

COMPUTER SCIENCE INVESTIGATORY PROJECT (2017-18)

CRIME FILES

– Subhalingam D

Join the group of Detectives of Itoville to solve a series of murder cases.

Username:

Name:

Password:



CERTIFICATE

This is to certify that, SUBHALINGAM D student of
Class XII C, Chennai Public School, Anna Nagar, has completed
the project titled “CRIME FILES” during the academic year
2017-18 towards partial fulfillment of credit for the AISSCE Practical
Evaluation, under my supervision.

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CASE STUDY

OBJECTIVE

The player acts as a detective in the infamous Itoville city to solve crime cases, locating relevant clues from various sources. There is a large group of people who give the player clues regarding the crime scene. In the last stage of every case, the player must reason who the **killer** is from one of the suspects, using the killer's profiles obtained during the course of the game (from clues). By successfully identifying the suspect, the player can put the criminal behind bars. Higher scores (*called XPs*) can be earned by arresting the correct criminal as fast as possible.

INTERFACE

The game begins with the player entering his/her name and filling some other details so that the progress can be saved,. The game is text-based and the player is provided with many options to choose from. As the player chooses each option, he/she gets clues with help of which he/she can decide who the criminal is. Each option requires the user to spend a minimum number of token(s) and thus the user has to choose the options accordingly. When the player is sure who the actual criminal is, he/she can finalise the same (using left/right arrow keys) and can proceed to the next level.

The game is developed using C++ which has the following highlighting features:

- User login portal to save the progress (Using binary files and pointers)
- Easy-to-use UI (for example, navigate using arrow keys)
- Attractive Presentation of stories/clues

CLASS/FUNCTION DESCRIPTION

Class: MEMBER

Stores the data of the user like name, userid, password, xp, level (lvl), tokens.

MEMBER FUNCTIONS

Default constructor initialises xp=0, lvl=-1, tokens=0. and strings to NULL

Parameterised constructor takes id, name, password as arguments and initialises xp=0, lvl=-1, tokens=0.

Copy constructor copies the objects passed.

ret_userid()	:	Returns User ID.
ret_name()	:	Returns Username
ret_password()	:	Returns Password
ret_xp()	:	Returns XP
ret_tokens()	:	Returns tokens
ret_lvl()	:	Returns Level
update_tokens()	:	Increments number of tokens
update_lvl()	:	Updates level
update_xp()	:	Increments XP

val_pass()
Checks if passwords match

CHANGE _PASS_val()

Returns 1 if password which is entered and old password doesn't match

Returns 2 if new passwords which are entered doesn't match

Else copies the new password and updates it in Database

MAIN FUNCTIONS

init()

Displays Loading screen and checks for binary and text files that are necessary for the game. If binary file (that stores users data) is not found, the same is created and Admin account is automatically added into it. If the required text files are not found, a error message is displayed. If everything looks perfect, the user is taken to Itoville.

GETPASS()

Used for inputing password securely. Character entered is echoed as '*' so that the password is not visible to third-party. ENC() is also called to encrypt the password for more security. *Any other key that can be trapped by bioskey(), other than Carriage Return, Backspace and Arrow keys, are considered as a character in password.*

LOAD()

Displays "LOADING..." message and waits for time (in seconds) that is passed as a parameter.

Val_UserID()

Checks if the User ID already exists.

CHANGEPASS()

Function is called when the user desires to change his/her password. User is asked to enter current password, new password (*twice*) and validation is done by calling CHANGE_PASS_val() member function.

REGISTER()

Used to add members into binary file. User is asked to enter the username that he/she desires to have. Val_UserID() is called to check if the username entered is available, i.e., it has not been already taken. If available, user is asked to enter his name and password is taken by calling GETPASS(). The registration process is then completed when the user accepts that he/she is at least 12 years old. The user details are then stored in the binary file. Else a message is displayed saying that the username has already been taken, asking the user to choose different one. *Note that account with username '0' is used for maintenance purposes and that with username "admin" is reserved for the Admin.*

LOGIN()

Used when user wants to Login. The user enters his/her username and password (*password by calling GETPASS()*) and the details are verified from the Binary file. If the details match, the user is taken to the User's page. Else an error message is displayed accordingly.

ADMIN()

Called when logged in as Admin (Default username and password is *admin*) and the Admin Panel, which displays the list of all the users in the binary file, appears. Admin can add/remove tokens for an account or can remove an account permanently.

COUT()

It is a version of "cout<<" but displays sentences character by character, with some effects

VERIFY()

Takes several parameters and checks if the user has sufficient tokens to play that particular Level and if it has already been played by the user. If everything looks perfect, tokens are detected. Else an error message is displayed accordingly

GETCH()

A version of getch() but displays a message "<PRESS ANY KEY TO CONTINUE" before expecting a character.

LOADER()

Displays some of the user details on the top of the screen. Displays the levels that are available for the user. The selected level begins by calling the function accordingly.

LVL1()

First the introduction of Level 1 is displayed by reading lvl1.txt from story folder. Then the clues appear and the user is asked to select them to get them, using UP/DOWN arrow keys. Using LEFT/RIGHT arrow keys takes the user to Suspects page (or back to Clues page) from which a user is asked to select the criminal. *User is asked to press on Carriage Return twice for confirmation.* More clues/suspects appear as the user keeps playing. Once the user confirms the criminal, the game gets over and stats (won/loss, XPs earned, etc) are displayed for that level. XPs, tokens, levels are updated accordingly, if necessary.

LVL2()

First the introduction of Level 2 is displayed by reading lvl2.txt from story folder. Then the clues appear and the user is asked to select them to get them, using UP/DOWN arrow keys. Using LEFT/RIGHT arrow keys takes the user to Suspects page (or back to Clues page) from which a user is asked to select the criminal. *User is asked to press on Carriage Return twice for confirmation.* More clues/suspects appear as the user keeps playing. Once the user confirms the criminal, the game gets over and stats (won/loss, XPs earned, etc) are displayed for that level. XPs, tokens, levels are updated accordingly, if necessary.

FILES

Text files : LVL0.txt, LVL1.txt, LVL2.txt (Introduction for various levels)
Binary files : USERS.dat (Database for storing user details)

NAVIGATE.hpp

UPDOWN()

Takes in position of first option (y coordinate) and number of options and returns the option number that the user has selected. bioskey() has been used to trap arrow keys (UP/DOWN) for navigation.

UPDOWN_SUS()

Takes in position of first option (y coordinate) and number of options and returns the option number that the user has selected. bioskey() has been used to trap arrow keys (UP/DOWN) for navigation and arrow keys (LEFT/RIGHT) for navigating between Suspects/Clues page

PASSENC.hpp

ENC()

Takes a string (usually password) and encrypts it so that it can be saved safely.

PROGRAM CODE

MAIN CODE

```
#include<conio.h>
#include<stdio.h>
#include<string.h>
#include<fstream.h>
#include<process.h>
#include<bios.h>
#include<dos.h>
#include<iomanip.h>
#include<time.h>

#include"NAVIGATE.hpp"
#include"PASSENC.hpp"

class MEMBER {
    char name[32],userid[32],password[32];
    double xp;
    int lvl;
    unsigned int tokens;

public:
    MEMBER()
        {xp=0;   lvl=-1;   tokens=0;}
    MEMBER(char id[],char user_name[],char pass[]){
        strcpy(name,user_name);
        strcpy(userid,id);
        strcpy(password,pass);
        xp=0; lvl=-1; tokens=0;}
    MEMBER (MEMBER &m){
        strcpy(name,m.name);
        strcpy(userid,m.userid);
        strcpy(password,m.password);
```

```
xp=m.xp; lvl=m.lvl; tokens=m.tokens;}
```

```
char* ret_userid() {return userid;}
char* ret_name() {return name;}
char* ret_password() {return password;}
double ret_xp() {return xp;}
int ret_lvl() {return lvl;}
int ret_tokens() {return tokens;}
```

```
void upd_tokens(int i){tokens+=i;}
void upd_lvl(int i) {lvl=i;}
void upd_xp(int i) {xp+=i;}
```

```
int val_pass(char *inp_pass) {
    if(!strcmp(inp_pass,password))
        return 0;
    else return 1; }
```

```
int CHANGE_PASS_val(char old[],char new1[],char new2[]) {
    if (strcmp(old,password))
        return 1;
    if (strcmp(new1,new2))
        return 2;
    strcpy(password,new1);
    return 0; }
```

```
void pass_enc() {strcpy(password,ENC(password)); }
```

```
};
```

```
void main() {
clrscr();
```

```
void GETPASS(char[]),LOAD(long);
void REGISTER(int),CHANGE_PASS(MEMBER); MEMBER
LOGIN();
```



```

void ADMIN(),init();
MEMBER LOADER (MEMBER);

init();

int i;

clrscr();
int opt=1;

while (opt)
{
cout<<"Welcome GUEST,\n";
cout<<"\nJoin the group of Detectives of Itoville to solve a series of
murder cases. ";
cout<<"\n\nNOT YET A MEMBER? SIGN UP NOW!";
cout<<"\n > Username: ";
cout<<"\n > Name: ";
cout<<"\n > Password: \n\n> Login\n\n <Press Esc to EXIT>";
ret:
gotoxy(1,10);
opt=bioskey(0);
if (opt==7181)
{
    MEMBER user=LOGIN(); i=1;
    if (strcmp(user.ret_userid(),"0"))
    {
        if (!strcmp(user.ret_userid(),"admin"))
        ADMIN();

        else{

            do { i=1;
            clrscr();
            if (user.ret_lvl()>=0)
            {

```

```

    cout<<user.ret_name();
    gotoxy(40,1);
    cout<<"XP: "<<user.ret_xp();
    gotoxy(55,1);
    cout<<"TOKENS: "<<user.ret_tokens();
    gotoxy(70,1);
    cout<<"LEVEL: "<<user.ret_lvl()<<endl;
}
else
{
    cout<<user.ret_name();
    gotoxy(40,1);
    cout<<"XP: "<<user.ret_xp();
    gotoxy(55,1);
    cout<<"TOKENS: "<<user.ret_tokens()<<endl;
}
cout<<"\nCHOOSE:\n> Play\n> Change Password\n  Logout";
switch (UPDOWN(4,3)){
    case 1: clrscr(); user=LOADER(user); break;
    case 2: CHANGE_PASS(user); break;
    case 3: cout<<"\n\n  Are you sure you want to logout?\n
Press Enter to continue. Press Esc to cancel.";
        out:{
            int key=bioskey(0);
            if (key==7181)
            {
                i=0;
                clrscr();
                cout<<"\n Logging you out...";
                delay(1500);
            }
            else if (key==283)
            {;}
            else
            goto out;}

```

```

    }
    }while (i);
    }}
    clrscr();

}
else if ((char(opt)>='0'&&char(opt)<='9')||
(char(opt)>='A'&&char(opt)<='Z')||(char(opt)>='a'&&char(opt)<='z'))
{REGISTER(opt);}
else if (opt==283)
exit(0);
else
goto ret;

}
}

void GETPASS(char inp[]) {
    char pass[32];
    for (int i=0;i<32;i++)
    {
        int key=0;
        key=bioskey(0);
        if (key==7181) {
            if (i==0) {cout<<" This field cannot be empty."; i--;
delay(1000); for (int j=0;j<28;j++) cout<<"\b \b"; continue;} else
{pass[i]='\0';break;}}
            if (key==3592) {if (i==0) {i--;} else {cout<<"\b \b"; i-=2;}
continue;}
            if (key==19200||key==19712||key==18432||key==20480){ i--;
continue;}
            pass[i]=char(key);
            putchar('*');
        }

        strcpy(inp,ENC(pass));
    }
}

```

```
}
```

```
void LOAD(long s){  
    cout<<"\n\n LOADING...";  
    delay(s*1000);  
    cout<<"\b\b\b\b\b\b\b\b\b\b";  
}
```

```
void CHANGE_PASS(MEMBER user){  
    clrscr();  
    char oldpass[32],newpass1[32],newpass2[32];  
    MEMBER mem;  
    fstream f ("USERS.DAT",ios::in|ios::out|ios::binary);  
    while (f.read((char*)&mem,sizeof(mem)))  
        if (!strcmp(user.ret_userid(),mem.ret_userid()))  
            break;  
    cout<<"\nChanging password.\nEnter current password:\t";  
    GETPASS(oldpass);  
    cout<<"\nEnter new password:\t";  
    GETPASS(newpass1);  
    cout<<"\nConfirm your password:\t";  
    GETPASS(newpass2);
```

```
switch(mem.CHANGE_PASS_val(oldpass,newpass1,newpass2)){  
    case 1: cout<<"\n Current password you entered doesnot  
match"; break;  
    case 2:cout<<"\n The new passwords you entered does not  
match!"; break;  
    case 0:    long p=f.tellg()-sizeof(mem);  
                f.seekg(p);  
                f.write((char*)&mem,sizeof(mem));  
                cout<<"\n Successfully changed!";}  
    f.close();  
    LOAD(2);  
    clrscr();  
}
```

```

void REGISTER(int opt) {
    int Val_UserID(char[]);
    char id[32],user_name[32],pass[32];
    do {
        gotoxy(15,6);
        id[0]=char(opt);
        cout<<id[0];
        for (int i=1;i<32;i++)
        {
            int temp=bioskey(0);
            if (temp==3592)
            { if (i==1)
                {cout<<"\b \b";clrscr(); return; }
              else
                {cout<<"\b \b"; i-=2;    }
            }
            else if (temp==283||temp==19200||temp==19712||temp==18432||
temp==20480){ i--; continue;}
            else if (temp==7181) break;
            else
            {
                id[i]=char(temp);
                cout<<id[i];
            }
        }
        id[i]='\0';
    }while(Val_UserID(id));
    gotoxy(15,7);
    gets(user_name);
    gotoxy(15,8);
    GETPASS(pass);
    cout<<"\n\n    \n By signing up, you agree that you are more than
12 years old.\n If not, press Esc. Press Enter to proceed.";
    int key,i=1;

```

```

while (i)
{
    key=bioskey(0);
    if (key==7181) break;
    if (key==283) {clrscr(); return;}
}
MEMBER mem(id,user_name,pass);
fstream f("USERS.DAT",ios::app|ios::binary);
f.write((char*)&mem,sizeof(mem));
LOAD(2);
cout<<"Successfully Registered";
delay(1000);
clrscr();
}

```

```

int Val_UserID(char id[]){
    if (id[0]=='\0')
    { cout<<" User name field cannot be empty.";delay(1000);for (int
i=0;i<34;i++) cout<<"\b \b";clrscr(); return 1;}
    MEMBER mem_val;
    fstream f_reg("USERS.DAT",ios::in|ios::binary);
    while (f_reg.read((char*)&mem_val,sizeof(mem_val)))
    if (!strcmpi(mem_val.ret_userid(),id)) {
        cout<<" Name already exists! Please choose another
name";delay(1000);for (int i=0;i<strlen(id)+50;i++) cout<<"\b
\b";return 1;}
    return 0; }

```

```

MEMBER LOGIN() {
MEMBER mem,dummy("0","0","0");
    char id[32],pass[32];
    fstream f("USERS.DAT",ios::in|ios::in|ios::binary);
    f.seekp(0,ios::beg);
    start: {

```

```

        clrscr();
    int opt=1;
    while (opt)
    {
        cout<<"Welcome GUEST,\n";
        cout<<"\nJoin the group of Detectives of Itoville to solve a series of
murder cases. ";
        cout<<"\n\nLOGIN:";
        cout<<"\n > Username: ";
        cout<<"\n > Password: \n\n\n> Sign Up\n\n <Press Esc to EXIT>";
        ret:
        gotoxy(1,10);
        opt=bioskey(0);
        if (opt==7181)
        {
            return dummy;
        }
        else if ((char(opt)>='0'&&char(opt)<='9')||
(char(opt)>='A'&&char(opt)<='Z')||(char(opt)>='a'&&char(opt)<='z'))
        {
            gotoxy(15,6);
            id[0]=char(opt);
            cout<<id[0];
            for (int i=1;i<32;i++)
            {
                int temp=bioskey(0);
                if (temp==3592)
                { if (i==1)
                    {cout<<"\b \b";clrscr(); goto start; }
                    else
                    {cout<<"\b \b"; i-=2; }
                }
            }
            else if (temp==283||temp==19200||temp==19712||temp==18432||
temp==20480){ i--; continue;}
            else if (temp==7181) break;
            else

```

```
{
id[i]=char(temp);
cout<<id[i];
}
}
id[i]='\0';
```

```
if (!(strcmp(id,"0"))) {
    cout<<"\n You don't have the permission to access this
account! Try Again!";
    delay(1750);
    goto start;
}
```

```
int ctr=1;
while (f.read((char*)&mem,sizeof(mem)))
    if (!strcmpi(mem.ret_userid(),id)){ctr = 0; break;}
```

```
gotoxy(15,7);
GETPASS(pass);
```

```
if (mem.val_pass(pass)||ctr)
    {cout<<"\n The details you entered doesnot match with any of
our records.Please try again!"; delay (2000);goto start; }
LOAD(2);
if (!(strcmp(mem.ret_userid(),"admin")))
    return mem;
clrscr();
return mem;
```

```
}
else if (opt==283)
    exit(0);
```



```
else  
goto ret;
```

```
} } }
```

```
void ADMIN() {  
    int i, opt;  
    do {  
        i=1;  
        clrscr();  
        cout<<"ADMIN PANEL\n\n";  
        cout<<"  Change Password\n  Logout\n";  
        MEMBER mem;      int n=0;  
        fstream f("USERS.DAT",ios::in|ios::binary);  
        long p=2*sizeof(mem);  
        f.seekg(p);  
        while (f.read((char*)&mem,sizeof(mem))) { n++;  
            cout<<"> "<<mem.ret_userid();  
            gotoxy(15,n+4);  
            cout<<mem.ret_name();  
            gotoxy(47,n+4);  
            cout<<mem.ret_tokens()<<'\n';  
  
            ;}  
  
        if (n==0)  
            cout<<setw(30)<<"<NO MEMBERS>";  
  
        opt=UPDOWN(3,n+2);  
  
        do { i=1;  
            if (opt==1)  
            {  
                clrscr();  
                char newpass1[32],newpass2[32];
```

```

MEMBER mem;
fstream f ("USERS.DAT",ios::in|ios::out|ios::binary);
f.seekp(0);
long q=sizeof(mem);
f.seekp(q);
f.read((char*)&mem,sizeof(mem));
cout<<"\nEnter new password:\t";
GETPASS(newpass1);
cout<<"\nConfirm your password:\t";
GETPASS(newpass2);

```

```

switch(mem.CHANGE_PASS_val(mem.ret_password(),newpass1,newpass2)){

```

```

    case 2:cout<<"\n The new passwords you entered does not match!"; break;

```

```

    case 0:    long p=f.tellg()-sizeof(mem);
               f.seekg(p);
               f.write((char*)&mem,sizeof(mem));
               cout<<"\n Successfully changed!";    }
               f.close();
               LOAD(1);
               clrscr();

```

```

    break;

```

```

}

```

```

if (opt==2) break;

```

```

if (opt>=3)

```

```

{

```

```

    clrscr();

```

```

    MEMBER user;

```

```

    fstream f1("USERS.DAT",ios::in|ios::out|ios::binary);

```

```

    long x=(opt-1)*sizeof(user);

```

```

    f1.seekg(x);

```

```

    f1.read((char*)&user,sizeof(user));

```

```

cout<<"\n\nUSER ID: "<<user.ret_userid();
cout<<"\nNAME: "<<user.ret_name();
cout<<"\n\nXP: "<<user.ret_xp();
cout<<"\nLEVEL: "<<user.ret_lvl();
cout<<"\nTOKENS: "<<user.ret_tokens();
cout<<"\n\n\nOPTION:\n 1.ADD/REMOVE tokens\n
2.REMOVE account\n 3.BACK";
switch (UPDOWN(12,3)){
    case 1: clrscr();
        cout<<"\nUSER ID: "<<user.ret_userid()<<endl;
        cout<<"\n  Current number of tokens:
\t"<<user.ret_tokens()<<endl;
        int a=0;
        cout<<"\n Add 0  tokens\b\b\b\b\b\b\b\b\b\b\b";
        cin>>a;
        cout<<"\n\n Adding "<<a<<" tokens for
"<<user.ret_userid()<<"\n Press Enter to continue. Press Esc to
cancel.";

        add: {
            int key=bioskey(0);
            if (key==7181)
            {
                user.upd_tokens(a);
                fl.seekp(0);
                long y=(opt-1)*sizeof(user);
                fl.seekp(y);
                fl.write((char*)&user,sizeof(user));
                cout<<"\n\n  Succesfully Added!";
                delay(1000);
                clrscr();
            }
            else if (key==283)
                break;
            else
                goto add;
        }
}

```

```

        break;
    case 2: clrscr();
        cout<<"\n Are you sure you want to remove
"<<user.ret_userid()<<"\n  Press Enter to continue. Press Esc to
cancel.";

        remove: {
            int key=bioskey(0);
            if (key==7181)
            {

                ifstream r1("USERS.dat",ios::binary);
                ofstream r2("temp.dat",ios::binary);
                MEMBER temp;
                while (r1.read((char*)&temp,sizeof(temp)))
                {
                    if (strcmp(temp.ret_userid(),user.ret_userid()))
                        r2.write((char*)&temp,sizeof(temp));
                }
                r1.close();
                r2.close();
                remove("USERS.dat");
                rename("temp.dat","USERS.dat");
                cout<<"\n\n  Succesfully Removed!";
                delay(1000);
                clrscr();
            }
            else if (key==283)
                break;
            else
                goto add;
        }
    case 3: i=0;}
f1.close();
}} while (i);
f.close();
} while(opt!=2);}

```

```

MEMBER LOADER(MEMBER user) {
    void LVL1(MEMBER&), LVL2(MEMBER&);
    void GETCH();
    int opt;
    do {
        clrscr();
        opt=2;
        if (user.ret_lvl()>=0)
        {
            cout<<user.ret_name();
            gotoxy(40,1);
            cout<<"XP: "<<user.ret_xp();
            gotoxy(55,1);
            cout<<"TOKENS: "<<user.ret_tokens();
            gotoxy(70,1);
            cout<<"LEVEL: "<<user.ret_lvl()<<endl;
            cout<<"\n Save & Exit";
            switch(user.ret_lvl()) {
                case 0: cout<<"\n> Tutorial\n> Case 1: Who killed Mr. Enzo
Mcswiggan"; break;
                case 1: cout<<"\n> Tutorial\n> Case 1: Who killed Mr. Enzo
Mcswiggan\n> Case 2: Mystery behind Queen Rosalie Exeter Atkins\'
crown"; break;
                case 2: cout<<"\n> Tutorial\n> Case 1: Who killed Mr. Enzo
Mcswiggan\n> Case 2: Mystery behind Queen Rosalie Exeter Atkins\'
crown\n Case 3: (Coming Soon)"; break;
                default: cout<<"\n> Tutorial\n> Case 1: Who killed Mr. Enzo
Mcswiggan\n> Case 2: Mystery behind Queen Rosalie Exeter Atkins\'
crown\n Case 3: (Coming Soon)"; break;
            }

            opt=UPDOWN(3,user.ret_lvl()+3);

```

```
}
```

```
switch(opt-2)
{
case -1: break;
case 0:
    clrscr();
    char str[207];
    ifstream f0("story/lvl0.txt");
    if (!f0)
    {
        cerr<<"Required file not detected!";
        GETCH();
        exit(1);
    }
    do {
        f0.getline(str,207);
        for (int i=0;i<strlen(str);i++)
        {
            if (str[i]=='<&&str[i+1]=='n'&&str[i+5]=='>')
            { cout<<user.ret_name()<<','; i+=6;}
            cout<<str[i];
            delay(15); }
        delay(500);
        if (str[1]=='<&&str[strlen(str)-1]=='>')
        {
            getch();
            clrscr();
        }
        cout<<"\n";
    }while(!f0.eof());
    if (user.ret_lvl()<0)
        user.upd_lvl(0);
    clrscr();
    cout<<endl;
    LOAD(1);
```

```

break;
case 1:
    LVL1(user);
    break;
case 2:  LVL2(user);
    break;
case 3: cout<<"\n\n\n This level is coming soon! You will not be
disappointed!\n\n\n"; delay(1500); break;
case 4: ;
}
}while (opt!=1);
    fstream f ("USERS.DAT",ios::in|ios::out|ios::binary);
    MEMBER mem;
    while (f.read((char*)&mem,sizeof(mem)))
    if (!strcmp(user.ret_userid(),mem.ret_userid()))
    break;
    long p=f.tellg()-sizeof(user);
        f.seekg(p);
        f.write((char*)&user,sizeof(user));
        f.close();

    clrscr();
    cout<<"\n Just a moment. Saving your progress..."<<endl;
    delay(1250);
return user;
}

```

```

void LVL1(MEMBER &user)
{

```

```

class LVL1 {
char name[32],blood[3],prof[32];
float age,height;
public:

```

```

void INPUT(char n[32],float a, float h, char b[3],char p[32]){
strcpy(name,n);
age=a;
height=h;
strcpy(blood,b);
strcpy(prof,p);
}
void DISPLAY(int i)
{
cout<<" "<<name;
gotoxy(30,i+2);
cout<<age;
gotoxy(40,i+2);
cout<<height;
gotoxy(52,i+2);
cout<<blood;
gotoxy(60,i+2);
cout<<prof<<endl;
}
};

```

```

void GETCH(); void COUT(char*);
int VERIFY(int[],int,int,int);

```

```

clrscr();
char menu[9][125]={
"> Investigate the dead body\t(1)",
"> Investigate the wall on which strange words are written\t(1)",
"> Check out the lawn\t(1)",
"> Investigate the watchman\t(2)",
"> Talk to a local\t(2)",
"> Take blood test of the word\t(2)",
"> Ask for postmortem report\t(3)",
"> Enquire the nearby Truck driver who took the ride\t(3)",
"> Check nearby CCTV cameras\t(3)",};
int us_opt[9]={0,0,0,0,0,0,0,0,0};

```



```
LVL1 crime[7];
crime[0].INPUT("Marvin Eckart",30,5.6,"A+","Butcher");
crime[5].INPUT("Zack Cox",23,5.8,"O+","Local");
crime[1].INPUT("Elza Ashton",24,5.8,"A+","Teacher");
crime[4].INPUT("Mymaker Desezanio",28,5.9,"A+","Watchman");
crime[2].INPUT("Ash Rache",22,5.1,"O+","Truck driver");
crime[3].INPUT("Mo Dixon",34,5.8,"O+","Truck driver");
crime[6].INPUT("Bruce Eckart",32,5.9,"O+","Watchman");
```

```
int succ=0;
clrscr();
char str[207];
ifstream fl("story/lvl1.txt");
if (!fl)
{
    cerr<<"Required file not detected!";
    GETCH();
    exit(1);
}
do {
    fl.getline(str,207);
    for (int i=0;i<strlen(str);i++)
    {
        cout<<str[i];
        delay(15); }
    delay(500);
    if (str[1]=='<'&&str[strlen(str)-1]=='>')
    {
        getch();
        clrscr();
    }
    cout<<"\n";
} while(!fl.eof());
clrscr();
```

```

clock_t beg,end;
beg=time(NULL);

int a=0,n=3,token=user.ret_tokens()+12,p=0;
do {
gotoxy(60,1);
cout<<"TOKENS: "<<token<<"\n\n";
cout<<"- FORCE EXIT (Your progress WON't be saved!)\n";
for (int a=0;a<n;a++)
puts(menu[a]);
int inp=UPDOWN_SUS(3,n+1);
switch(inp)
{
case 1: clrscr();
        cout<<"\n\n\tAre you sure you want to quit? Your progress
WON't be saved!!\n\tPress Y to confirm exit.  \t";
        char ch;
        ch=getche();
        if (ch=='y' || ch=='Y')
        {
            succ=-1;
            break;
        }
        break;

case 2:clrscr();
        if (VERIFY(us_opt,inp,token,1)==1) {
            token--; n=5; us_opt[p]=inp; p++;}
        else if (VERIFY(us_opt,inp,token,1)==0)
            break;
        COUT("\n Surprisingly there is no injury on the dead body....");
        GETCH();
        break;

case 3:clrscr();
        if (VERIFY(us_opt,inp,token,1)==1) {
            token--; n=5; us_opt[p]=inp; p++;}

```

```

else if (VERIFY(us_opt,inp,token,1)==0)
break;
COUT("\n It's about 5.6 ft above the ground...\n A strange word
\"RACHE\" has been written with blood...");
GETCH();
break;
case 4:clrscr();
if (VERIFY(us_opt,inp,token,1)==1) {
token--; n=5; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,1)==0)
break;
COUT("\n There are lots of footprints -- most probably that of the
cops...\n The back window has been opened...");
GETCH();
break;
case 5:clrscr();
if (VERIFY(us_opt,inp,token,2)==1) {
token-=2; n=7; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,2)==0)
break;
COUT("\n You arrive curiously to the watchman's house...\n\n
Wait... he is not on DUTY?\n\nCan you tell us what happened last
night? And why are you not on DUTY today?\n\n -- Yesterday night
when I saw a light in the house... which has been locked up for years...
\n I started to move towards the doorstep...\n also I am new to
this job and there...\n there has been a rumour that a spirit roams
over here...\n so I went back to call my friend who was in the other
street\n when I came back I saw a drunken man outside the lawn
who couldn't even make a stand...\n It was dark and raining... \n
so we helped him to get to the nearby street where a small truck with
label\n \"All kinds of fish are tasty at FISH FAINTERS\"\n We
reached the door step... but I don't know where he went...\n ...but
the light was not over there, so I called the cops...\n due to
yesterday\'s Rain I got extreme cold...\n That\'s it sir.");
GETCH();
break;

```

```

case 6:clrscr();
if (VERIFY(us_opt,inp,token,2)==1) {
    token-=2; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,2)==0)
    break;
    COUT("\n Do you have any idea about the murder in your
neighbourhood?\n -- I know who did it.\n\n Then tell us! I will
guarentee your protection with military support.\n -- Okay... Okay...
It's no one other than spirit which I have seen with my eyes...\n It
must have did this as he attempted to loot the spirits place...\n you
can see it's clear also there are no injuries...\n By the way, when i
will be getting the protection?\n\n You better shut the door hard as you
can! -.-");
    GETCH();
    break;
case 7:clrscr();
if (VERIFY(us_opt,inp,token,2)==1) {
    token-=2; n=9; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,2)==0)
    break;
    COUT("\n The one who comes for the blood test says\n \"The
word RACHE, in German, means 'revenge'...\n ...And the blood
group is 'O+'");
    GETCH();
    break;
case 8:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; n=9; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,3)==0)
    break;
    COUT("\n The postmortem report says\n \"No external injuries...
\n Presence of tetrodoxin in blood -- a poison found in few marine
organisms.");
    GETCH();
    break;
case 9:clrscr();

```

```

    if (VERIFY(us_opt,inp,token,3)==1) {
        token-=3; us_opt[p]=inp; p++;}
    else if (VERIFY(us_opt,inp,token,3)==0)
        break;
    COUT("\n The Truck driver who took the drunk man said \n
    \"He was not drunk at all...\n    ...and he got off in the railway
    station... \" \n\n But chief, there is only one train at that time. It goes to
    the Teutoni... \n    So no use talking with him...");
    GETCH();
    break;
case 10:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; us_opt[p]=inp; p++;}
    else if (VERIFY(us_opt,token,inp,3)==0)
        break;
    COUT("\n- East: No movement, other than watchman.\n- West:
    No movement, other than watchman.\nSouth: 2 men walking along
    the street and one falls down suddenly and other drags him towards
    the North.\nNorth: The CCTV camera not installed yet\n\n Still
    unclear... :(");
    GETCH();
    break;
case -1:

clrscr();
cout<<" Name";
gotoxy(30,1);
cout<<"Age(yrs)";
gotoxy(40,1);
cout<<"Height(ft)";
gotoxy(52,1);
cout<<"Blood";
gotoxy(60,1);
cout<<"Profession\n";

```

```

if (n==5)
{
for (int r=0;r<3;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,3);
if (temp_conf==-1)
{clrscr();
break;
}
int conf=UPDOWN_SUS(2,3);
if (conf!=temp_conf)
{
clrscr();break;
}
switch(conf)
{
case 4:clrscr();
end=time(NULL); succ=1; break;
case -1: clrscr(); break;
default: clrscr();
end=beg; succ=2; break;
}
}

```

```

else if (n==7)
{
for (int r=0;r<6;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,6);
if (temp_conf==-1)
{clrscr();
break;
}
int conf=UPDOWN_SUS(2,6);

```

```

if (conf!=temp_conf)
{
clrscr();break;
}
switch(conf)
{
case 4:clrscr();
end=time(NULL); succ=1; break;
case -1: clrscr(); break;
default: clrscr();
end=beg; succ=2; break;
}
}

else if (n==9)
{
for (int r=0;r<7;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,7);
if (temp_conf==-1)
{clrscr();
break;
}
int conf=UPDOWN_SUS(2,7);
if (conf!=temp_conf)
{
clrscr();break;
}
switch(conf)
{
case 4:clrscr();
end=time(NULL); succ=1; break;
case -1: clrscr(); break;
default: clrscr();
end=beg; succ=2; break;
}
}

```

```
}  
}
```

```
else
```

```
{
```

```
cout<<"\t\t<NO RECORDS. PLAY MORE TO GET SOME  
SUSPECTS>";
```

```
GETCH();
```

```
clrscr();
```

```
}
```

```
}
```

```
}while(!succ);
```

```
if (succ==1)
```

```
{
```

```
clrscr();
```

```
cout<<"\n\nCASE 1:\t COMPLETED!!\n\n XP earned: ";
```

```
double xp=(850-(end-beg))*11;
```

```
if (xp<0)
```

```
xp=0;
```

```
cout<<xp;
```

```
GETCH();
```

```
if (user.ret_lvl()<1)
```

```
{
```

```
user.upd_xp(xp);
```

```
user.upd_tokens(token);
```

```
user.upd_lvl(1);
```

```
}
```

```
}
```

```
if (succ==2)
```

```
{
```

```
clrscr();
```

```
cout<<"\n\nCASE 1:\t FAILED!!\n\n XP earned: -300";
```

```
if (user.ret_lvl()<1)
```

```
user.upd_xp(-300);
```



```
GETCH();  
}
```

```
}
```

```
void LVL2(MEMBER &user)  
{
```

```
clrscr();
```

```
class LVL2{  
char name[32],prof[32];  
float age, height;  
public:
```

```
void INPUT(char n[32],float a,float h,char p[32]){  
strcpy(name,n);  
age=a;  
height=h;  
strcpy(prof,p);  
}
```

```
void DISPLAY(int i)  
{  
cout<<" "<<name;  
gotoxy(35,i+2);  
cout<<age;  
gotoxy(45,i+2);  
cout<<height;  
gotoxy(60,i+2);  
cout<<prof<<endl;  
}  
};
```

```
void GETCH(); void COUT(char*);  
int VERIFY(int[],int,int,int);
```

```

char menu[4][2][250]={
    "> Check the CCTVs on top of the crown\t(1)",
    "> Look through the wide window on the right side of the
stage\t(1)",
    "> Check the first floor CCTV (near the stairs)\t(2)",
    "> Meet Mr. Nixon\t(3)",
    "> Check another CCTV in 2nd floor\t(3)",
    "> Raid a Security Guard's house\t(3)",
    "> Go to the Harbour in search of a suspect\t(3)",
    "> Go to a suspect's house\t(4)",

};

```

```

char str[207];
ifstream f2("story/lvl2.txt");
if (!f2)
{
    cerr<<"Required file not detected!\n";
    GETCH();
    exit(1);
}
do {
    f2.getline(str,207);
    for (int i=0;i<strlen(str);i++)
    {
        cout<<str[i];
        delay(15); }
    delay(500);
    if (str[1]=='<'&&str[strlen(str)-1]=='>')
    {
        getch();
        clrscr();
    }
    cout<<"\n";
}

```

```

    }while(!f2.eof());
clrscr();

int us_opt[8]={0,0,0,0,0,0,0,0};

LVL2 crime[6];
crime[4].INPUT("Nikki Woolf",34,5.5,"-- (UNKNOWN) --");
crime[5].INPUT("Mymaker Desezanio",28,5.7,"Director");
crime[2].INPUT("Sid Nixon",24,5.6,"Detective");
crime[3].INPUT("Mymaker Nixon",28,5.8,"-- (UNKNOWN) --");
crime[1].INPUT("Oz Adams",21,5.5,"Housekeeper");
crime[0].INPUT("Nezel Reagan",34,5.6,"Security Guard");

int succ=0;

clock_t beg,end;
beg=time(NULL);

int a=0,n=1,token=user.ret_tokens()+14,p=0;
do {
gotoxy(60,1);
cout<<"TOKENS: "<<token<<"\n\n";
cout<<"- FORCE EXIT (Your progress WON't be saved!)\n";
for (int a=0;a<n;a++)
{puts(menu[a][0]); puts(menu[a][1]);}
int inp=UPDOWN_SUS(3,2*n+1);
switch(inp)
{
case 1: clrscr();
        cout<<"\n\n\tAre you sure you want to quit? Your progress
WON't be saved!!\n\tPress Y to confirm exit.  \t";
        char ch;
        ch=getche();
        if (ch=='y' || ch=='Y')
        {
            succ=-1;

```

```
break;
}
break;
```

```
case 2:clrscr();
```

```
if (VERIFY(us_opt,inp,token,1)==1) {
    token--; n=2; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,1)==0)
    break;
```

```
    COUT(" Let me check the CCTVs\n -- It has already been
checked by the police and detectives\n    ...but as its for you its worth
seeing again\n\n You check the CCTV which is near the stairs (It also
has an sound recorder :) )\n");
```

```
    COUT("\n\t16:00: Everything is fine\n\t16:30: Everything is
fine\n\t17:00: The crown starts to disappear and the crowd starts
agitating. \n\t    The guards come to control the crowd. Everyone is
taken to 1st floor. \n\t    Someone moving into the heads room.\n");
```

```
    COUT("\t17:05: Nobody can be seen in the entire floor in any
CCTVs.\n\t17:10: Nixon comes near the stage and checks it.\n\t
He also checks the ground the walls the window \n    You hear long
whistle from the speaker\n\n\n What is that sound, Nicholson?\n\t--
\"Must be due to a Cargo ship in the nearby river which is going past
this building to the dock\"\n\n\t17:15: Room is without any
movements");
```

```
    GETCH();
    break;
```

```
case 3:clrscr();
```

```
if (VERIFY(us_opt,inp,token,1)==1) {
    token--; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,1)==0)
    break;
```

```
    COUT("\n You check out of the window\n\n There is a tree, a
calm river, police just below you, and a traffic jam in the nearby road.
\n Your partner suggests you to check the CCTV");
```

```
    GETCH();
    break;
```

```

case 4:clrscr();
if (VERIFY(us_opt,inp,token,2)==1) {
    token-=2; n=3; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,2)==0)
    break;
    COUT("\n\t17:10: No movement\n\t17:13: Nixon comes down
the stairs...");
    GETCH();
    break;
case 5:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,3)==0)
    break;
    COUT("\n You arrive at Mr Nixon's house\n\n Knock
knock.....knock knock\n No response\n\n You again come
back to the museum\n");
    GETCH();
    break;
case 6:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; n=4; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,3)==0)
    break;
    COUT("\n\t17:15: You see a shadow near the stage - 5.7 ft high...
\n\n\t -- \"Who's that? It was different in the other camera?\" says
Nicholson.\n \"There is some device over there, hanging at the back of
the stage....\" \n\n\t -- \"Chief, it says \"Graphical Simulator\"...\n\"Give
me a list of all Graphical Engineers in Itoville!\" \n\n\n\t-- \"Sid Nixon,
Mymaker Nixon... Nikki Woolf too... I think that's it, Chief\" ");
    GETCH();
    break;
case 7:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; us_opt[p]=inp; p++;}
else if (VERIFY(us_opt,inp,token,3)==0)

```

```

        break;
COUT("\n The police officer says\n  \"Don't you know that you can't
raid without any valid evidence? \n  ...And I don't find anything
wrong with him ... \n  Sorry, you can't raid his house. That's it!\");
        GETCH();

```

```

        break;
case 8:clrscr();
if (VERIFY(us_opt,inp,token,3)==1) {
    token-=3; us_opt[p]=inp; p++;}
    else if (VERIFY(us_opt,inp,token,3)==0)
        break;
COUT("\n You arrive at Harbour.\n You check in the boarding area
and you can't find her\n You check in the waiting lounge you see her
with a briefcase... \n\n Can you give me your briefcase? \n -- But
why, sir?\n (The guards catch her and you try to open briefcase)\n\n ...
\n Aww... something shiny...");
        GETCH();

```

```

        break;
case 9:clrscr();
if (VERIFY(us_opt,inp,token,4)==1) {
    token-=4; succ=2;us_opt[p]=inp; p++;}
    else if (VERIFY(us_opt,token,inp,4)==0)
        break;
COUT("\n You arrive at the house\n\n Knock knock..... Knock
knock\n No response\n\n I doubt him now...\n Lets break in\n (The
guards break the door)\n ...\n The entire house is empty & he is not
here... \n\n\n You receive a call from the harbour\n Hullo, Mr, you
were close but I'm just gonna sail off...\n\n ....Ship starts off
\n\n\n\t\t***THE END....***");

```

```

GETCH();

```

```

        break;
case -1:

```

```

clrscr();
cout<<" Name";
gotoxy(35,1);

```

```

cout<<"Age(yrs)";
gotoxy(45,1);
cout<<"Height(ft)";
gotoxy(60,1);
cout<<"Profession\n";
if (n==2)
{
for (int r=0;r<1;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,1);
if (temp_conf==-1)
{clrscr();
break;
}
int conf=UPDOWN_SUS(2,1);
if (conf!=temp_conf)
{
clrscr();break;
}
switch(conf)
{
case 5:clrscr();
end=time(NULL); succ=1; break;
case -1: clrscr(); break;
default: clrscr();
end=beg; succ=2; break;
}
}
else if (n==3)
{
for (int r=0;r<3;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,3);
if (temp_conf==-1)

```

```

{clrscr();
break;
}
int conf=UPDOWN_SUS(2,3);
if (conf!=temp_conf)
{
clrscr();break;
}
switch(conf)
{
case 5:clrscr();
end=time(NULL); succ=1; break;
case -1: clrscr(); break;
default: clrscr();
end=beg; succ=2; break;
}
}

else if (n==4)
{
for (int r=0;r<6;r++)
crime[r].DISPLAY(r);
cout<<"\n\n <PRESS Enter TWICE to CONFIRM>";
int temp_conf=UPDOWN_SUS(2,6);
if (temp_conf==-1)
{clrscr();
break;
}
int conf=UPDOWN_SUS(2,6);
if (conf!=temp_conf)
{clrscr(); break;}
switch(conf)
{
case 5:clrscr();
end=time(NULL); succ=1;break;
case -1: clrscr(); break;

```



```

default: clrscr();
end=beg; succ=2; break;
}
}
else
{
cout<<"\t\t<NO RECORDS. PLAY MORE TO GET SOME
SUSPECTS>";
GETCH();
clrscr();
}
}
}while(!succ);

```

```

if (succ==1)
{
clrscr();
cout<<"\n\nCASE 2:\t COMPLETED!!\n\n XP earned: ";
double xp=(900-(end-beg))*11;
if (xp<0)
xp=0;
cout<<xp;
GETCH();
if (user.ret_lvl()<2)
{
user.upd_xp(xp);
user.upd_tokens(token);
user.upd_lvl(2);
}
}
}

```

```

if (succ==2)
{
clrscr();
cout<<"\n\nCASE 2:\t FAILED!!\n\n XP earned: -500";
GETCH();
}
}

```

```
if (user.ret_lvl()<2)
user.upd_xp(-500);
}
}
```

```
void GETCH()
{
cout<<"\n\n\t<PRESS ANY KEY TO CONTINUE>";
getch();
clrscr();
}
```

```
int VERIFY(int user[],int opt,int tokens,int t_check){
for (int i=0;i<9;i++)
if (opt==user[i])
return -1;
if (tokens-t_check>=0)
return 1;
else
{cout<<"\n\nNo Enough Tokens...";
GETCH();
return 0;}

}
```

```
void COUT(char* ch)
{
while (*ch++!='\0')
{
cout<<*(ch-1); delay(50);}
}
```

```
void init() {
    clrscr();
```

```

gotoxy(2,20);
cout<<"(C) All Rights Reserved";
gotoxy(25,8);
cout<<"Looking for a Database...";
delay(999);
MEMBER test;
fstream f("USERS.DAT",ios::in|ios::binary);
f.read((char*)&test,sizeof(test));
if (strcmp(test.ret_userid(),"0"))
{
gotoxy(25,8);
cout<<"Setting up a Database for the first time...";
MEMBER m("0","0","0");
MEMBER adm("admin","ADMIN","admin");
m.pass_enc(); adm.pass_enc();
    fstream fl("USERS.DAT",ios::out|ios::binary);
    fl.write((char*)&m,sizeof(m));
    fl.write((char*)&adm,sizeof(adm));
    fl.close();
delay(1999);
}
clrscr();
gotoxy(2,20);
cout<<"(C) All Rights Reserved";
gotoxy(25,8);
cout<<"Looking for files...";
delay(1299);
int succ=0;
ifstream s;
s.open("story/LVL0.TXT");
if (!s)
succ++;
s.close();
s.open("story/LVL1.TXT");
if (!s)
succ++;

```

```
s.close();
s.open("story/LVL2.TXT");
if (!s)
succ++;
s.close();
if (succ!=0)
{
gotoxy(25,8);
cerr<<"Oops... Some Files are missing...";
gotoxy(26,9);
cout<<"Contact the administrator immediately.";
gotoxy(25,11);
cout<<"\t<PRESS ANY KEY TO EXIT>";
getch();
exit(1);
}
clrscr();
gotoxy(2,20);
cout<<"(C) All Rights Reserved";
gotoxy(25,8);
cout<<"Taking you to Itoville...";
gotoxy(25,9);
cout<<"    Just a moment...";
delay(5000);
clrscr();
gotoxy(2,20);
cout<<"(C) All Rights Reserved";
gotoxy(25,8);
cout<<"Landed safely at Itoville";
gotoxy(25,10);
cout<<"<PRESS ANY KEY TO START>";
getch();

}
```

CUSTOM HEADER FILES

(i) NAVIGATE.hpp

```
#include<bios.h>
#include<conio.h>

int UPDOWN(int miny,int opts)
{
int init=1,inp, y=miny, maxy=miny+opts-1;
gotoxy(1,miny);
do {
inp=bioskey(0);
if (inp==18432)
{
if (y!=miny)
{
gotoxy(1,--y); init--;
}
}
if (inp==20480)
{
if (y!=maxy)
{
gotoxy(1,++y); init++;
}
}
} while(inp!=7181);
return init;}

int UPDOWN_SUS(int miny,int opts)
{
int init=1,inp, y=miny, maxy=miny+opts-1;
gotoxy(1,miny);
do {
inp=bioskey(0);
if (inp==18432)
```

```
{
if (y!=miny)
{
gotoxy(1,--y); init--;
}
}
if (inp==20480)
{
if (y!=maxy)
{
gotoxy(1,++y); init++;
}
}
if (inp==19200 || inp==19712)
return -1;
} while(inp!=7181);
return init;}
```

(ii) PASSENC.hpp

```
char* ENC(char* str)
{ int len=0;
  for (;*str!='\0';str++)
    {len++;
     if (*str<30)
       *str+=2;
     else if (*str<56)
       *str+=3;
     else if (*str<89)
       *str+=5;
     else if (*str<100)
       *str +=6;
     else if (*str<120)
       *str +=8;
     else
       *str +=9;}
  str-=len;
  return str;
}
```

TEXT FILES CONTENT

(i) LVLO.TXT

12th May 2018, 10:00 AM

Hi <name> Welcome to Itoville!

I'm Cameron Nicholson and I'll be glad to assist you!

Before we start, let me tell you something about this city.
Itoville is a small city, infamous for it's crime scenes!
24 detectives have quit in the last 3 months...

Okay, leave that!

Let's start this game after a small tutorial!

<PRESS ANY KEY TO CONTINUE>
Well, this game is very simple!

You will be asked to solve a case in each level.

- * Use UP/DOWN keys to navigate between the options.
- * Use LEFT/RIGHT keys to navigate between the CLUES/SUSPECTS window.
- * You will be given with certain number of tokens before the start of each level.
 - A set of options will be there to help you to solve the case.
 - Each option costs you token(s).
- * The number against each clue represents the number of tokens you have to spend for that level.
- * You will get more clues and suspects as you keep playing.
- * Depending on how fast you finish a case, you earn XPs.
- * Retrying a level again WON't increase your XP/tokens.
- * Once you start a level, you CANNOT quit that level before completing it!

I 'll be there to help you out all the time, so no worries!

And sssh, you can use the remaining tokens for the next levels!

You will learn more as you progress!

Now let's go to Level 1! Good luck!

<PRESS ANY KEY TO CONTINUE>

(ii) LVL1.TXT

14 May 2018, 09:30

Yesterday night, there has been a murder in the Bakers' Street, near the butcher's shop.

A young man was found dead and the same was reported by a watchman, Mr. Mymaker Desezanio.

The police, after investigation, found that it was Mr. Enzo Mcswiggan who is dead...

He came from Izueby, about 35km west of Itoville , and was a teacher in the State School.

However, there is no clue why he came here and who did this to him...

And the case has come to us for a solution...

<PRESS ANY KEY TO CONTINUE>

(iii) LVL2.TXT

20 May 2018, 16:30

The famous Queen (Rosalie Exeter Atkins)'s crown journey has now stepped into our Itoville.

It was placed in the city Museum for the public from 08:00 to 18:00.

However, it was destroyed without any clue, at around 17:00 in front of the guards' eyes and the whole crowd witnessed the disappearing of the crown.

The shocked guards acted fast and closed all exits and cleared the people from 2nd floor to the 1st floor.

A word was sent to the head of museum who came saw the crown's dust between the glass box. They also completely checked them for any weapons and fortunately they couldn't find any thing.

A word was sent to the new Queen and to the local police station.

Mr Nixon, a Junior Detective, who was one among the crowd, asked the guards whether he can help them?

And the case has come to us for a solution...

<PRESS ANY KEY TO CONTINUE>

OUTPUTS

Looking for a Database...

Setting up a Database for the first time..._

Looking for files...

Oops... Some Files are missing...
Contact the administrator immediately.

<PRESS ANY KEY TO EXIT>_

Taking you to Itoville...
Just a moment...

Welcome GUEST,

Join the group of Detectives of Itoville to solve a series of murder cases.

NOT YET A MEMBER? SIGN UP NOW!

> Username:

> Name:

> Password:

> Login

<Press Esc to EXIT>

Register

It won't take more than a minute!

Welcome GUEST,

Join the group of Detectives of Itoville to solve a series of murder cases.

NOT YET A MEMBER? SIGN UP NOW!

> Username: me

> Name: Somebody

> Password: **

By signing up, you agree that you are more than 12 years old.

If not, press Esc. Press Enter to proceed._

Welcome GUEST,

Join the group of Detectives of Itoville to solve a series of murder cases.

NOT YET A MEMBER? SIGN UP NOW!

> Username: me Name already exists! Please choose another name_

> Name:

> Password:

> Login

<Press Esc to EXIT>

**Duplicate Usernames
not allowed**

Welcome GUEST,

Join the group of Detectives of Itoville to solve a series of murder cases.

LOGIN:

> Username: me

> Password: ***

LOADING..._

> Sign Up

<Press Esc to EXIT>

Login

```
Welcome GUEST,  
  
Join the group of Detectives of Itoville to solve a series of murder cases.  
  
LOGIN:  
> Username: me  
> Password: **  
The details you entered doesnot match with any of our records.Please try again!  
  
> Sign Up  
  
    <Press Esc to EXIT>
```

When something goes wrong....

```
Somebody                                XP: 0                                TOKENS: 0  
  
CHOOSE:  
> Play  
> Change Password  
    Logout
```

A simple User Screen....


```
Changing password.  
Enter current password: **  
Enter new password:    **  
Confirm your password: **  
    Successfully changed!
```

```
LOADING..._
```

**Changing your password has
never been so easy....**

```
Changing password.  
Enter current password: ****  
Enter new password:    **  
Confirm your password: **  
    Current password you entered doesnot match
```

```
LOADING..._
```

```
Changing password.  
Enter current password: **  
Enter new password:    ****  
Confirm your password: ****  
    The new passwords you entered does not match!
```

```
LOADING..._
```

Validations....

12th May 2018, 10:00 AM

Hi Somebody, Welcome to Itoville!

I'm Cameron Nicholson and I'll be glad to assist you!

Before we start, let me tell you something about this city.
Itoville is a small city, infamous for it's crime scenes!
24 detectives have quit in the last 3 months...

Okay, leave that!

Let's start this game after a small tutorial!

<PRESS ANY KEY TO CONTINUE>

**This is how
we begin....**

You will be asked to solve a case in each level.

- * Use UP/DOWN keys to navigate between the options.
- * Use LEFT/RIGHT keys to navigate between the CLUES/SUSPECTS window.
- * You will be given with certain number of tokens before the start of each level.

A set of options will be there to help you to solve the case.

Each option costs you token(s).

* The number against each clue represents the number of tokens you have to spend for that level.

* You will get more clues and suspects as you keep playing.

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* Retrying a level again WON't increase your XP/tokens.

* Once you start a level, you CANNOT quit that level before completing it!

I 'll be there to help you out all the time, so no worries!

And sssh, you can use the remaining tokens for the next levels!

You will learn more as you progress!

Now let's go to Level 1! Good luck!

<PRESS ANY KEY TO CONTINUE>_

TOKENS: 112

- FORCE EXIT (Your progress WON't be saved!)
- > Investigate the dead body (1)
- > Investigate the wall on which strange words are written (1)
- > Check out the lawn (1)

Start your Investigation....

Do you have any idea about the murder in your neighbourhood?
-- I know who did it.

Then tell us! I will guarantee your protection with military support.
-- Okay... Okay... It's is no one other than spirit which I have seen with my eyes...

It must have did this as he attempted to loot the spirits place...
you can see it's clear also there are no injuries...
By the way, when i will be getting the protection?

You better shut the door hard as you can! --

<PRESS ANY KEY TO CONTINUE>_

Some clues are useless...

It's about 5.6 ft above the ground...
A strange word "RACHE" has been written with blood...

<PRESS ANY KEY TO CONTINUE>_

Some of them are very indirect...

You arrive curiously to the watchman's house...

Wait... he is not on DUTY?

Can you tell us what happened last night? And why are you not on DUTY today?

-- Yesterday night when I saw a light in the house... which has been locked up for years...

I started to move towards the doorstep...

also I am new to this job and there...

there has been a rumour that a spirit roams over here...

so I went back to call my friend who was in the other street

when I came back I saw a drunken man outside the lawn who couldn't even make a stand...

It was dark and raining...

so we helped him to get to the nearby street where a small truck with label

'All kinds of fish are tasty at FISH FAINTERS'

We reached the door step... but I don't know where he went...

...but the light was not over there, so I called the cops...

due to yesterday's Rain I got extreme cold...

That's it sir.

<PRESS ANY KEY TO CONTINUE>

**But some of them are
very direct.....**

The Truck driver who took the drunk man said

"He was not drunk at all...

...and he got off in the railway station... "

But chief, there is only one train at that time. It goes to the Teutoni...

So no use talking with him...

<PRESS ANY KEY TO CONTINUE>_

Name	Age(yrs)	Height(ft)	Blood	Profession
Marvin Eckart	30	5.6	A+	Butcher
Elza Ashton	24	5.8	A+	Teacher
Ash Rache	22	5.1	O+	Truck driver
Mo Dixon	34	5.8	O+	Truck driver
Mymaker Desezanie	28	5.9	A+	Watchman
Zack Cox	23	5.8	O+	Local

<PRESS Enter TWICE to CONFIRM>

Name	Age(yrs)	Height(ft)	Profession
Nezel Reagan	34	5.6	Security Guard
Oz Adams	21	5.5	Housekeeper
Sid Nixon	24	5.6	Detective

<PRESS Enter TWICE to CONFIRM>

Have an eye at the Suspects page.....

CASE 1: COMPLETED!!

XP earned: 7513

CASE 2: FAILED!!

<PRESS ANY KEY TO CO

XP earned: -500

<PRESS ANY KEY TO CONTINUE>_

**And catch them all
before they get away...**

```
Somebody                                XP: 0          TOKENS: 100    LEVEL: 0

  Save & Exit
> Tutorial
> Case 1: Who killed Mr. Enzo Mcswiggan
```

This is the Cases page...

**More cases get piled up as you
finish the given cases...**

```
Welcome GUEST,

Join the group of Detectives of Itoville to solve a series of murder cases.

LOGIN:
> Username:  admin
> Password:  *****

> Sign Up

<Press Esc to EXIT>
```

**There is something
more for Admin...**

ADMIN PANEL

Change Password

Logout

> me Somebody

0

**You can manage other
members' account here...**

USER ID: me

**You can add/remove tokens for an
account...**

Current number of tokens: 0

Add 100 tokens

Adding 100 tokens for me

Press Enter to continue. Press Esc to cancel._

Are you sure you want to remove me

Press Enter to continue. Press Esc to cancel._

**..Or you can remove an account
permanently**

SCOPE FOR IMPROVEMENT

- A better UI can be made with the help of multimedia and graphics
- “SHOP” feature can be added so that users can buy tokens to complete certain levels, if they run short of them
- More Levels can be created so that users can keep playing
- The entire game could be made online to make things more exciting
- Since Binary Files are not always reliable alternative Database systems, like SQL, can be used

(However, it is practically not possible to implement most of the above features using Turbo C++)

BIBLIOGRAPHY

- ➡ Sumita Arora C++ (Class 12) book
- ➡ C++ Program Design (by James P. Cohoon)
- ➡ Topic Search in Turbo C++