

DATA STRUCTURES AND ALGORITHMS

PROJECT REPORT

MILITARY ENCODER/ DECODER

Project By

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PROJECT DETAILS:

This project is designed for military purpose to encrypt and decrypt code as per user's choice.

ID and Password will be provided to each of the approved person and only they can access the program.

It is a user defined CPP program which uses mirror image processing for encryption and decryption.

User can encrypt as well as decrypt secret codes and messages with the help of this program given that he knows the ID and password.

CODE:

```
#include <string.h>
#include <fstream>
#include <iostream>
#include <cstdlib>
using namespace std;
int n,ron=2233,adi=2252,viv=201,raj=353;
char fname[14];
int display(){
    system("cls");
    cout << "The encrypted data is :\n\n\n";
    char data[100];
    ifstream fin;

    fin.open(fname,ios::in);
    fin.seekg(0);
    while(!fin.eof()){
        fin.getline(data,100);
    }

    for(int i=0;data[i]!='\0';i++){
        cout << data[i];
        for(int q=0;q<50000000;q++);
    }
```

```

cout << "\n\n";

}

int encrypt(int e=0){

    char str[100], st1[100];
    int asc, mid,i, value;
    ofstream fout;
    fout.open(fname,ios::out);
    system("cls");
    cout << "\nEnter data : \n";
    cin.getline(str,100);
    n = strlen(str);
    for(i=0;i<n;i++){
        asc = int(str[i]);
        if(asc >= 97 && asc <= 122){
            if(asc < 109.5){
                mid = 110;
                value = mid - asc;
                st1[i]= mid + value - 1;
            } else {
                mid = 109;

```

```

        value = asc - mid;
        st1[i] = mid - value + 1;
    }
}
else if(asc >= 65 && asc <= 90){
    st1[i]=str[i]+1;
}
else if(asc >= 48 && asc <= 57){
    value = asc-48;
    st1[i]= 33 + value;
}
else if(asc >= 33 && asc <= 42){
    value = asc-33;
    st1[i]= 48 + value;
}
}
if(str[i]== ' '){
    st1[i]=' ';
}
if(str[i]==' '){
    st1[i]='.';
}
}
}
for(i=0;i<n;i++){
    fout << st1[i];
}
fout << "";
fout.close();

```

```
    system("cls");  
}
```

```
int decrypt(){  
    int asc, mid,i, value;  
    char st1[100];  
    ifstream fin;  
    char data[100];  
  
    fin.open(fname,ios::in);  
    fin.seekg(0);  
    while(!fin.eof()){  
        fin.getline(data,100);  
    }  
    fin.close();  
    for(i=0;data[i]!='\0';i++){  
        asc = int(data[i]);  
        if(asc >= 97 && asc <= 122){  
            if(asc < 109.5){  
                mid = 110;  
                value = mid - asc;  
                st1[i]= mid + value-1;  
            } else {  
                mid = 109;
```

```

        value = asc - mid;
        st1[i] = mid - value+1;
    }
}
else if(asc >= 66 && asc <= 91){
    st1[i]=data[i]-1;
}
else if(asc >= 33 && asc <= 42){
    value = asc-33;
    st1[i]= 48 + value;
}
else if(asc >= 48 && asc <= 57){
    value = asc-48;
    st1[i]= 33 + value;
}
}
if(data[i]== ' '){
    st1[i]=' ';
}
if(data[i]== '.'){
    st1[i]='.';
}
}
}
st1[i]='\0';
system("cls");
cout << "The decrypted data is: \n\n\n";
for(i=0;st1[i]!='\0';i++){
    cout << st1[i];

```

```

        for(int q=0;q<50000000;q++);
    }
    cout << "\n\n";
}

int main(){
    char usr[10];
    int ch,pass;
    char h[]{"\t\t\tMILITARY BASE ENCODER/DECODER"};

    cout<<"*****
*****
*****\n";

    for(int i=0; i<strlen(h); i++)
    {
        cout<<h[i];
        for(int j=0; j<50000000; j++)
        {

        }
    }

    cout<<"\n";
    cout << "Enter username : ";
    cin.getline(usr,10);

```



```
if(strcmp(usr,"17BCE2233")==0 || strcmp(usr,"17BCE2252")==0 || strcmp(usr,"17BCE0201")==0 || strcmp(usr,"17BCE0353")==0){
```

```
    system("cls");
```

```
    cout<< "Welcome " << usr;
```

```
    cout << "\nEnter password : ";
```

```
    cin >> pass;
```

```
if(strcmp(usr,"17BCE2233")==0&&pass==ron || strcmp(usr,"17BCE2252")==0&&pass==adi || strcmp(usr,"17BCE0201")==0&&pass==viv || strcmp(usr,"17BCE0353")==0&&pass==raj){
```

```
    system("cls");
```

```
    cout << "Login Successful.\n\n";
```

```
    }else{
```

```
        cout << "Wrong password..";
```

```
        return 0;
```

```
    }
```

```
    }else{
```

```
        cout << "Unknown User..";
```

```
        return 0;
```

```
    }
```

```
    strcpy(fname,usr);
```

```
    strcat(fname, ".txt");
```

```
start:
```

```

    cout << "\n1) Encrypt \n2) Display Encrypted message\n3)
Decrypt\n4) Quit\nYour choice: ";

    cin >> ch;

    cin.ignore();

    switch(ch){

        case 1:

            cout << "Encryption\n";

            encrypt();

            goto start;

        case 2:

            display();

            goto start;

        case 3:

            cout << "Enter password: ";

            cin >> pass;

            if(strcmp(usr,"17BCE2233")==0&&pass==ron || strcmp(usr,"17BCE22
52")==0&&pass==adi || strcmp(usr,"17BCE0201")==0&&pass==viv | s
trcmp(usr,"17BCE0353")==0&&pass==raj)

                decrypt();

            else{

                system("cls");

                cout << "Wrong password..";

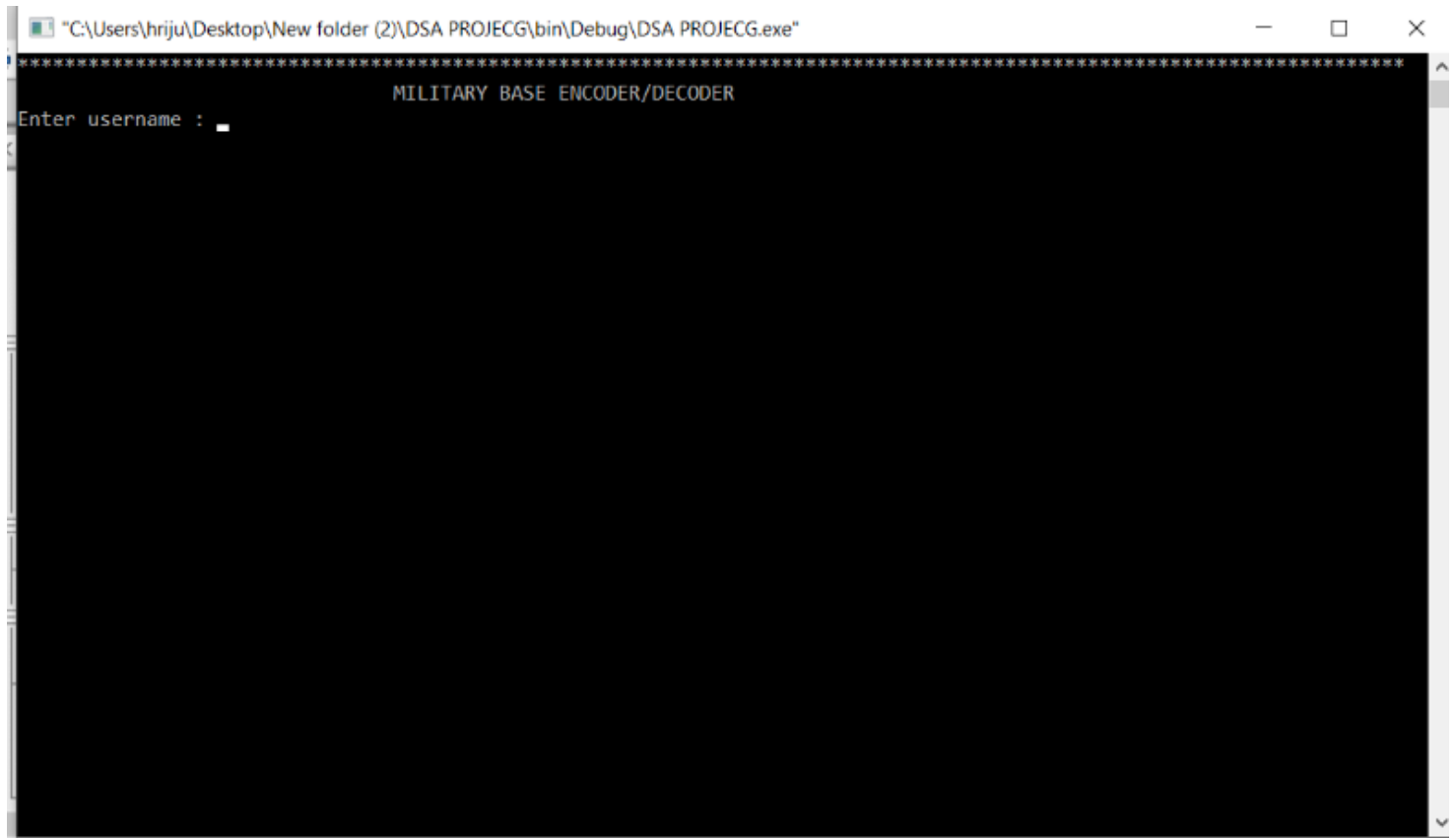
                break;

            }

```

```
        goto start;
default:
    return 0;
}
}
```

OUTPUTS:



USERNAME: the registration number of the group members

PASSWORD: the numeric part of the registration number

Eg: USERNAME: 17BCE2233

PASSWORD: 2233

"C:\Users\hriju\Desktop\New folder (2)\DSA PROJECG\bin\Debug\DSA PROJECG.exe"

Welcome 17BCE2233

Enter password : 2233_

.....

"C:\Users\hriju\Desktop\New folder (2)\DSA PROJECG\bin\Debug\DSA PROJECG.exe"

Login Successful.

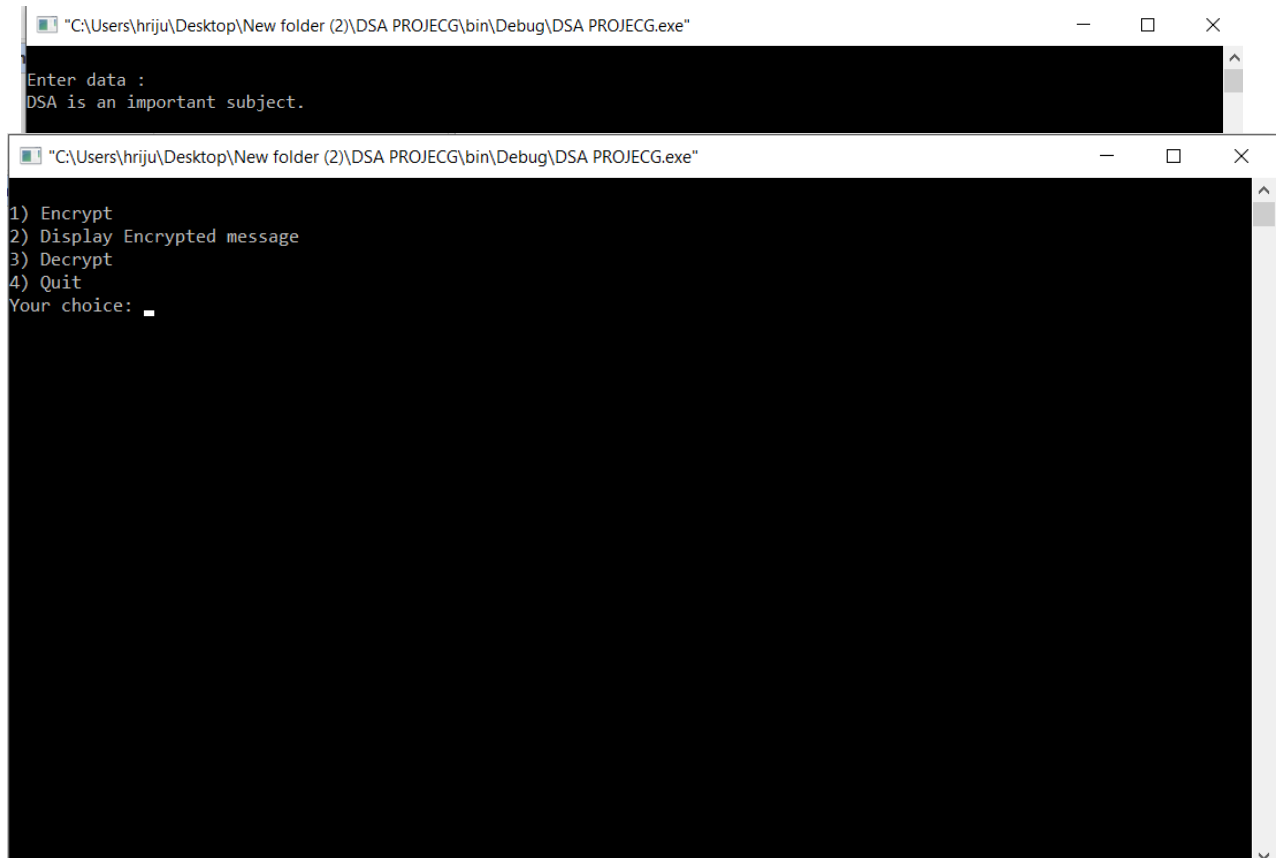
- 1) Encrypt
- 2) Display Encrypted message
- 3) Decrypt
- 4) Quit

Your choice: _

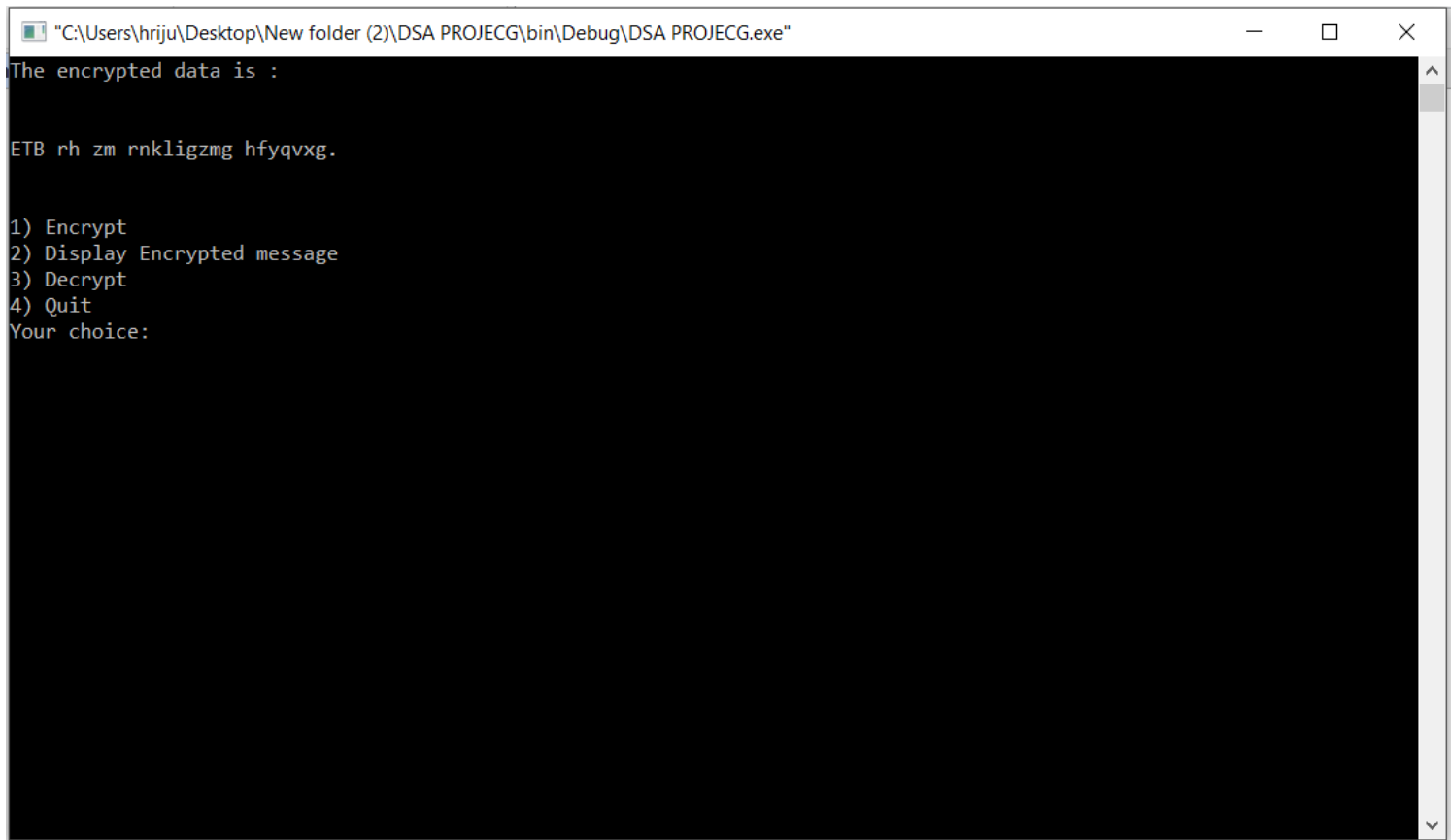
LOGIN SUCCESSFUL.

Entering choice 1, to enter the message which is to be encrypted

DATA: DSA is an important subject.



Entering choice 2, to see the encrypted message.



```
"C:\Users\hriju\Desktop\New folder (2)\DSA PROIECG\bin\Debug\DSA PROIECG.exe"
The encrypted data is :

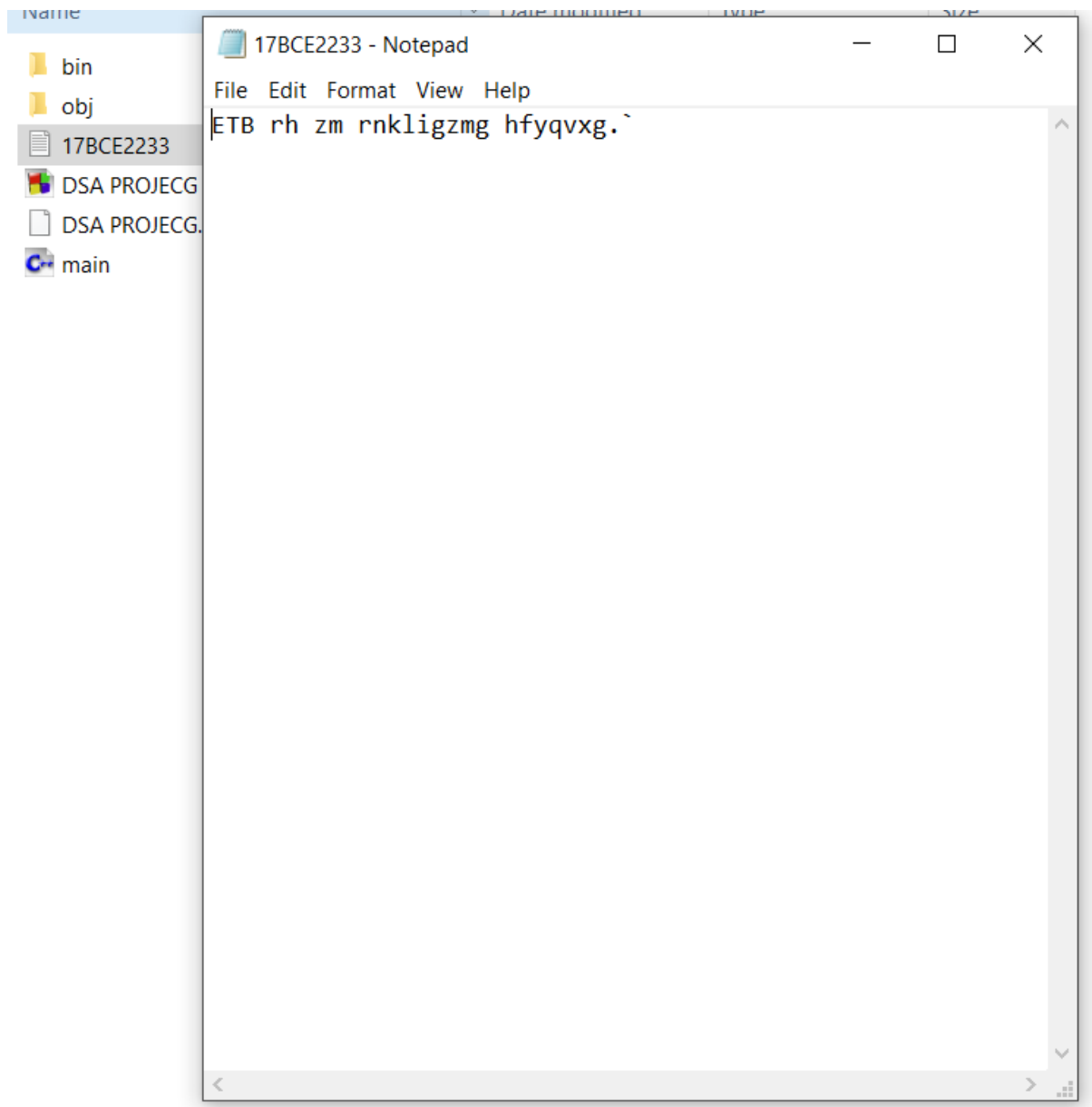
ETB rh zm rnkligzmg hfyqvvg.

1) Encrypt
2) Display Encrypted message
3) Decrypt
4) Quit
Your choice:
```

We have got the encrypted data as:

ETB rh zm rnkligzmg hfyqvvg.

Now using **file handling**, this encrypted message is stored as a text file in the project folder with the file name same as that of the username so that it can be decrypted even after restarting the program.



Now, entering choice 3 to decrypt the message:


```
"C:\Users\hriju\Desktop\New folder (2)\DSA PROJECG\bin\Debug\DSA PROJECG.exe"
The encrypted data is :

ETB rh zm rnkligzmg hfyqvvg.

1) Encrypt
2) Display Encrypted message
3) Decrypt
4) Quit
Your choice: 3
Enter password: 2233_
```

It will ask for the password which is the logged in person's password.

```
"C:\Users\hriju\Desktop\New folder (2)\DSA PROJECG\bin\Debug\DSA PROJECG.exe"
The decrypted data is:

DSA is an important subject.

1) Encrypt
2) Display Encrypted message
3) Decrypt
4) Quit
Your choice:
```

Here is the decrypted code. This can also be accessed even after restarting the program as the encrypted file is saved in the project folder as a text file.

Now entering 4 to quit the program.

```
"C:\Users\hriju\Desktop\New folder (2)\DSA PROJECG\bin\Debug\DSA PROJECG.exe"
The decrypted data is:

DSA is an important subject.

1) Encrypt
2) Display Encrypted message
3) Decrypt
4) Quit
Your choice: 4

Process returned 0 (0x0)   execution time : 2223.027 s
Press any key to continue.
```