



Faculty of Engineering & Technology
Electrical & Computer Engineering Department
Computer Architecture ENCS 4370

Project #1

MIPS Text Message Encryption and Decryption Program

Prepared by:

Hasan Hamed 1190496

Shorooq Najjar 1192415

Instructor: Dr. Ayman Hroub

Section: 3

Date: 25/12/2022

Table of Contents

1. Test Cases	1
1.1. Single Line Encryption and Decryption.....	1
1.2. Multi-Line Encryption	5
2. Menu and Errors.....	8

Table of Figures

Figure 1.1: Test Case 1 File	1
Figure 1.2: Encryption Output	2
Figure 1.2: Decryption Output.....	3
Figure 1.3: Decryption and Encryption Output Saved in Files.....	4
Figure 1.4: Test Case 1 File	5
Figure 1.5: Encryption Output	5
Figure 1.6: Decryption Output.....	6
Figure 1.7: Decryption and Encryption Output Saved in Files.....	7
Figure 2.1: Menu Choosing Invalid Option	8
Figure 2.2: Menu Choosing Quit Option.....	8
Figure 2.3: Error Reading File	9

1. Test Cases

1.1. Single Line Encryption and Decryption

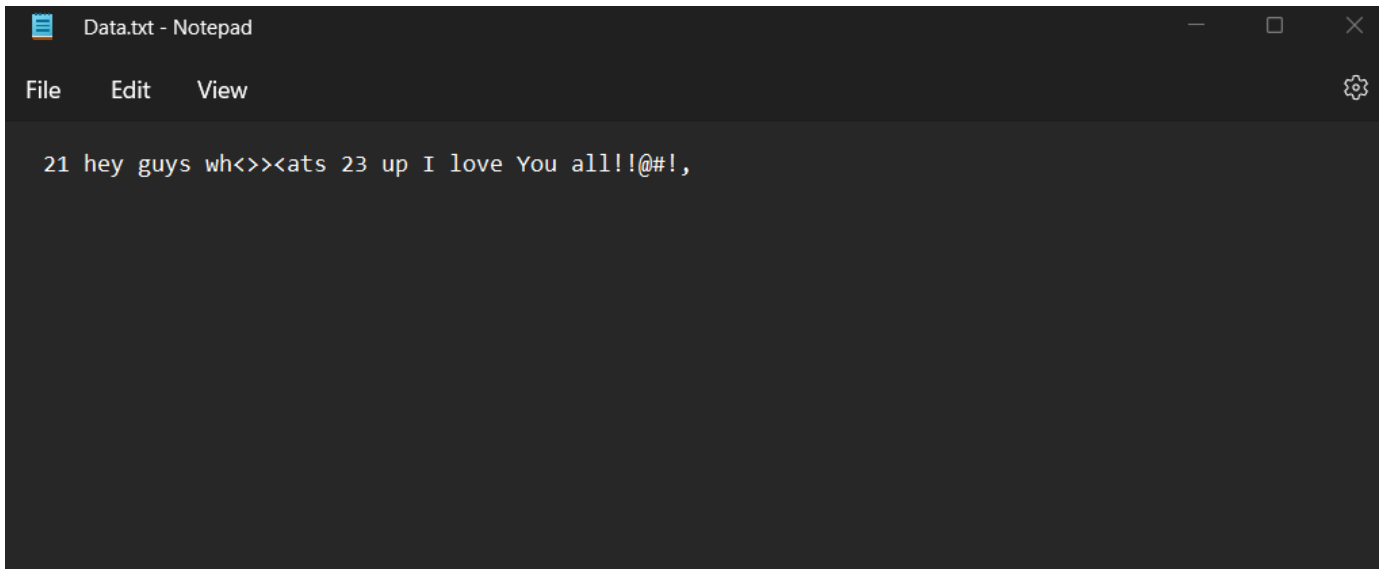


Figure 1.1: Test Case 1 File

It is considered in this program that removing non-alphabetic characters in the same word won't split between characters as will be shown in Figure 1.2 and 1.3.

```

|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit       |
|-----|
Your Choice:
e
Please Enter The Name of the Plain Text File .txt:
File Name: Data.txt
Reading File Done Sucessfully
The Plain Text File Contains:
 2l hey guys wh<>><ats 23 up I love You all!!@#!,
 2l kasld a2sla sa
Trimed Text Is:
hey guys whats up i love you all
kasld asa sa
The Max Number of Character Is:
5
Shift Value Is:
5
Please Enter The Name of the Cipher Text File .txt:
File Name: c.txt
Writing to File Completed
Written Cipher File Contains:
mjd lzdix bmfiyx zu n qtaij dtz fqq
pfxqi fxf xf
|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit       |
|-----|
Your Choice:

```

Figure 1.2: Encryption Output

```

|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit      |
|-----|
Your Choice:
d
Enter The Name of Cipher File To Decrypt .txt:
File Name: c.txt
Reading File Done Sucessfully
The Cipher Text File Contains:
mjd lzdx bmfyx zu n qtaj dtz fqg
pfxqi fxf xf
The Max Number of Character Is:
5
Shift Value Is:
5
Enter the Name of The Plain Text File to Save the Decrypted Message In:
File Name: d.txt
Writing to File Completed
Written Decrypted File Contains:
hey guys whats up i love you all
kasld asa sa
|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit      |
|-----|
Your Choice:

```

Figure 1.2: Decryption Output

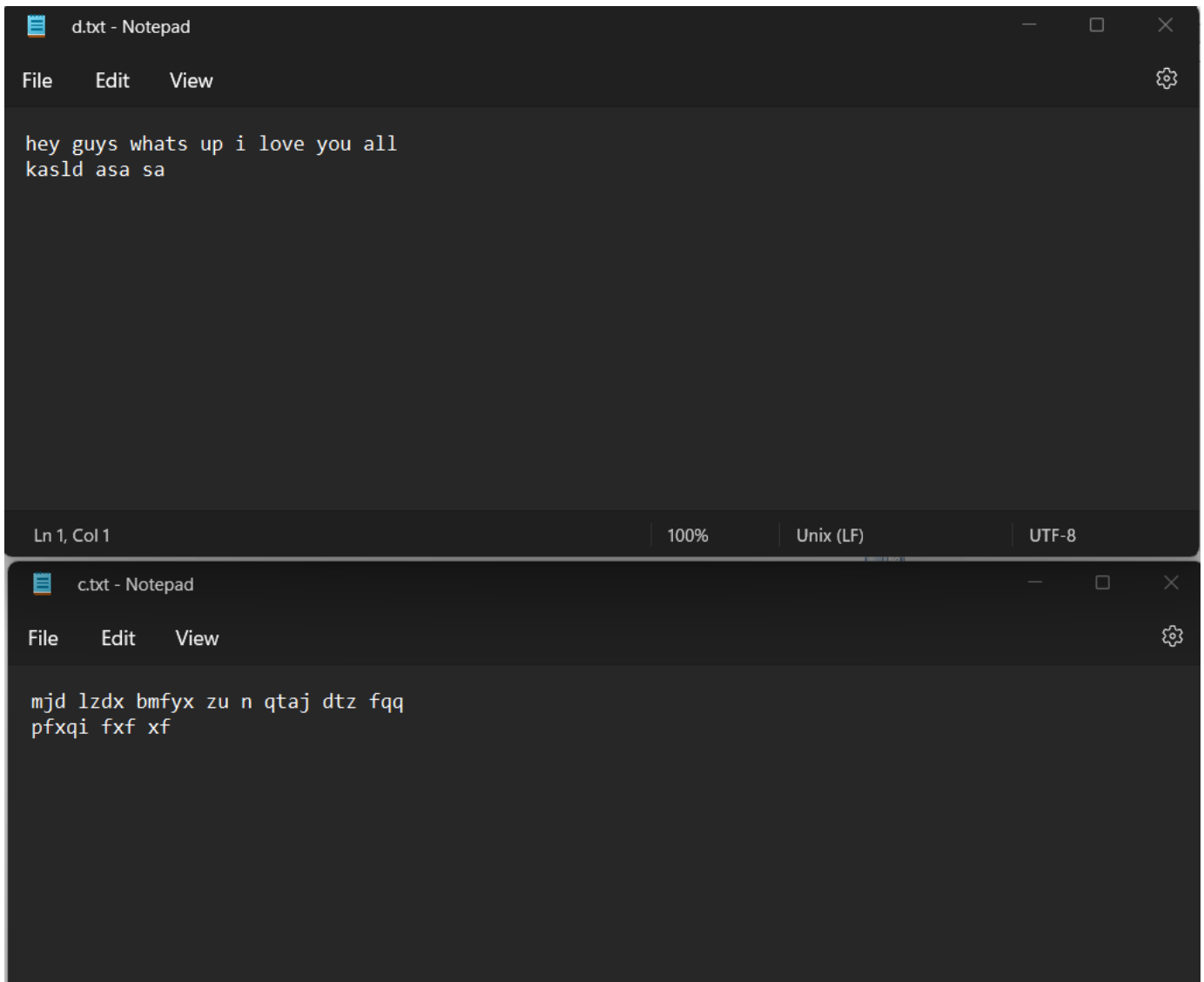


Figure 1.3: Decryption and Encryption Output Saved in Files

1.2. Multi-Line Encryption

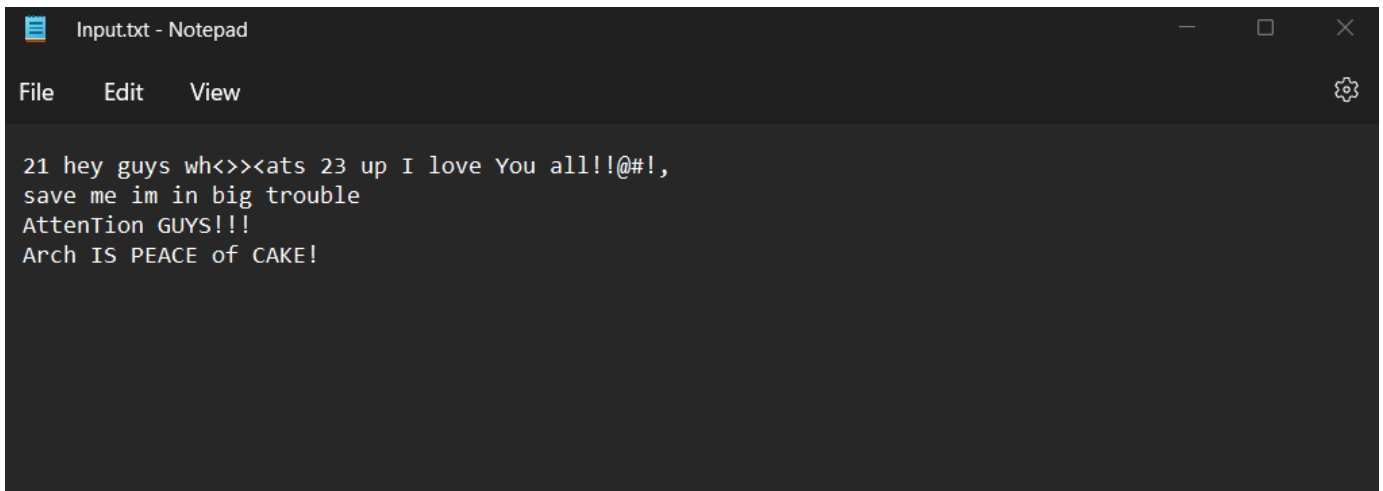


Figure 1.4: Test Case 2 File

```
|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit      |
|-----|
Your Choice:
e
Please Enter The Name of the Plain Text File .txt:
File Name: Input.txt
Reading File Done Sucessfully
The Plain Text File Contains:
21 hey guys wh<>><ats 23 up I love You all!!@#!,
save me im in big trouble
AttenTion GUYS!!!
Arch IS PEACE of CAKE!
Trimed Text Is:
hey guys whats up i love you all
save me im in big trouble
attention guys
arch is peace of cake
The Max Number of Character Is:
9
Shift Value Is:
9
Please Enter The Name of the Cipher Text File .txt:
File Name: Cipher.txt
Writing to File Completed
Written Cipher File Contains:
qnh pdhb fqjcb dy r uxen hxd juu
bjen vn rv rw krp caxdkun
jccnworxw pdhb
jalq rb ynjln xo ljtn
```

Figure 1.5: Encryption Output


```

|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit       |
|-----|
Your Choice:
d
Enter The Name of Cipher File To Decrypt .txt:
File Name: Cipher.txt
Reading File Done Sucessfully
The Cipher Text File Contains:
qnh pdhb fqjcb dy r uxen hxd juu
bjen vn rv rw krp caxdkun
jccnwcxw pdhb
jalq rb ynjln xo ljtn
The Max Number of Character Is:
9
Shift Value Is:
9
Enter the Name of The Plain Text File to Save the Decrypted Message In:
File Name: Decryption.txt
Writing to File Completed
Written Decrypted File Contains:
hey guys whats up i love you all
save me im in big trouble
attention guys
arch is peace of cake

```

Figure 1.6: Decryption Output

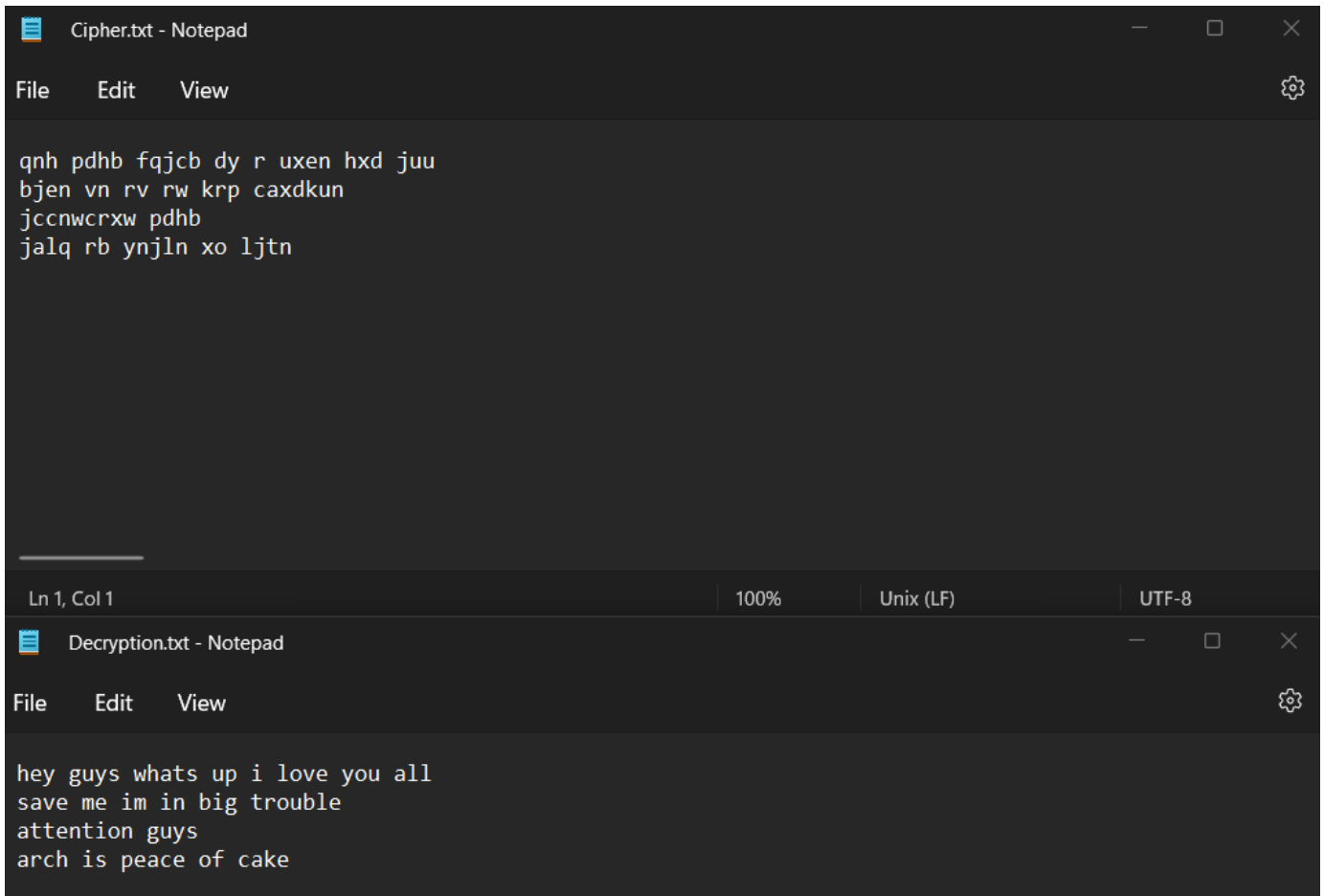


Figure 1.7: Decryption and Encryption Output Saved in Files

2. Menu and Errors

We made the program like normal C and Java programs and you can run as many times as you want in the same run without needing to run again since we free every memory we use after each option is done in addition of adding the quit option and adding error messages for reading or writing the files as shown and it encrypt both single line and multi-line files and it removes extra spaces and write to the file with the same size of data without writing nulls.

```
|-----|
|      Menu      |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit    |
|-----|
Your Choice:
x
Invalid Option
|-----|
|      Menu      |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit    |
|-----|
Your Choice:
a
Invalid Option
|-----|
|      Menu      |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit    |
|-----|
Your Choice:
l
Invalid Option
|-----|
|      Menu      |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit    |
|-----|
Your Choice:
```

Figure 2.1: Menu Choosing Invalid Option

```
|-----|
|      Menu      |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit    |
|-----|
Your Choice:
q
Bye Bye!
-- program is finished running --
```

Figure 2.2: Menu Choosing Quit Option

```
|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit        |
|-----|
Your Choice:
e
Please Enter The Name of the Plain Text File .txt:
File Name: Wrong.txt

Error in opening file
|-----|
|           Menu           |
|Enter e For Encryption|
|Enter d For Decryption|
|Enter q to Quit        |
|-----|
Your Choice:
```

Figure 2.3: Error Reading File