PES UNIVERSITY

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100 Ft. Road, BSK III Stage, Bengaluru – 560 085

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Title: Problem Solving with C Laboratory

Course code: UE19CS152

Semester: II sem **Section: E** **Team Id: 10**

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PROJECT REPORT

CIPHER AND DECIPHER (ENCRYPTION)

Problem Statement

A program to encrypt a message in a file using polybius square and decrypt it .

Description

The polybius square is thealphabets arranged in 5x5 grid, excluding j (i is to be used as its substitution). Each letters are assigned to a certain number based on the following table

TABLE:-

	0	1	2	3	4	
						Row(x)
0	A	B	C	D	E	
1	F	G	H	I	K	
2	L	M	N	O	P	
3	Q	R	S	T	U	
4	V	W	X	Y	Z	
Col(y)						

For example,

The letter ‘x’ is assigned 4 and 2 (As its row and column number)

It is now encrypted by first taking all the row numbers of the letters and then the column numbers of the letters and forming pairs so that these pairs will lead to a whole new set of different characters, i.e., the encrypted message.

For example,

If the input is: how are you

h o w a r e y o u (1^{st} no- row no. , 2^{nd} no- column no.)

12 23 41 00 31 04 43 23 34

h o w a r e y o u

Row(x) 1 2 4 0 3 0 4 2 3

Column(y) 2 3 1 0 1 4 3 3 4

Taking pairs of numbers by taking all the rows at first and then all the columns:-

Convert these numbers back to corresponding letters from the table

12 40 30 42 32 31 01 43 34

h v q x s r b y u

C-concepts used

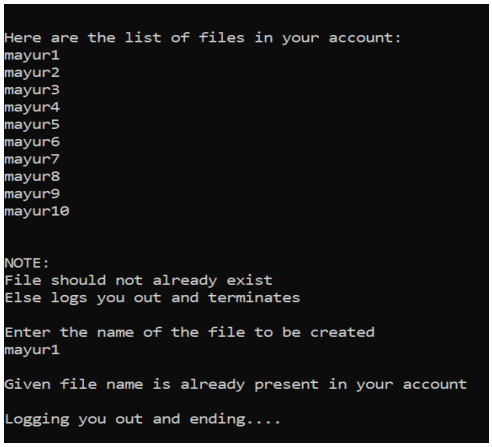
Many concepts like:

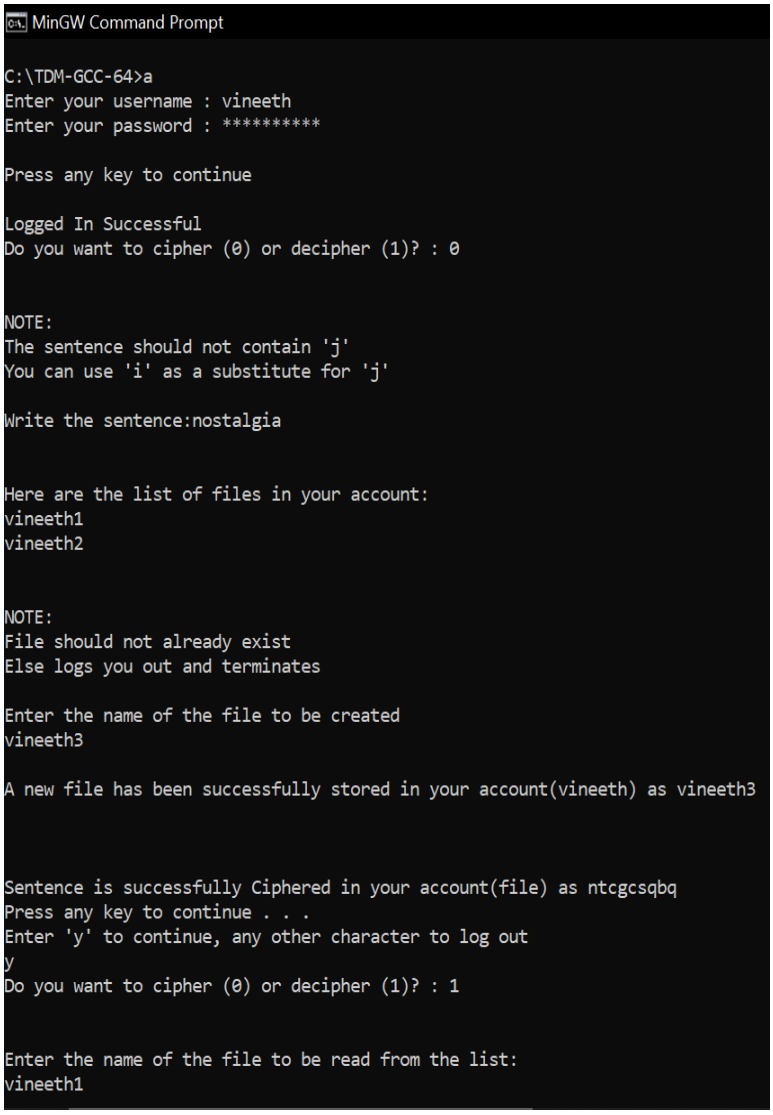
- Structures and its various applications like structure pointers and structure pointer functions
- Character pointers, strings and character pointer functions
- Macros
- Double pointer
- Files (Functions to Read, Write and Append)
- Static variables for a login portal (No. of inaccurate attempts while logging in)
- Dynamic Memory allocation
- Other basic concepts

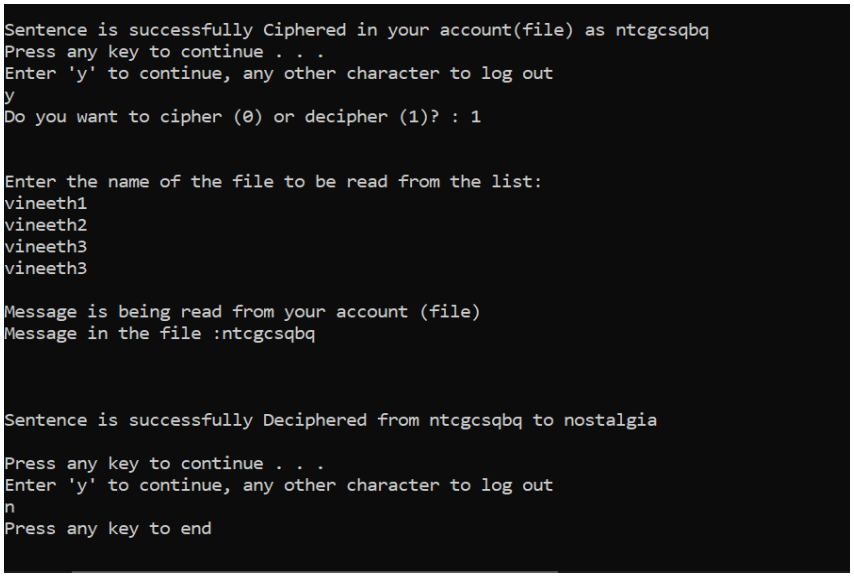
Learning Outcome

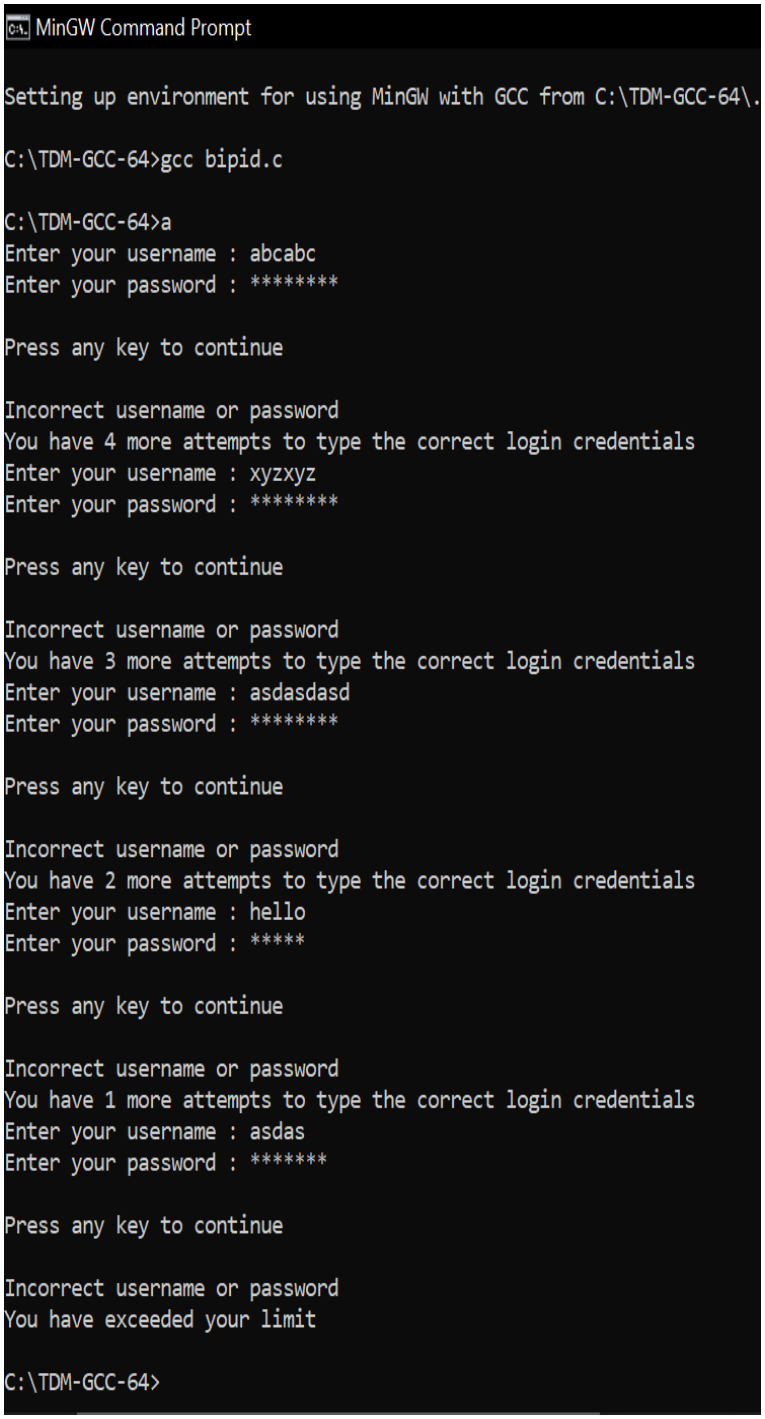
- Got to learn the different types of algorithms for encryption.
- Create, access and append files
- Create a login portal where the password is hid with '*' for privacy
- Need for encryption

Output Screenshots




MinGW Command Prompt
C:\TDM-GCC-64>a
Enter your username : vineeth
Enter your password : **********
Press any key to continue
Logged In Successful
Do you want to cipher (0) or decipher (1)? : 0
NOTE:
The sentence should not contain 'j'
You can use 'i' as a substitute for 'j'
Write the sentence:nostalgia
Here are the list of files in your account:
vineeth1
vineeth2
NOTE:
File should not already exist
Else logs you out and terminates
Enter the name of the file to be created
vineeth3
A new file has been successfully stored in your account(vineeth) as vineeth3
Sentence is successfully Ciphered in your account(file) as ntcgcsqbq
Press any key to continue . . .
Enter 'y' to continue, any other character to log out
y
Do you want to cipher (0) or decipher (1)? : 1
Enter the name of the file to be read from the list:
vineeth1


Sentence is successfully Ciphered in your account(file) as ntcgcsqbq
Press any key to continue . . .
Enter 'y' to continue, any other character to log out
y
Do you want to cipher (0) or decipher (1)? : 1
Enter the name of the file to be read from the list:
vineeth1
vineeth2
vineeth3
vineeth3
Message is being read from your account (file)
Message in the file :ntcgcsqbq
Sentence is successfully Deciphered from ntcgcsqbq to nostalgia
Press any key to continue . . .
Enter 'y' to continue, any other character to log out
n
Press any key to end



Name and Signature of the Faculty