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**Green University of Bangladesh**

**Department of Computer Science and Engineering (CSE)**

**Faculty of Sciences and Engineering**

**Semester: (Fall , Year: 2022), B.Sc. in CSE (Day)**

**Course Title: Structured Programming Lab**

**Course Code: CSE 104 Section: 222DC**

**Lab Project Name: Simple Encryption and Decryption(Caeser Cipher)**

**Student Details**

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**Submission Date: 19-12-2022**

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**[For Teachers use only: Don’t Write Anything inside this box]**

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| **Lab Project Status**  **Marks: ………………………………… Signature: .....................**  **Comments: .............................................. Date: ..............................** |

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# Chapter 1 Introduction

## Introduction

Caesar cipher is a simple method of encoding messages. Caesar ciphers use a substitution method where letters in the alphabet are shifted by some fixed number of spaces to yield an encoding alphabet. It is a type of substitution cipher in which each letter in the plaintext is replaced by a letter some fixed number of positions down the alphabet. For example, with a left shift of 3, D would be replaced by A, E would become B, and so on.

## Design Goals/Objective

In this age encryption is an important issue in our life. Because there have many kinds of messages that we want to hide from another. This is why encryption methods are invented. At first, Encryption is used by kings for communicating. The aims of the encryption method are written below.

• We can encrypt our data by using a simple algorithm.

• Hide data from unwanted persons

# Chapter 2

# Implementation of the Project

1. **Implementation**

C source code

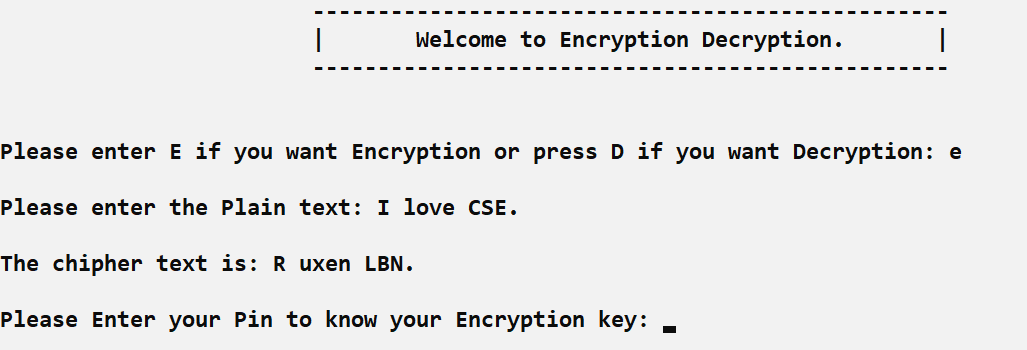
|  |
| --- |
| #include <stdio.h>  #include <string.h>  #include <stdlib.h>  #include <conio.h>  #include<time.h>  **int** password=**119804**;  **char** w,spt;  **int** plen,key,ascii;  **int** count=**0**;  **int** **ran\_key**();  **int** **key\_pin**();  **int** **encryption\_decryption**();  **int** **encryption**();  **int** **decryption**();  **int** **main**(){  encryption\_decryption();  system("CLS");  printf("**\n\n\t\t\t\t**The program ends here...");  printf("**\n\n\t\t**-------------------------------------------------**\n\n**");  getch();  getch();  getch();  **return** **0**;  }  **int** **ran\_key**(){  **time\_t** seconds;  seconds = time(NULL);  **long** **long** second=seconds;  key= **2**+(second%**22**);  **return** key;  }  **int** **key\_pin**(){  **int** pinmach;  **tryagain:**  **if**(count>**0**){  printf("**\n**You enter wrong passwor %d time/s. You can try more %d time/s.**\n\n**",count,**3**-count);  }  printf("Please Enter your Pin to know your Encryption key: ");  scanf("%d",&pinmach);  **if**(password==pinmach){  printf("Password Matched successfully..**\n\n**");  printf("Your automatic key is %d",key);  count==**0**;  }  **else**{  printf("Password Not Matched..**\n\a**");  count++;  **if**(count>=**3**){  printf("**\n\n**Sorry You try Maximum time..We will exit you from the program for security issue.**\n\n**");  printf("**\n\n\t\t\t\t**The program ends here...");  printf("**\n\n\t\t**-------------------------------------------------**\n\n**");  exit(**0**);  }  printf("If you want to re-enter your password press a key.**\n**");  getch();  system("CLS");  **goto** tryagain;  }  }  **int** **encryption\_decryption**(){  **char** enorde;  system("CLS");  printf("**\t\t\t**-------------------------------------------------**\n**");  printf("**\t\t\t**|**\t**Welcome to Encryption Decryption. **\t**|**\n**");  printf("**\t\t\t**-------------------------------------------------**\n\n\n**");  printf("Please enter E if you want Encryption or press D if you want Decryption: ");  scanf(" %c",&enorde);  **if**(enorde=='e'||enorde=='E'){  encryption();  }  **else** **if**(enorde=='d'||enorde=='D'){  decryption();  }  **else**{  printf("**\n**You choose wrong value");  }  printf("**\n\n** Do you want Encrypt or Decrypt again???**\n**");  printf("If you want Encrypt or Decrypt again press 'Y'.And if you don't want press 'N': ");  scanf(" %c",&w);  **if**((w=='y'||w=='Y')||(w=='n'|| w== 'N'))  printf("");  **else**{  printf("You Press a wrong Key..Note: If you press wrong key again...This programme will exit....**\n**");  printf("**\n**Please enter a valid(Y/N) key: ");  scanf(" %c",&w);  **if**((w=='y'||w=='Y')||(w=='n'||w== 'N'))  printf("");  **else**{  printf("**\n**Sorry..You Press a wrong key Again..**\n\a**");  }  }  **if**(w=='n'||w=='N'){  system("EXIT");  }  **if**(w=='y'||w=='Y'){  encryption\_decryption();  }  }  **int** **encryption**(){  **char** plaintext[**500**];  printf("**\n**Please enter the Plain text: ");  fflush(stdin);  gets(plaintext);  plen=strlen(plaintext);  ran\_key();  printf("**\n**The chipher text is: ");  **for**(**int** i=**0**;i<plen;i++){  ascii = plaintext[i];  **if**(ascii==**32**){  printf("%c",ascii);  }  **else** **if**(ascii>=**65** && ascii<=**90**){  **int** temp;  temp=ascii-**65**;  temp=(temp+key)%**26**;  temp=temp+**65**;  printf("%c",temp);  }  **else** **if**(ascii>=**97** && ascii<=**122**){  **int** temp;  temp=ascii-**97**;  temp=(temp+key)%**26**;  temp=temp+**97**;  printf("%c",temp);  }  **else** **if**( (ascii>=**48** && ascii<=**58**) || (ascii>=**33** && ascii<=**48**) || (ascii>=**58** && ascii<=**65**) ||(ascii==**92**)||(ascii==**94**) ||(ascii==**95**) ){  **int** temp;  temp=ascii;  printf("%c",temp);  }  }  printf("**\n\n**");  key\_pin();  }  **int** **decryption**(){  **char** ciphertext[**500**];  printf("**\n**Please enter the Cipher text: ");  fflush(stdin);  gets(ciphertext);  plen=strlen(ciphertext);  printf("**\n**Please enter the Key: ");  scanf(" %d",&key);  printf("**\n**The chipher text is: ");  **for**(**int** i=**0**;i<plen;i++){  ascii = ciphertext[i];  **if**(ascii==**32**){  printf("%c",ascii);  }  **else** **if**(ascii>=**65** && ascii<=**90**){  **int** temp;  temp=ascii-**65**;  temp=(temp-key)%**26**;  **if**(temp<**0**){  temp+=**26**;  }  temp=temp+**65**;  printf("%c",temp);  }  **else** **if**(ascii>=**97** && ascii<=**122**){  **int** temp;  temp=ascii-**97**;  temp=(temp-key)%**26**;  **if**(temp<**0**){  temp+=**26**;  }  temp=temp+**97**;  printf("%c",temp);  }  **else** **if**( (ascii>=**48** && ascii<=**58**) || (ascii>=**33** && ascii<=**48**) || (ascii>=**58** && ascii<=**65**) ||(ascii==**92**)||(ascii==**94**) ||(ascii==**95**) ){  **int** temp;  temp=ascii;  printf("%c",temp);  }  }  } |

**Screenshots**

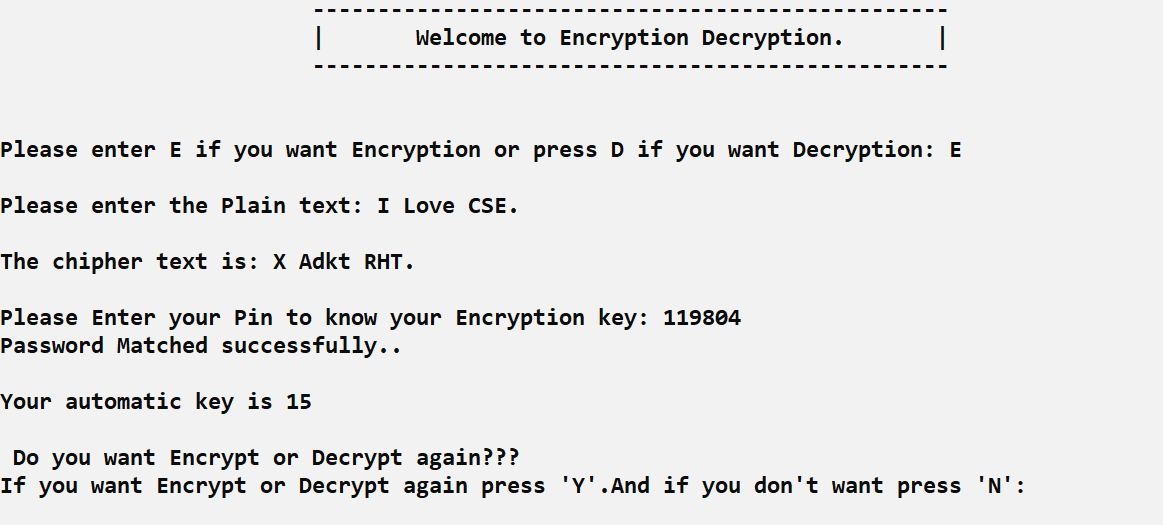
# 

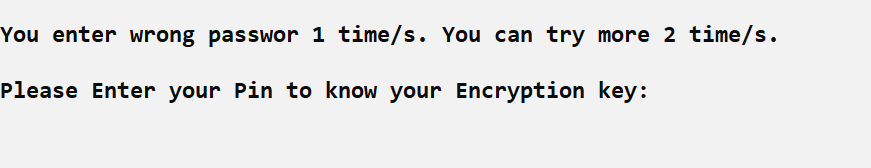
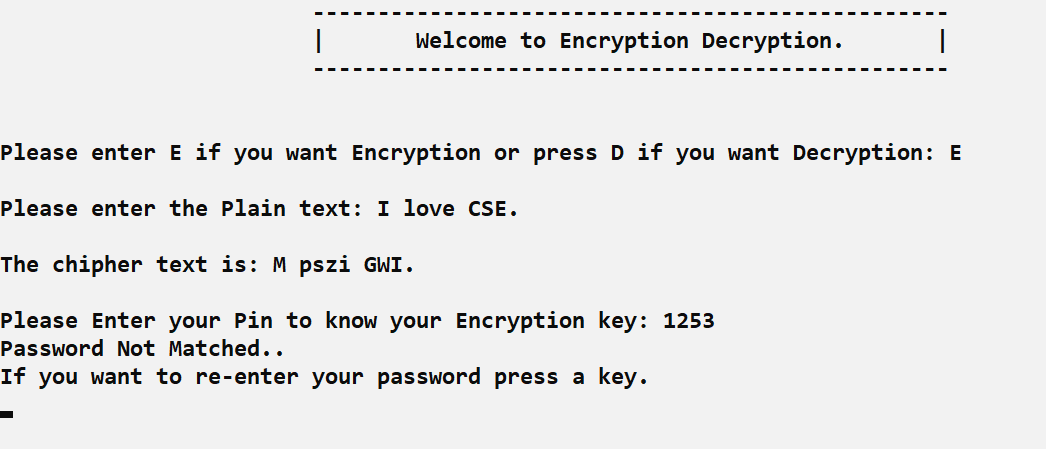
When the program is executed, the user will input what do he want. If he want to encrypt the message he press ‘e’ or ‘E’ and if he want to decrypt the message user press ‘d’ or ‘D’.

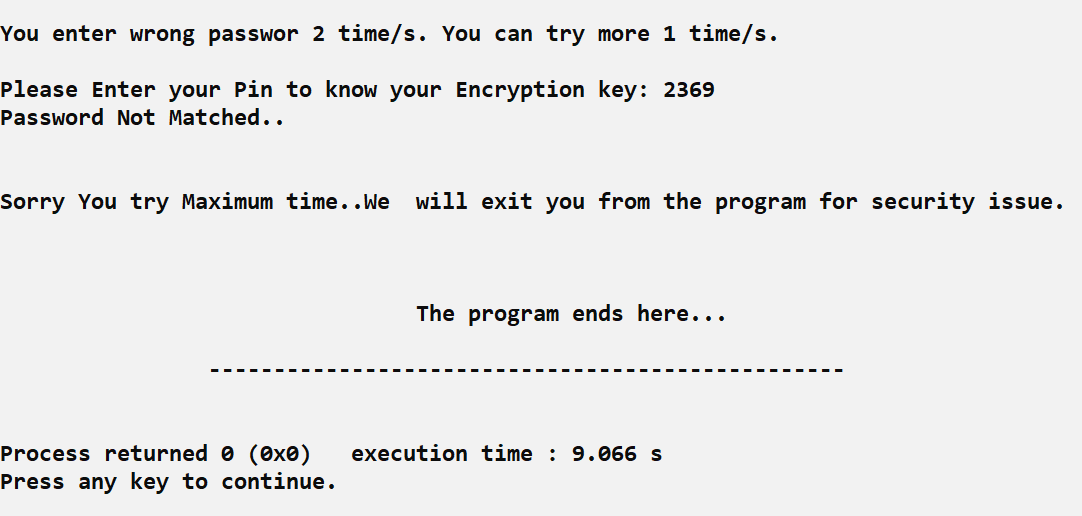
If the user press ‘e’ the program want to get an input a message for encryption. And if user input the plain text the program encrypt the message by a key which is automatic generated.



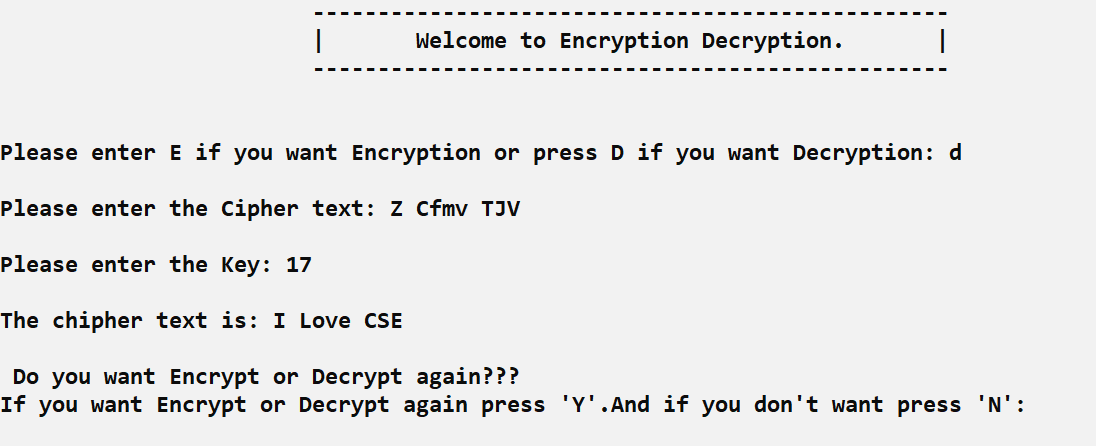
**If the user want to know about the key (which are automatic generated) he or she input the pin code.If the pin is right the program will show the Encryption key.**



And the user input the wrong key the program want the rignt key again. 

And if the user input wrong pin three time the program will exit for security pourpose.

If user want to decrypt the message user should know about the key. For decrypt message user input the cipher text and key then the program decrypt the message successfully.



This is the total process of my program.

# Chapter 3 Conclusion

**Learning Outcome**

The simple encryption-decryption program is designed for encrypting or decrypting any data easily. Though this is a simple algorithm we can encrypt any message by using this program. To develop this program I have learned how a encryption Algorithm work.

From this assignment, I have learned to implement a few C concepts in future projects such as function if else condition do while statement, character type array and string, and recursion in the program.

**Future Scope**

# (I)In the future I will develop this project using GUI-based Language for getting a better user experience.

# (II) I will be using a word type key instead of digits to encrypt the message.

# References

1. [Author Initial. Author Surname, Title. City: Publisher, Year Published, p. Pages Used.](https://en.wikipedia.org/wiki/Caesar_cipher)
2. <https://www.geeksforgeeks.org/caesar-cipher-in-cryptography/>
3. <https://cryptii.com/pipes/caesar-cipher>

[4]<https://www.javatpoint.com/caesar-cipher-technique>