

Kriptografi – Tugas 2

Nama : Syahrul Ramadhan

NIM : 20220801407

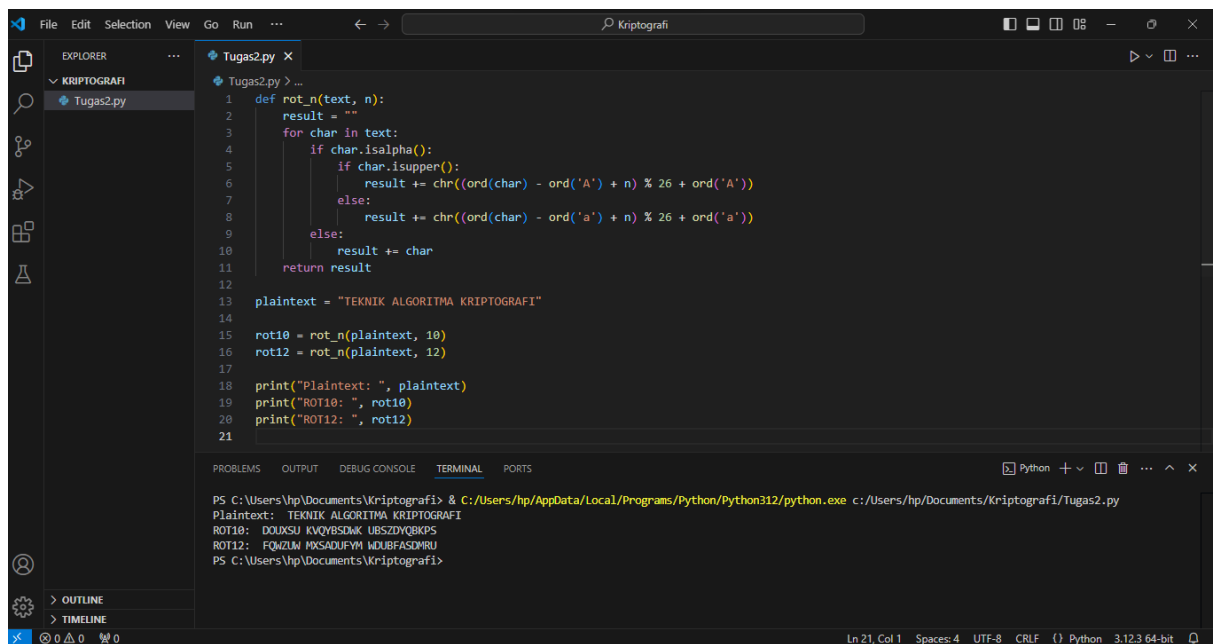
Prodi : Teknik Informatika

Buatlah kode program dengan Python untuk teknik kriptografi dengan:

1. Substitusi
2. Blocking
3. Permutasi

Jawab!

1) Substitusi



```
1 def rot_n(text, n):
2     result = ""
3     for char in text:
4         if char.isalpha():
5             if char.isupper():
6                 result += chr((ord(char) - ord('A') + n) % 26 + ord('A'))
7             else:
8                 result += chr((ord(char) - ord('a') + n) % 26 + ord('a'))
9         else:
10            result += char
11    return result
12
13 plaintext = "TEKNIK ALGORITMA KRIPTOGRAFI"
14
15 rot10 = rot_n(plaintext, 10)
16 rot12 = rot_n(plaintext, 12)
17
18 print("Plaintext: ", plaintext)
19 print("ROT10: ", rot10)
20 print("ROT12: ", rot12)
21
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\hp\Documents\Kriptografi> & C:/Users/hp/AppData/Local/Programs/Python/Python312/python.exe c:/Users/hp/Documents/Kriptografi/Tugas2.py
Plaintext:  TEKNIK ALGORITMA KRIPTOGRAFI
ROT10:  DOLXSU KVVQBSLHK UBSZDVCEKPS
ROT12:  FQNZLW MXSADUFYM WDLBFASDMRI
PS C:\Users\hp\Documents\Kriptografi>
```

Tabel ROT10 dan ROT12

Tabel untuk setiap ROT adalah pergeseran karakter huruf abjad sebanyak 10 atau 12 huruf ke depan.

ROT10:

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J |

ROT12:

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L |

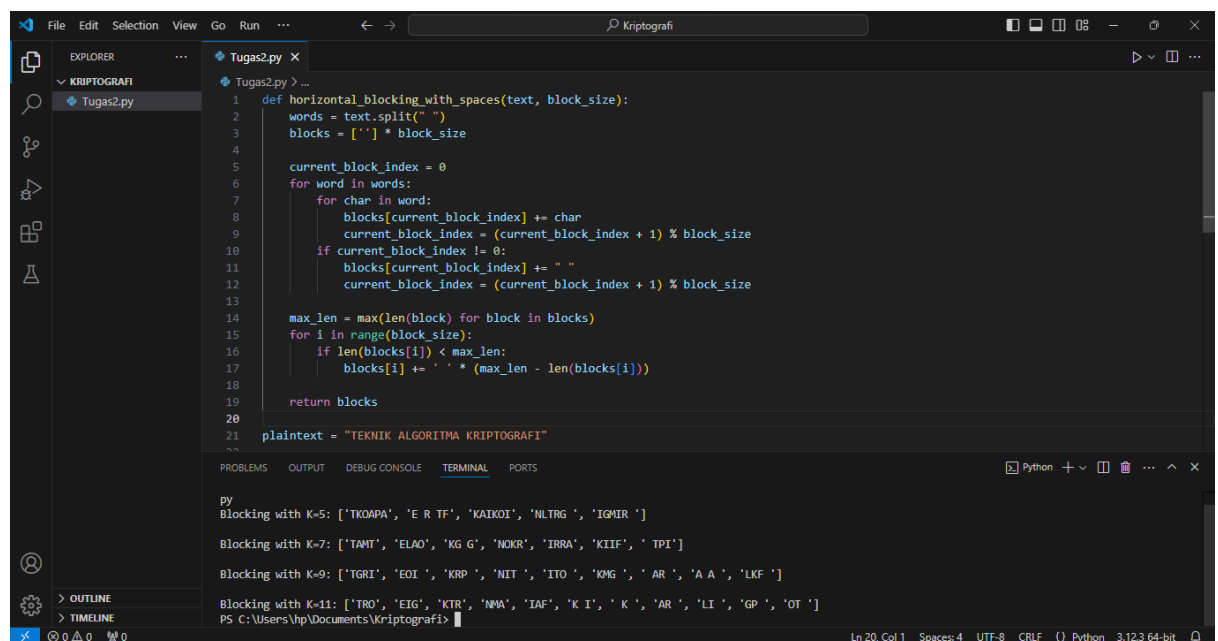
Hasil Chipertext ROT10 dan ROT12:

Plaintext: TEKNIK ALGORITMA KRIPTOGRAFI

ROT10: DOUXSU KVQYBSDWK UBSZDYQBKPS

ROT12: FQWZUW MXSADUFYM WDUBFASDMRU

2) Blocking



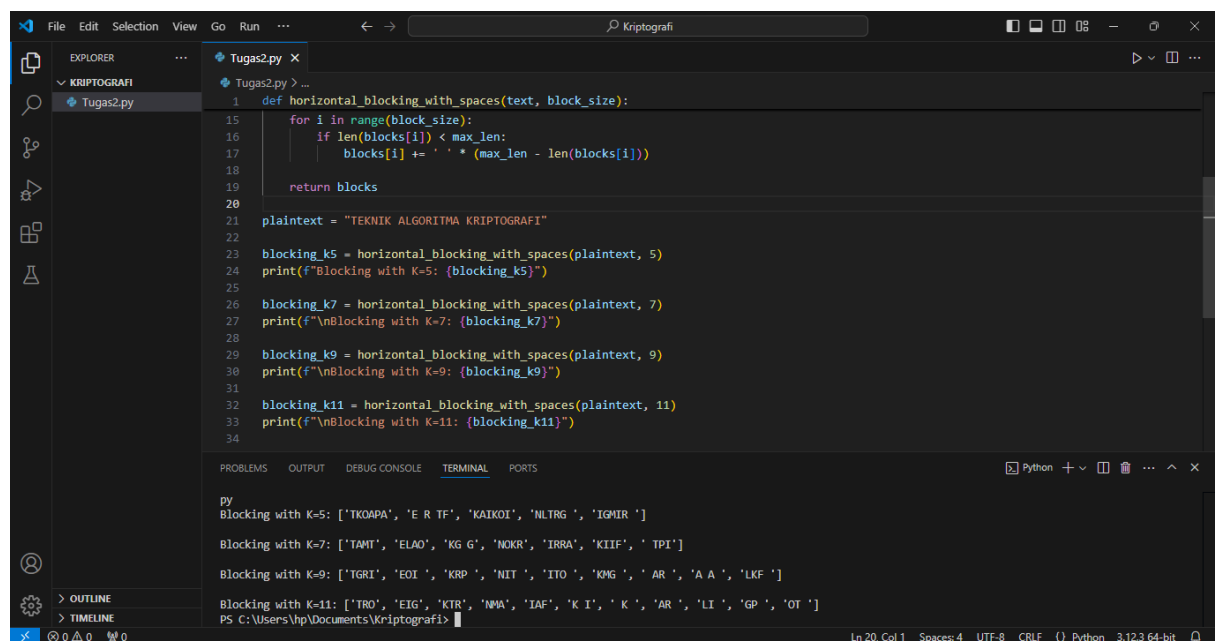
```
1 def horizontal_blocking_with_spaces(text, block_size):
2     words = text.split(" ")
3     blocks = [''] * block_size
4
5     current_block_index = 0
6     for word in words:
7         for char in word:
8             blocks[current_block_index] += char
9             current_block_index = (current_block_index + 1) % block_size
10        if current_block_index != 0:
11            blocks[current_block_index] += " "
12            current_block_index = (current_block_index + 1) % block_size
13
14    max_len = max(len(block) for block in blocks)
15    for i in range(block_size):
16        if len(blocks[i]) < max_len:
17            blocks[i] += ' ' * (max_len - len(blocks[i]))
18
19    return blocks
20
21 plaintext = "TEKNIK ALGORITMA KRIPTOGRAFI"
```

Blocking with K=5: ['TKOAPA', 'E R TF', 'KAIKOI', 'NLTRG ', 'IGHIR ']

Blocking with K=7: ['TAMT', 'ELAO ', 'KG G ', 'NOKR', 'IRRA', 'KIIF', ' TPI']

Blocking with K=9: ['TGRI', 'EOI ', 'KRP ', 'NIT ', 'ITO ', 'KMG ', ' AR ', 'A A ', 'LKF ']

Blocking with K=11: ['TRO', 'EIG', 'KTR', 'NWA', 'IAF', 'K I', ' K ', 'AR ', 'LI ', 'GP ', 'OT ']



```
15     for i in range(block_size):
16         if len(blocks[i]) < max_len:
17             blocks[i] += ' ' * (max_len - len(blocks[i]))
18
19     return blocks
20
21 plaintext = "TEKNIK ALGORITMA KRIPTOGRAFI"
22
23 blocking_k5 = horizontal_blocking_with_spaces(plaintext, 5)
24 print(f"Blocking with K=5: {blocking_k5}")
25
26 blocking_k7 = horizontal_blocking_with_spaces(plaintext, 7)
27 print(f"Blocking with K=7: {blocking_k7}")
28
29 blocking_k9 = horizontal_blocking_with_spaces(plaintext, 9)
30 print(f"Blocking with K=9: {blocking_k9}")
31
32 blocking_k11 = horizontal_blocking_with_spaces(plaintext, 11)
33 print(f"Blocking with K=11: {blocking_k11}")
34
```

Blocking with K=5: ['TKOAPA', 'E R TF', 'KAIKOI', 'NLTRG ', 'IGHIR ']

Blocking with K=7: ['TAMT', 'ELAO ', 'KG G ', 'NOKR', 'IRRA', 'KIIF', ' TPI']

Blocking with K=9: ['TGRI', 'EOI ', 'KRP ', 'NIT ', 'ITO ', 'KMG ', ' AR ', 'A A ', 'LKF ']

Blocking with K=11: ['TRO', 'EIG', 'KTR', 'NWA', 'IAF', 'K I', ' K ', 'AR ', 'LI ', 'GP ', 'OT ']

| | | | | | | | | | | | | |
|---|---|---|---|---|---|--|---|---|---|---|---|---|
| K | I | N | K | E | T | | R | O | G | L | A | |
| K | | A | M | T | I | | G | O | T | P | I | R |
| | | I | F | A | R | | | | | | | |

Hasil Chipertext Teknik Permutasi:

Plaintext: TEKNIK ALGORITMA KRIPTOGRAFI

Ciphertext: KINKETROGLA K AMTIGOTPIR IFAR

Link Github: https://github.com/rulrmdn/Tugas_Kriptografi