA : Sheila Dwi Yulianti Saputri

STB : 222238

KELAS : 5TKKO-G

UNIVERSITAS DIPA MAKASSAR MAKASSAR 2024

No.	Spesifikasi	Berhasil (√)	Kurang Berhasil (X)	keterangan
1.	Vigenere Cipher	✓		Plaintext: hello world, Key: malam, Encrypt:
	(Standar)			TEWLAIOCLP, Decrypt: HELLOWORLD
2.	Extended Vigenere	✓		Plaintext: sheila, Key: valo,
	Cipher			Encrypt: nhpwga, Decrypt: sheila
3.	Playfair Cipher	✓		Plaintext: undipa, Key: hii,
				Encrypt: SPIOLE, Decrypt: UNDIPA
4.	Enigma Cipher	✓		Plaintext: semester, Key: gelo,
				Encrypt: GQGKVIKI, Decrypt: SEMESTER
5.	One-Time Pad	✓		Plaintext: lima!!!, Key: file kunci,
				Encrypt: JQIN, Decrypt: LIMA

Source Kode

```
private void btnEnkripsiActionPerformed(]ava.awt.event.ActionEvent evt) {
   String selectedCipher = (String) cbCipher.getSelectedItem();
            String key = tfKunci.getText();
            String output = "";
if (!taInput.getText().isEmpty()) {
            string inputText = taInput.getText();
switch (selectedCipher) {
   case "Vigenere Chiper standard":
      VigenereCipher vigenere = new VigenereCipher();
                         output = vigenere.encrypt(inputText, key);
                  break;
case "Extended Vigenere Chiper":
ExtendedVigenereCipher extendedVigenere = new ExtendedVigenereCipher();
                         output = extendedVigenere.encrypt(inputText, key);
                         break;
                   case "Playfair Cipher":
                         PlayfairCipher playfair = new PlayfairCipher();
                         output = playfair.encrypt(inputText, key);
                         break;
                         EniqmaCipher eniqma = new EniqmaCipher("mysecretkey");
                         output = enigma.encrypt(inputText);
                         break;
                   case "One time Pad":
                         fileChooser.setpialogTitle("Pilih File Kunci On int result = fileChooser.showOpenDialog(this); if (result == JFileChooser.APPROVE_OPTION) {
                                                                                                       One-Time Pad");
                                     File keyFile = fileChooser.getSelectedFile();
OneTimePad oneTimePad = new OneTimePad(keyFile.getAbsolutePath());
                                     if (!taInput.getText().isEmpty()) {
   output = oneTimePad.encrypt(taInput.getText());
                                     tanu.
} else {
// Proses file
                                            taHasilA.setText(output);
                                            JFileChooser fileChooserInput = new JFileChooser();
int inputResult = fileChooserInput.showOpenDialog(this);
if (inputResult == JFileChooser.APPROVE_OPTION) {
                                                  Alignment == OrlecthooserInput.getSelectedFile();
byte[] fileBytes = Files.readAllBytes(selectedFile.toPath());
String fileContent = new String(fileBytes);
String encryptedContent = oneTimePad.encrypt(fileContent);
                                                  JFileChooser saveChooser = new JFileChooser();
saveChooser.setSelectedFile(new File("encrypted_" + selectedFile.getName()));
                                                  result = saveChooser.showSaveDialog(this);
                                                  if (result == JFileChooser.APPROVE_OPTION) {
    File saveFile = saveChooser.getSelectedFile();
                                                        Files.write(saveFile.toPath(), encryptedContent.getBytes());
JOptionPane.showMessageDialog(this, "File encrypted and saved
                         } catch (IOException e) {

JOptionPane.showMessageDialog(this, "Error: " + e.getMessage(), "Error", JOptionPane.ERROR_MESSAGE);
```

```
| break;
| default: | output = "Cipher not selected.";
| break;
| break;
| }
| brindownload.setEnabled(true);
| String hasila = output.replaceAll("\s+", "");
| for (int i = 0: i < output.length(); i++) {
| if (i > s = 0 & 4i != 0) {
| hasilb = output.charAt(i);
| }
| taHasila.setText(hasilA);
| tattended.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(hasila.setText(h
```

```
ewitch (sclected;pher) {
    case "Vigenerec Chipper standard":
    Vigenerec Chiper standard":
    Vigenerec Chiper vigenere = new Vigenerec Chiper ();
    decryptedBytes = vigenere.decrypt (new String (fileBytes), key).getBytes();
    break;
    case "ExtendedVigenere Chiper";
    ExtendedVigenerec Chiper";
    ExtendedVigenerec Chiper standardVigenere = new ExtendedVigenerec Chiper ();
    decryptedBytes = extendedVigenere.decrypt (new String (fileBytes), key).getBytes();
    break;
    case "ExtendedSytes = playfair decrypt (new String (fileBytes), key).getBytes();
    break;
    case "Entona Clipher";
    Enignaclipher enigna = new Enignaclipher("mysecretkey");
    decryptedBytes = new Index ("mysecretkey");
    decryptedBytes = new Index ("mysecretkey");
    decryptedBytes = new Index ("decrypt (new String (fileBytes)).getBytes();
    } case "One time Bad";
    try (
        OneTimePad oneTimePad .decrypt(new String (fileBytes)).getBytes();
    } case ("DecryptedBytes = newTimePad .decrypt(new String (fileBytes)).getBytes();
    }
    break;
    default:
        decryptedBytes = "Cipher not selected.".getBytes();
        break;
}

btnDownload.setEnabled(false);

try (FileOutputStream fos = new FileOutputStream("decrypted_" + selectedFile.getName())) (
        for.write(decryptedBytes);
}
} catch (IOException e) (
        Bystem.err.println("Error reading or writing file: " + e.getWessage());
}
```

```
private wold bencharipsilationParformed(java.ast_event.ActionStwent.evt) {
    String selected(jbes = (String) choicher.getSelectedIten();
    String output = ";

if (ttainput.getText().isEmpty()) {
    String inputText = tainput.getText();
    switch (selected(jbes) {
        Case "Vigonere (bept standard";
        Vigonere(bept vigonere = see Vigonered(jber();
        output = extended(vigonere = see Vigonered(jber();
        output = string(d) vigonere = see Vigonered(jber();
        output = string(d) vigonere (serpt (inputText, key);
        break;

        case "Alydist ciples";

        Playfairis[ples";

        Playfairis[ples]

        Playfairis[ples]

        playfairis[ples]

        playfairis[ples]

        playfairis[ples]

        playfairis[ples]

        pless()
        pless()
```

```
private void btnUploadActionPerformed(java.awt.event.ActionEvent evt) {
    JFileChooser fileChooser = new JFileChooser();
    fileChooser.setDialogTitle("Select a file to upload");
    fileChooser.setFileSelectionNode(JFileChooser.FILES_ONLT);

int returnValue = fileChooser.showOpenDialog(null);
    if (returnValue = FileChooser.APPROVE_OPTION) {
        File selectdefile = fileChooser.setSelectdefile();
        System.out.println("Selected file: " + selectdefile.getAbsoluteFath());

        try (FileInputStream fis = new FileInputStream(selectedFile)) {
            byte[] fileBytes = new byte[(int) selectedFile.length()];
            fis.read(fileBytes);

            String fileContent = new String(fileBytes);

            taInput.setText(fileContent);
        } catch (IOException e) {
                System.err.println("Error reading file: " + e.getMessage());
        }
        }

    private void btnHapusActionPerformed(java.awt.event.ActionEvent evt) {
        taInput.setText("");
        taRasilA.setText("");
        taRasilB.setText("");
        talRasilB.setText("");
        talRasilB.s
```

```
package tugas1kripto;
public class VigenereCipher {
      public String encrypt(String text, String keyword) {
       StringBuilder result = new StringBuilder();
       text = text.toUpperCase();
       keyword = keyword.toUpperCase();
      int keywordIndex = 0;
       for (int i = 0; i < text.length(); i++) {</pre>
             char c = text.charAt(i);
              if (Character.isLetter(c)) {
                    int shift = keyword.charAt(keywordIndex % keyword.length()) - 'A';
                    c = (char) ((c - 'A' + shift) % 26 + 'A');
                    kevwordIndex++;
                    result.append(c);
       return result.toString();
       public String decrypt(String text, String keyword) {
             StringBuilder result = new StringBuilder();
             text = text.toUpperCase();
             keyword = keyword.toUpperCase();
             int keywordIndex = 0;
              for (int i = 0; i < text.length(); i++) {
                    char c = text.charAt(i);
                    if (Character.isLetter(c)) {
                          int shift = keyword.charAt(keywordIndex % keyword.length()) - 'A';
                           c = (char) ((c - 'A' - shift + 26) % 26 + 'A');
                           keywordIndex++;
                           result.append(c);
             return result.toString();
package tugaslkripto;
    lic class OneTimePad (
private String keyFronFile;
    public OneTimePad(String keyFileFath) throws IOException {
       // Baca soluruh isi file kunci
this.keyFromFile = new String(Files.readAllBytes(Paths.get(keyFilePath)));
    public String encrypt(String plaintext) {
    StringBuilder ciphertext = new StringBuilder();
    for (int i = 0; i < plaintext.length(); i++) {
        char p = plaintext.charAt(i);
    if (character.istefter(p)) {</pre>
              // Menograndern milai ASCII
char k - NeyFrooMile.chark(i % NeyFrooMile.length());
char encryptedchar = (char) (((Gharacter.totpperCase(p) - 'A' + character.totpperCase(k) - 'A') % 26) + 'A'); // Untub
criphertext.apperGeneryptedchar);
        }
return ciphertext.toString();
   public String decrypt(String ciphertext) {
   StringBuilder plaintext = new StringBuilder();
   ciphertext = ciphertext.toUpperCase(); // Featilet
       (Character, Liketteratu):

(Mangunekan hilah ADUI)

char k = ksyrromrile.dsark(i % ksyrromrile.length());

char k = ksyrromrile.dsark(i % ksyrromrile.length());

char k = ksyrromrile.dsark(i % ksyrromrile.length());

char dcorppochdar = (char) (((c - 'A' - (character.totpportase(k) - 'A') + 26) % 26) + 'A'); // Untuk huruf becar

plaintext.append(decryptedChar);
        }
return plaintext.toString();
```

```
StringBuilder result = new StringBuilder();
              keyword = keyword.toUpperCase();
              int keywordIndex = 0;
              for (int i = 0; i < text.length(); i++) {</pre>
                     char c = text.charAt(i);
                    if (Character.isletter(c)) {
   int shift = keyword.charAt(keywordIndex % keyword.length()) - 'A';
                          if (Character.isUpperCase(c)) {
   c = (char) ((c - 'A' + shift) % 26 + 'A');
                          } else {
                               c = (char) ((c - 'a' + shift) % 26 + 'a');
                          keywordIndex++;
                    } else if (Character.isDigit(c)) {
                          int shift = keyword.charAt(keywordIndex % keyword.length()) - 'A';
c = (char) ((c - '0' + shift) % 10 + '0');
                          keywordIndex++;
                    result.append(c);
              return result.toString();
       public String decrypt(String text, String keyword) {
   StringBuilder result = new StringBuilder();
              keyword = keyword.toUpperCase();
              int keywordIndex = 0;
              for (int i = 0; i < text.length(); i++) {</pre>
                     char c = text.charAt(i);
                    if (Character.isLetter(c)) {
                          int shift = keyword.charAt(keywordIndex % keyword.length()) - 'A';
if (Character.isUpperCase(c)) {
    c = (char) ((c - 'A' - shift + 26) % 26 + 'A');
                        c = (char) ((c - 'a' - shift + 26) % 26 + 'a');
                           keywordIndex++;
                    } else if (Character.isDigit(c)) {
                         int shift = keyword.charat(keywordIndex % keyword.length()) - 'A';
c = (char) ((c - '0' - shift + 10) % 10 + '0');
                          keywordIndex++;
                    result.append(c);
              return result.toString();
package tugas1kripto;
public class PlayfairCipher {
     private char[][] table;
      public PlayfairCipher()
            table = new char[5][5];
String alphabet = "ABCDEFGHIKLMNOPQRSTUVWXYZ";
           String alphabet = ABSULUTION
int index = 0;
for (int i = 0; i < 5; i++) {
   for (int j = 0; j < 5; j++) {
      table[i][j] = alphabet.charAt(index++);
}</pre>
     public String encrypt (String text, String keyword) {
            text = text.toUpperCase().replace("J", "I");
keyword = keyword.toUpperCase().replace("J", "I");
StringBuilder result = new StringBuilder();
            for (int i = 0; i < text.length(); i++) {
    char c = text.charAt(i);</pre>
                 ind c = text.charac(1);
if (Character.isLetter(c)) {
   if (i + 1 < text.length()) {
      char c2 = text.charAt(i + 1);
}</pre>
                              if (Character.isLetter(c2)) {
                                   int[] pos1 = findPosition(c);
int[] pos2 = findPosition(c2);
                                   if (pos1[0] == pos2[0]) {
    result.append(table[pos1[0]][(pos1[1] + 1) % 5]);
    result.append(table[pos2[0]][(pos2[1] + 1) % 5]);
} else if (pos1[1] == pos2[1]) (
    result.append(table[(pos1[0] + 1) % 5][pos1[1]]);
    result.append(table[(pos2[0] + 1) % 5][pos2[1]]);
                                         result.append(table[pos1[0]][pos2[1]]);
                                         result.append(table[pos2[0]][pos1[1]]);
                              } else {
                                   int[] pos1 = findPosition(c);
result.append(table[pos1[0]][(pos1[1] + 1) % 5]);
                                   result.append('X');
                             int[] pos1 = findPosition(c);
                             result.append(table[pos1[0]][(pos1[1] + 1) % 5]);
result.append('X');
            return result.toString();
```

package tugas1kripto;

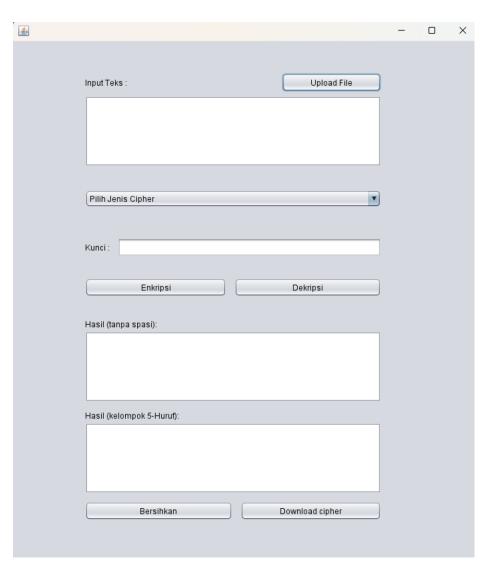
public class ExtendedVigenereCipher {

public String encrypt(String text, String keyword) {

```
public String decrypt(String text, String keyword) {
     text = text.toOpperCase().replace("J", "I");
keyword = keyword.toUpperCase().replace("J", "I");
     StringBuilder result = new StringBuilder();
     for (int i = 0; i < text.length(); i += 2) {</pre>
          char c1 = text.charAt(i);
char c2 = (i + 1 < text.length()) ? text.charAt(i + 1) : 'X';</pre>
          int[] pos1 = findPosition(c1);
int[] pos2 = findPosition(c2);
          if (pos1[0] == pos2[0]) {
               result.append(table[pos1[0]][(pos1[1] - 1 + 5) % 5]);
                result.append(table[pos2[0]][(pos2[1] - 1 + 5) % 5]);
          } else if (pos1[1] == pos2[1]) {
    result.append(table[(pos1[0] - 1 + 5) % 5][pos1[1]]);
                result.append(table[(pos2[0] - 1 + 5) % 5][pos2[1]]);
          } else {
               result.append(table[pos1[0]][pos2[1]]);
               result.append(table[pos2[0]][pos1[1]]);
     return result.toString();
private int[] findPosition(char c) {
     for (int i = 0; i < 5; i++) {
    for (int j = 0; j < 5; j++) {
        if (table[i][j] == c) {
                   return new int[] {i, j};
     return null;
```

```
private int rotorDecrypt(int position) {
    for (int i = 0; i < ROTOR_WIRING.length; i++) {
      if (ROTOR_WIRING[i] == position) {
            return i;
   return -1;
private int reflectorEncrypt(int position) {
   return REFLECTOR_WIRING[position];
// Method to encrypt byte array
public byte[] encrypt(byte[] fileBytes) {
   StringBuilder text = new StringBuilder();
    for (byte b : fileBytes) {
       text.append((char) (b & 0xFF));
   String encryptedText = encrypt(text.toString());
    {\tt return} encryptedText.getBytes();
// Method to decrypt byte array
public byte[] decrypt(byte[] fileBytes) {
   StringBuilder text = new StringBuilder();
for (byte b : fileBytes) {
       text.append((char) (b & 0xFF));
   String decryptedText = decrypt(text.toString());
   return decryptedText.getBytes();
```

Tampilan GUI



Vigenere Cipher Standard

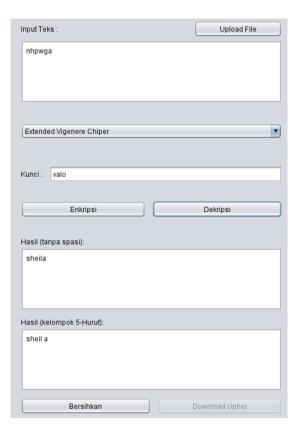
Input Teks: Upload File hello world Vigenere Chiper standard Vigenere Chiper standard Enkripsi Dekripsi Hasil (tanpa spasi): TEWLAIOCLP Bersihkan Download cipher



Extended Vigenere Cipher

Enkripsi Dekripsi

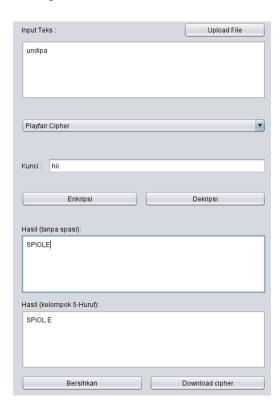




Playfair Cipher

Enkripsi

Dekripsi





Enigma Cipher

Enkripsi

Dekripsi

Input Teks :	Upload File					
semester						
Enigma Cipher	•					
Emgine Olphei						
Kunci: gelo						
Enkripsi	Dekripsi					
Hasil (tanpa spasi):						
oqokviki						
Hasil (kelompok 5-Huruf):						
GQGKV IKI						
Bersihkan	Download cipher					

Input Teks :	Upload File
GQGKVIKI	
Enigma Cipher	▼
Kunci: gelo	
Enkripsi	Dekripsi
Hasil (tanpa spasi):	
SEMESTER	
Hasil (kelompok 5-Huruf):	
SEMES TER	
Bersihkan	Download cipher

One-Time Pad

Pada one-time pad saya, tidak perlu untuk memasukkan kunci manual, jadi jika menekan enkripsi, maka langsung diarahkan untuk memasukkan file kunci ekstension (.txt)

Dekripsi

Download cipher

Input Teks Upload File Input Teks : Upload File JQIN lima!!!! One time Pad One time Pad Kunci: Kunci: Enkripsi Dekripsi Hasil (tanpa spasi): Hasil (tanpa spasi): LIMA JQIN Hasil (kelompok 5-Huruf): Hasil (kelompok 5-Huruf): LIMA JQIN

Bersihkan

Link github: repository tugas pertama

Download cipher

Bersihkan

Enkripsi