

My project, "IT railway system", is based on the concept of object oriented programming using C++. In this project we have used the concepts of classes, files, strings, time library functions and windows.h library function.

my project is designed and developed with the view of making railway booking easier and making benefits available to the loyal customers i.e the customers who make an account and do reservations through it and also facilitating reservation facilities to customers without an account.

At the first glance of the code is the menu with four options as follows

```
|      IT railway system      |
|-----|
Press 1. To login
Press 2. To create account
Press 3. To make a reservation without logging in
Press 4. To exit
Choice :
```

option no 1 for logging into account.

option no 2 for creating a new account.

option no 3 for Making a reservation without logging in.

option no 4 for exiting the program.

```
|      Login      |
|-----|
Enter your account no. : 20210601
Welcome, Pratyay Dhond
Enter your password : *****
Logged in successfully.
Press any key to continue . . .
```

The first option, log in takes us to log in page where we have to input the users account no and the password. If the password is right then the program takes us to station selection.

```
|      Select Station      |
|-----|
Locations Available :
1.Pune
2.Mumbai
3.Delhi
4.Goa
5.Chennai
6.Bangalore
7.Jaipur
8.Nashik
Choose Your Pickup Station : 1
Choose Your Destination Station : 3
Enter date for booking : (DD-MM-YYYY) : 31-06-2021
```

The station selection, consists of a total of 8 stations which include, Pune, Mumbai, Delhi, Goa, Chennai, Bangalore, Jaipur and Nashik. Here we have to input the code of the pickup station and the destination station and the date for booking.

```

-----
                        IT Railway System
                    Breaking the barriers with the speed...

Bill No. 20210621                                     30-06-2021
                                                         18:12:11
-----

Pick up      : Pune
Destination  : Delhi
Date         : 31-06-2021
Account No.  : 20210601
Name         : Pratyay Dhond
Contact No.  : 9022137587
Address      : Dabha Nagpur
Amount       : Rs.6270.25/-
Discount     : Rs.2319.99/-
Total Bill   : Rs.3950.26/-

                                                         SIGN
Route : PNE->NGP->DEL
-----

Wishing You A Happy Journey!

Press any key to continue

```

After entering the date, a bill is provided to us which is also saved in text format in a file which can be used to print the bill.

Here, the bill consists of The company, "IT Railway System's" name, the slogan, Bill no on the left, The time and date of bill generation on right, Details of the pickup, Destination , Date, customer details and bill amount and the route for the train, here for example it is PNE->NGP->DEL.

In the second option, Create account,

```

-----
|   Account Registration   |
-----
Enter Your Full Name : Samag Dhond
Enter Your age : 18
Enter Your Phone no : 9022137587
Enter your address : Dabha, Nagpur

Do you want to set a password or use suggested password?
Press 1. to set password
Press 2. to use suggested Password
choice : S

```

It starts by asking basic details of the consumer such as name age phone no and their address. After that it opts the user to make a password for their account or to use a suggested password which is generated randomly.

```
-----  
|           Set Password           |  
-----  
Enter your password : Sam123  
Reenter your password : Sam123  
Password Set Successfully  
Data Written to file successfully  
Press any key to continue
```

The first option, set password, asks the user for a password and then asks the user to reenter the password for confirmation. After this if both the entered passwords are same it saves the users details to the database, “data.txt” file so that it can be accessed in the future.

```
-----  
|       Password Generation       |  
-----  
Enter size of password : 12  
Do you want your password to have lower case letters ?  
Press 1. for Yes ,Press 0 for No  
Choice : 1  
Do you want your password to have Upper case letters ?  
Press 1. for Yes ,Press 0 for No  
Choice : 1  
Do you want your password to consist of numbers ?  
Press 1. for Yes ,Press 0 for No  
Choice : 0  
Do you want your password to consist of special symbols ?  
Press 1. for Yes ,Press 0 for No  
Choice : 1
```

The other option, “use suggested password” takes us to Password Generation, where details regarding the password such as Password size, whether to include lower case letters, upper case letters, numbers and special characters int the password , are asked.

```

-----
|           Password Generation           |
-----
Password specifications :
Password size          : 12
lower case characters : true
Upper case characters : true
Numeric characters    : false
Special characters    : true

Generating Password.....
Encrypting password...
Password      : o#i0!fEvLV&*

Data Written to file successfully

```

After taking input from user, the entered specifications for the passwords are displayed and the password is generated by the program at runtime.

The generating password is the process of choosing random characters for the password.

The encrypting password is a modified version of selection sort where the elements are swapped randomly to form a more secure password.

```

-----
|           Account Details           |
-----
Account No : 20210610
Name       : Samag Dhond
Age        : 18
Contact No : 9022137587
Address    : Dabha, Nagpur
Password   : o#i0!fEvLV&*
Press any key to continue

```

After the password generation is completed, the user data is written to the database, “data.txt” file and the details of the customer are shown on the screen, the account no is important for the user as the user can’t login without the account number.

This is all for the process of creating account.

The third option is “To make a reservation without logging in”.

```

-----
|           Train Booking           |
-----
Enter name      : Priyanshu Lapkale
Enter Mobile No : 9075483652
Enter Age       : 18
Enter Address   : Nagpur

```

It takes us to Train booking, where details of the users such as name, phone number, age, address are asked and after entering the details we get redirected to the station selection.

```

-----
|           Select Station           |
-----
Locations Available :
1.Pune
2.Mumbai
3.Delhi
4.Goa
5.Chennai
6.Bangalore
7.Jaipur
8.Nashik
Choose Your Pickup Station : 1
Choose Your Destination Station : 4
Enter date for booking : (DD-MM-YYYY) : 31-06-2021_

```

Here as before we have to select a pickup station and Destination station and enter the date for booking.

```

-----
                        IT Railway System
                    Breaking the barriers with the speed...
-----
Bill No. 20210623                                     30-06-2021
                                                         18:42:50
-----
Pick up       : Pune
Destination   : Goa
Date          : 31-06-2021
Account No.   : 00000000
Name          : Priyanshu Lapkale
Contact No.   : 9075483652
Address       : Nagpur
Amount        : Rs.6183.1/-
Discount      : Rs.0/-
Total Bill    : Rs.6183.1/-

-----
Route : PNE->NGP->GOA
-----
                        Wishing You A Happy Journey!
-----

```

After entering the details, a bill as earlier is provided with a little twist, as the user wasn't logged in there is no discount for the user so the customer has to pay the full amount as the bill.

And the fourth option, EXIT is used to quit the program.

```

-----
Process exited after 5.481 seconds with return value 0
Press any key to continue . . .

```

In this program we have used a total of 4 files :

1. Data.txt
2. BillNo.txt
3. Account No. Counter.txt
4. BillTest.txt

1) **Data.txt :**

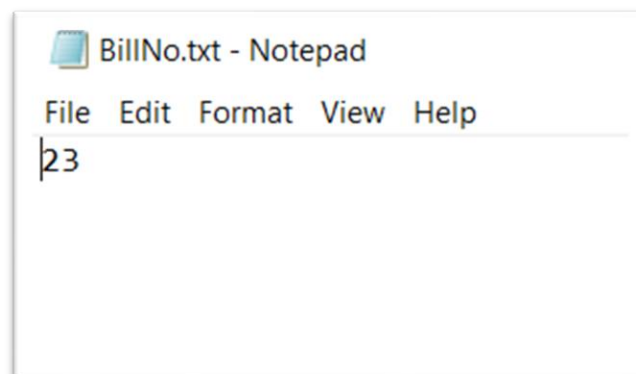
Used to store and access the data of user In/from binary form using C++ functions read() and write from the fstream class.



Data.txt file (user data in binary form)

BillNo.txt :

Contains the current count of the no of total bills generated for keeping the count of every bill generated.

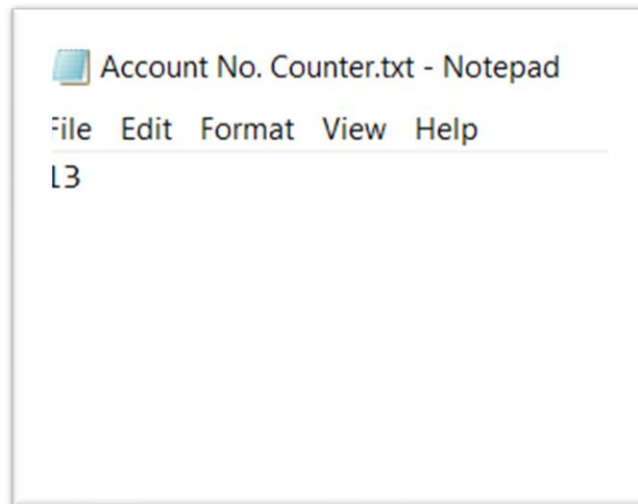


bills)

Bill.txt file(count of

Account No. Counter.txt :

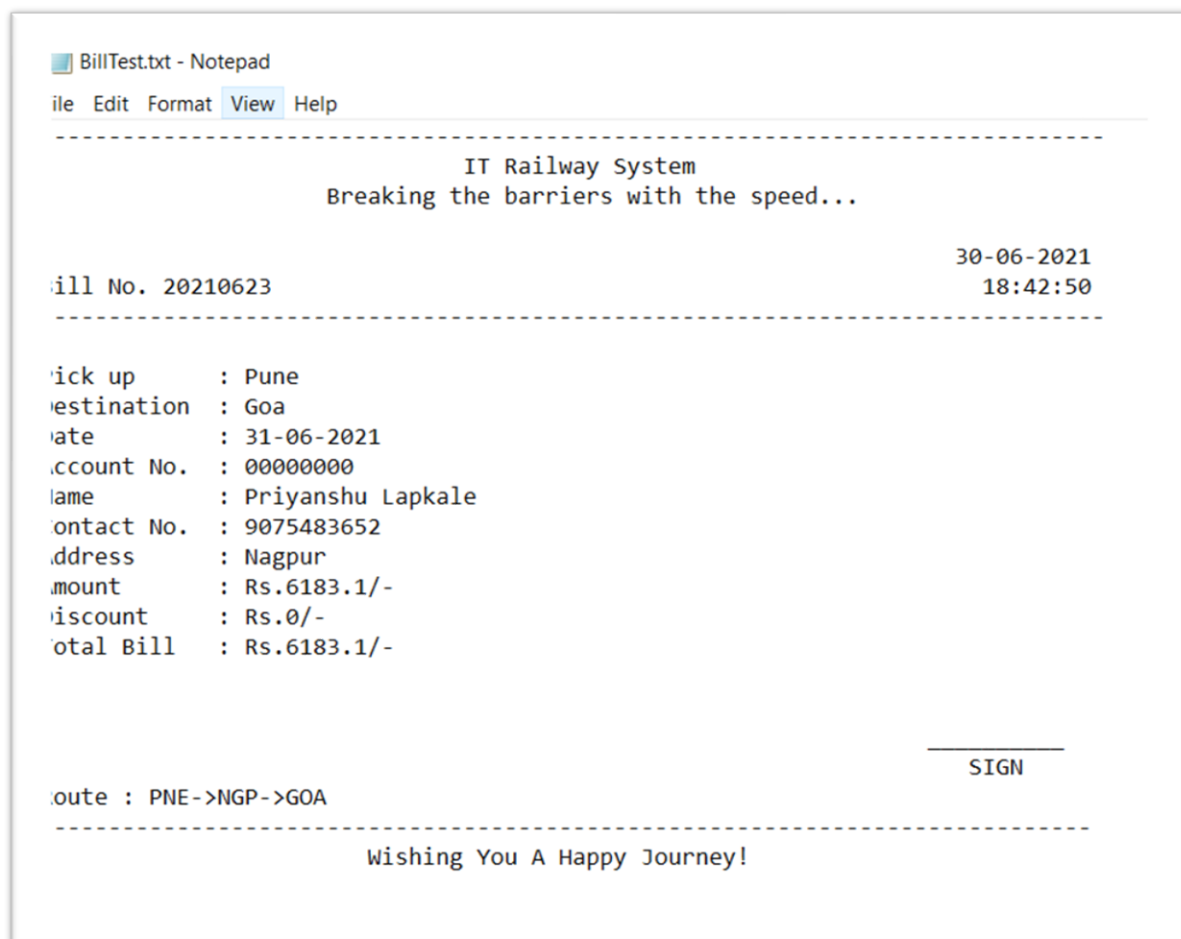
Used to store the count of total accounts created in the program, used in generation of new account numbers.



Account No. Counter.txt

BillTest.txt :

The generated bill is stored here.



BillTest.txt(Generated Bill)

The generated bill from the file can also be printed if needed,

```
-----
                        IT Railway System
                    Breaking the barriers with the speed...

Bill No. 20210617                                     30-06-2021
                                                         14:39:22
-----

Pick up       : Pune
Destination   : Mumbai
Date          : 30-06-2021
Account No.   : 20210601
Name          : Pratyay Dhond
Contact No.   : 9022137587
Address       : Dabha Nagpur
Amount        : Rs.5412.4/-
Discount      : Rs.1731.97/-
Total Bill    : Rs.3680.43/-

Route : PNE->NGP->MUM                                     SIGN
-----

                        Wishing You A Happy Journey!
```

Printed Bill prototype

Code :

```
#include<iostream>
#include<ctime> //used for functions of time library
#include<string>
#include<fstream>
#include<conio.h>
#include<iomanip>
#include<windows.h> //for VK_RETURN
using namespace std;

#ifdef _WIN32
#define cls system("cls");
#define br system("pause");
#endif

#define pricePerKM 3.5

void writeToFile();
bool readFromFile(int);
void start();
void println();
void login();
void loginDesign();
void bill();
void showLocations();
float TempBill();
void bookWithoutAcc();
void StationDisplay();
void setPassDesign();
void PassGenDesign();
void showDesign();

float billAmount;
int count=0;
float totalAfterDisc;
float total;
int pickup,destination;
string date;

class stations{
public:
float dist;
string name;
string code;
};

stations station[8];

class Account{
private:
int accNo;
char name[30];
```

```

int age;
char address[100];
char password[30];
char mobileNo[15];

void SetPass(){
int choice;
bool flag = false;
char p1[30],p2[30];
do{
cout<<"Do you want to set a password or use suggested password?"<<endl
<<"Press 1. to set password"<<endl<<"Press 2. to use suggested Password"<<endl
<<"choice : ";
cin>>choice;
fflush(stdin);
if(choice == 1){
ReEnter:
setPassDesign();
cout<<"Enter your password : ";
cin.getline(p1,sizeof(p1));
cout<<"Reenter your password : ";
cin.getline(p2,sizeof(p2));

if(strcmp(p1,p2) != 0){
cout<<"Passwords do not match. Try again"<<endl;
br;cls;
goto ReEnter;
}else{
strcpy(password,p1);
cout<<"Password Set Successfully"<<endl;
// cout<<"Your Password : "<<password<<endl;
// br;
flag = true;
}

}else if(choice == 2){
PassGenDesign();
PassGen();
cout<<"Password : "<<password<<endl<<endl;;
flag = true;

}else{
cout<<"Wrong choice. Please enter a valid choice."<<endl;
br;
cls;
}

}while(flag == false);

}

string PassGen(){
char lower[] = {"abcdefghijklmnopqrstuvwxyz"};
char upper[] = {"ABCDEFGHIJKLMNOPQRSTUVWXYZ"};
char digit[] = {"0123456789"};
char special[] = {"!@#&*~"};
int size = 0;

```

```

string SizeofPassStr;
int passSize;
bool isLower,isUpper,isDigit,isSpecial;
int errorControl;
cout<<"Enter size of password : ";
cin>>passSize;
fflush(stdin);
if(passSize <= 0){
cout<<"Error Incorrect size for password"<<endl<<"proceeding with default password size i.e 8"<<endl<<endl;
passSize = 8;
}
fflush(stdin);
string GeneratedPass;
RE:
cout<<"Do you want your password to have lower case letters ? "<<endl
<<"Press 1. for Yes ,Press 0 for No"<<endl<<" Choice : ";
cin>>errorControl;
if(errorControl == 0 || errorControl == 1){
isLower = errorControl;
}else{
isLower = 0;
}

cout<<"Do you want your password to have Upper case letters ? "<<endl
<<"Press 1. for Yes ,Press 0 for No"<<endl<<" Choice : ";
cin>>errorControl;
if(errorControl == 0 || errorControl == 1){
isUpper = errorControl;
}else{
isUpper = 0;
}

cout<<"Do you want your password to consist of numbers ? "<<endl
<<"Press 1. for Yes ,Press 0 for No"<<endl<<" Choice : ";
cin>>errorControl;
if(errorControl == 0 || errorControl == 1){
isDigit = errorControl;
}else{
isDigit = 0;
}

cout<<"Do you want your password to consist of special symbols ? "<<endl
<<"Press 1. for Yes ,Press 0 for No"<<endl<<" Choice : ";
cin>>errorControl;
if(errorControl == 0 || errorControl == 1){
isSpecial = errorControl;
}else{
isSpecial = 0;
}

if(isLower)
size++; //sizeof(lower);
if(isUpper)
size++; //sizeof(upper);
if(isDigit)
size++; //sizeof(digit);
if(isSpecial)

```

```

size++; //sizeof(special);
if(size == 0){
cout<<"Password cannot be empty, retry"<<endl;
br;cls;
goto RE;
}
// char *passContents = new char[size+1];
// if(isLower)
// strcpy(passContents,lower);
// if(isUpper)
// strcat(passContents,upper);
// if(isDigit)
// strcat(passContents,digit);
// if(isSpecial)
// strcat(passContents,special);
// cout<<endl<<endl<<passContents<<endl<<endl<<"YO"; //Present for testing if strings are getting concated or not

```

```

PassGenDesign();
cout<<"Password specifications : "<<endl<<endl;
    cout<<"Password size      : "<<passSize<<endl;
if(isLower)
cout<<"lower case characters : "<<"true"<<endl;
else
cout<<"lower case characters : "<<"false"<<endl;
if(isUpper)
cout<<"Upper case characters : "<<"true"<<endl;
else
cout<<"Upper case characters : "<<"false"<<endl;
if(isDigit)
cout<<"Numeric characters   : "<<"true"<<endl;
else
cout<<"Numeric characters   : "<<"false"<<endl;
if(isSpecial)
cout<<"Special characters    : "<<"true"<<endl;
else
cout<<"Special characters    : "<<"false"<<endl;
cout<<endl;

```

```

cout<<"Generating Password";
for(int i=0;i<=passSize;){
int j = rand();
srand(j);
// GeneratedPass[i] = passContents[rand()%sizeof(passContents)];
// cout<<GeneratedPass[i];

```

```

if(isLower){
GeneratedPass.push_back(lower[rand()%(sizeof(lower)-1)]);
i++;
takeTime();
cout<<".";
}
srand(time(NULL));

```

```

if(isUpper){
GeneratedPass.push_back(upper[rand()%(sizeof(upper)-1)]);
i++;
takeTime();

```

```

cout<<".";
}
srand(time(NULL));

if(isDigit){
GeneratedPass.push_back(digit[rand()%(sizeof(digit)-1)]);
i++;
takeTime();
cout<<".";
}
srand(time(NULL));

if(isSpecial){
GeneratedPass.push_back(special[rand()%(sizeof(special)-1)]);
i++;
takeTime();
cout<<".";
}
srand(time(NULL));

}
cout<<endl;
GeneratedPass.erase(passSize);
// cout<<GeneratedPass<<endl;
// string temp;
// srand(time(NULL));

// GeneratedPass = temp;
// GeneratedPass.erase(passSize);
// cout<<GeneratedPass<<endl;
// cout<<"yo";
// cout<<GeneratedPass<<endl;
//cout<<GeneratedPass<<endl;
cout<<"Encrypting password";
for(int i =0;i<3;i++){
takeTime();
GeneratedPass = randomizer(GeneratedPass);

// cout<<GeneratedPass<<endl;
cout<<".";
}
cout<<endl;
// GeneratedPass.push_back('\0');
// cout<<endl<<"Password : "<<GeneratedPass;
for(int i=0;i<GeneratedPass.size();i++){
password[i] = GeneratedPass[i];
}
if(GeneratedPass.size() >28)
password[29] = '\0';
else
password[GeneratedPass.size()] = '\0';

return GeneratedPass;
}

string randomizer(string GeneratedPass){
srand(time(NULL)); // c bade 5-2= 3 2+2 =4 , 4

```

```

string temp; //[GeneratedPass.size()] ;
for(int i=0;i<GeneratedPass.size();i++){
int n = i+ rand()% (GeneratedPass.size()-i);
// temp.push_back(GeneratedPass[n]);
temp.push_back(GeneratedPass[n]);
char t = GeneratedPass[i];
GeneratedPass[i] = GeneratedPass[n];
GeneratedPass[n] = t;
// cout<<GeneratedPass<<endl;
}
// GeneratedPass = temp;
// for(int i=0;i<GeneratedPass.size();i++)
// GeneratedPass[i] = temp[i];
return temp;
}

```

```

void takeTime(){
int t = time(NULL)+1;
while(t>time(NULL));
}

```

```

void show(){
showDesign();
cout<<"Account No : "<<accNo<<endl
<<"Name    : "<<name<<endl
<<"Age     : "<<age<<endl
<<"Contact No : "<<mobileNo<<endl
<<"Address  : "<<address<<endl;
}

```

public:

```

void putDataForNonCustomers(){
fflush(stdin);
cout<<"Enter name    : ";
cin.getline(name,30);
fflush(stdin);
cout<<"Enter Mobile No : ";
cin>>mobileNo;
fflush(stdin);
cout<<"Enter Age      : ";
cin>>age;
fflush(stdin);
cout<<"Enter Address  : ";
cin.getline(address,100);
accNo = 00000000;

}

```

```

int getAge(){
return age;
}

```

```

}
string getName(){
return name;
}
int getAccNo(){
return accNo;
}
string getNo(){
return mobileNo;
}

string getAddress(){
return address;
}

bool checkPass(){
RePassVerify:
// loginDesign();
char pass_in[30];
cout<<"Welcome, "<<name<<endl;
cout<<"Enter your password : ";
char c;
int i=0;
fflush(stdin);
// cin.ignore();
bool flag=1;

do{
c = getch();
if(c==VK_RETURN){
flag = 0;
}
else{
pass_in[i] = c;
cout<<"*";
i++;
}

}while(flag == 1);
pass_in[i] = '\0';
// cin>>pass_in;
cout<<endl;
if(strcmp(password,pass_in) == 0){
return true;
}else{
char ch;
cout<<"Incorrect Password"<<endl
<<"Press 1 to retry, Press any key to exit : ";
ch = getch();
cout<<ch<<endl;
//takeTime();
if(ch == '1'){

cls;
loginDesign();
goto RepassVerify;
}
}
}

```

```

}
}
return false;
}

void getData(){

ifstream fin;
fin.open("Account No. Counter.txt");
fin>>count;
accNo = 20210601 + count;
fin.close();
count++;
ofstream fout;
fout.open("Account No. Counter.txt");
fout<<count;
fout.close();

fflush(stdin);
cout<<"Enter Your Full Name : ";
//gets(name);
cin.getline(name,30);
cout<<"Enter Your age : ";
cin>>age;
cout<<"Enter Your Phone no : ";
cin>>mobileNo;
fflush(stdin);
cout<<"Enter your address : ";
cin.getline(address,sizeof(address));
cout<<endl;
fflush(stdin);
SetPass();

writeToFile();

show();
cout<<"Password : "<<password<<endl;
br;
}

void test(){
// PassGen();
SetPass();
fflush(stdin);
test();
}

int checkAccNo(){
return accNo;
}
};

Account a1;

void login(){
bool flag;
fflush(stdin);

```



```

cls
loginDesign();
int tempAccNo;
cout<<"Enter your account no. : ";
cin>>tempAccNo;
bool AccExist = readFromFile(tempAccNo);
if(AccExist == true)
flag = a1.checkPass();
else{
cout<<"Invalid account no."<<endl;
br;
return;
}
if(flag == false)
return;
float disc;
float amount;
if(flag == true){
cout<<"Logged in successfully."<<endl;
br; cls;
int age = a1.getAge();
amount = TempBill();
total = amount;
if(age<=18){
disc = ((rand()%30)+20)/100.0;
}else if(age>=60){
disc = ((rand()%30)+20)/100.0;
}else{
disc = ((rand()%15)+10)/100.0;
}

amount = amount * disc;
}

// cout<<total;
totalAfterDisc = total - amount;
fflush(stdin);
cout<<"Enter date for booking : (DD-MM-YYYY) : ";
cin>>date;
//getline(cin,date);
bill();
}

float TempBill(){
StationDisplay();
cout<<"Locations Available : "<<endl;
showLocations();
cout<<"Choose Your Pickup Station : ";
cin>>pickup; //declare
cout<<"Choose Your Destination Station : ";
cin>>destination;
// cout<<station[pickup-1].dist <<" "<<station[destination-1].dist<<endl;
// br;
float total_dist = station[pickup-1].dist + station[destination-1].dist;
return total_dist;
}

```

```

void bill(){
int billNo;
time_t timeNow;
timeNow = time(NULL);
struct tm t = *localtime(&timeNow);

fstream f("BillNo.txt",ios::in | ios::out);
f>>billNo;
// cout<<billNo;
++billNo;
f.close();
ofstream fout;
fout.open("BillNo.txt");
fout<<billNo;
fout.close();

fout.open("BillTest.txt");
fout<<"-----"<<endl;
fout<<"                IT Railway System                "<<endl;
fout<<"                Breaking the barriers with the speed...                "<<endl;
fout<<endl;
fout<<"                                "<<t.tm_mday<<"-"<<setw(2)<<setfill('0')<<t.tm_mon+1<<"-
"<<t.tm_year+1900<<endl;
fout<<"Bill No. "<<setw(3)<<setfill('0')<<billNo+20210600<<"
<<setw(2)<<setfill('0')<<t.tm_hour<<":"<<setw(2)<<setfill('0')<<t.tm_min<<":"<<setw(2)<<setfill('0')<<t.tm_sec<<endl;
fout<<"-----"<<endl<<endl;
fout<<"Pick up    : "<<station[pickup-1].name<<endl;
fout<<"Destination : "<<station[destination-1].name<<endl;
fout<<"Date      : "<<date/*<<"-"<<date[1]<<"-"<<date[2]*/<<endl;
fout<<"Account No. : "<<setw(8)<<setfill('0')<<a1.getAccNo()<<endl;
fout<<"Name       : "<<a1.getName()<<endl;
fout<<"Contact No. : "<<a1.getNo()<<endl;
fout<<"Address    : "<<a1.getAddress()<<endl;
fout<<"Amount     : Rs."<<total*pricePerKM<<"/-"<<endl;
fout<<"Discount   : Rs."<<(total-totalAfterDisc)*pricePerKM<<"/-"<<endl;
fout<<"Total Bill  : Rs."<<totalAfterDisc*pricePerKM<<"/-"<<endl;
fout<<endl<<endl;
fout<<"
                _____ " <<endl;
fout<<"                SIGN " <<endl;
fout<<"Route : "<<station[pickup-1].code<<"->"<<"NGP"<<"->"<<station[destination-1].code<<endl;
fout<<"-----"<<endl;
fout<<"                Wishing You A Happy Journey!                "<<endl;
fout.close();

cls;
ifstream fin;
fin.open("BillTest.txt");
char c;
while(fin){
fin.get(c);
cout<<c;
}
fin.close();
br;
}

```

```

void loginDesign(){
println();
cout<<"|      Login      |"<<endl;
println();
}

void AccDesign(){
cls;
println();
cout<<"|  Account Registration  |"<<endl;
println();
}

void StationDisplay(){
println();
cout<<"|  Select Station  |"<<endl;
println();
}

void PassGenDesign(){
cls;
println();
cout<<"|  Password Generation  |"<<endl;
println();
}

void setPassDesign(){
cls;
println();
cout<<"|  Set Password  |"<<endl;
println();
}

void detailsDesign(){
cls;
println();
cout<<"|  Account Details  |"<<endl;
println();
}

void println(){
cout<<"-----"<<endl;
}

void ITramwayDesign(){
println();
cout<<"|  IT railway system  |"<<endl;
println();
}

void showDesign(){
println();
cout<<"|  Account Details  |"<<endl;
println();
}

void registrationDesign(){

```

```

println();
cout<<"|      Train Booking      |"<<endl;
println();
}

```

```

void start(){
int choice;
srand(time(NULL));
do{
ITrailwayDesign();
cout<<"Press 1. To login"<<endl
<<"Press 2. To create account"<<endl
<<"Press 3. To make a reservation without logging in"<<endl
<<"Press 4. To exit"<<endl
<<"Choice : ";
cin>>choice;

```

```

switch(choice){
case 1:
// suggestion, set choice to 4 if needed so that you can exit if you are going to use recursion
login();
break;
case 2:
AccDesign();
a1.getData();
break;
case 3:
cls;
registrationDesign();
bookWithoutAcc();
break;
case 4:
break;
default:
cout<<"Error, enter a valid choice"<<endl;
br;
break;
}
cls;
}while(choice!=4);
}

```

```

void bookWithoutAcc(){
a1.putDataForNonCustomers();
cls;
totalAfterDisc = TempBill();
total = totalAfterDisc;
cout<<"Enter date for booking : (DD-MM-YYYY) : ";
cin>>date;
bill();

}

```

```

void writeToFile(){
ofstream fout("Data.txt",ios::app);
fout.write((char*) &a1, sizeof(a1));
cout<<"Data Written to file successfully"<<endl;

```

```
fout.close();  
br;  
cls;  
}
```

```
void showLocations(){  
for(int i=0;i<8;i++){  
cout<<i+1<<" "<<station[i].name<<endl;  
}  
}
```

```
bool readFromFile(int tempAccNo){  
bool flag = false;  
ifstream fin;  
fin.open("Data.txt",ios::ate);  
int n = fin.tellg();  
fin.close();  
fin.open("Data.txt");
```

```
while(n - fin.tellg() >= sizeof(a1)){  
fin.read((char*) &a1,sizeof(a1));  
if(tempAccNo == a1.checkAccNo()){  
flag = true;  
break;  
}
```

```
}  
fin.close();  
return flag;  
}
```

```
void setStations(){  
station[0].name = "Pune";  
station[1].name = "Mumbai";  
station[2].name = "Delhi";  
station[3].name = "Goa";  
station[4].name = "Chennai";  
station[5].name = "Bangalore";  
station[6].name = "Jaipur";  
station[7].name = "Nashik";
```

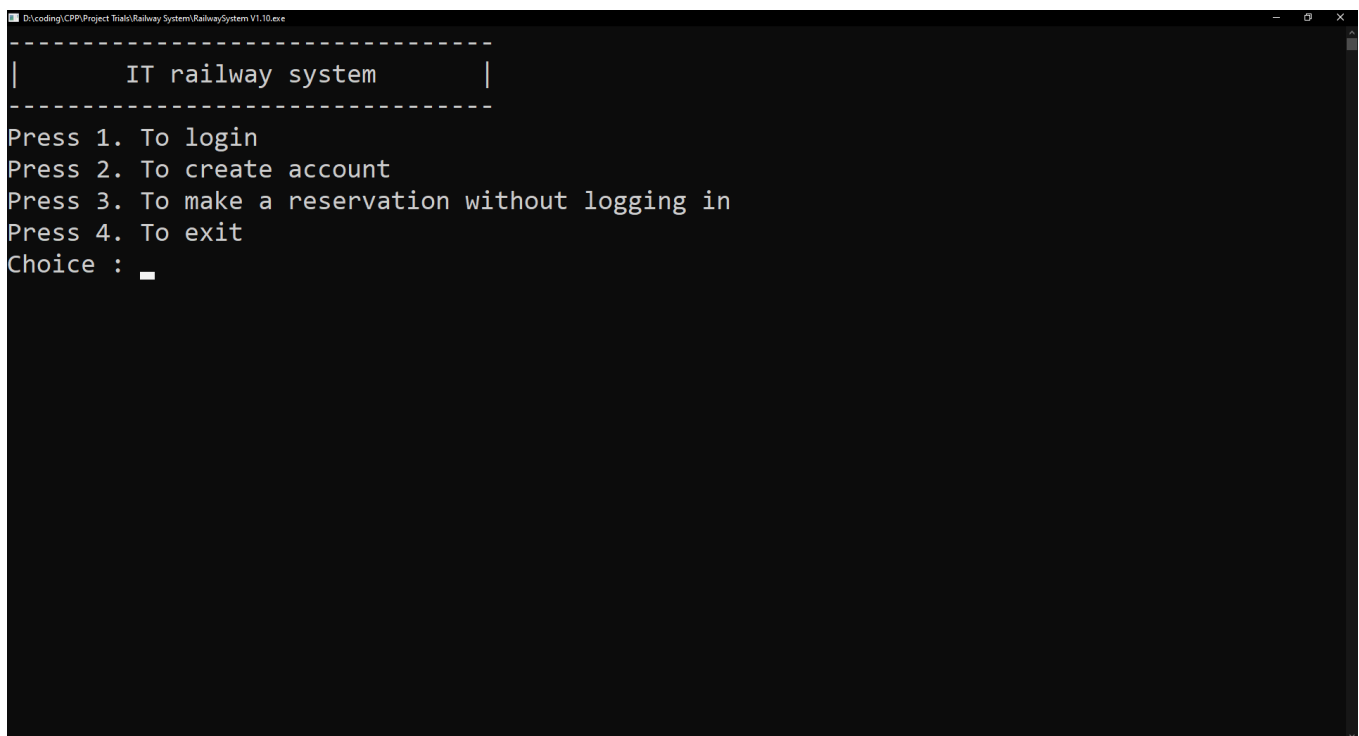
```
station[0].dist =711.3;  
station[1].dist =835.1;  
station[2].dist =1080.2;  
station[3].dist =1055.3;  
station[4].dist =1125.5;  
station[5].dist =1092.3;  
station[6].dist =943.8;  
station[7].dist =669.7;
```

```
station[0].code = "PNE";  
station[1].code = "MUM";  
station[2].code = "DEL";  
station[3].code = "GOA";  
station[4].code = "CHN";  
station[5].code = "BAN";  
station[6].code = "JAI";
```

```
station[7].code = "NAS";  
  
}
```

```
int main(){  
    // a1.test();  
    setStations();  
    start();  
    getch();  
    return 0;  
}
```

Output :



```
D:\coding\C++\Project Trials\Railway System\RailwaySystem V1.10.exe  
-----  
|      IT railway system      |  
-----  
Press 1. To login  
Press 2. To create account  
Press 3. To make a reservation without logging in  
Press 4. To exit  
Choice : _
```

Menu: IT railway system

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|              Login              |
-----
Welcome, Pratyay Dhond
Enter your password : *****
Logged in successfully.
Press any key to continue . . .
```

Login to your account

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|          Select Station          |
-----
Locations Available :
1.Pune
2.Mumbai
3.Delhi
4.Goa
5.Chennai
6.Bangalore
7.Jaipur
8.Nashik
Choose Your Pickup Station : 1
Choose Your Destination Station : 3
Enter date for booking : (DD-MM-YYYY) : 06-07-2021_
```

Select Station (Pickup and destination)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
                IT Railway System
            Breaking the barriers with the speed...

Bill No. 20210624                                     30-06-2021
                                                         19:13:24
-----

Pick up      : Pune
Destination  : Delhi
Date         : 06-07-2021
Account No.  : 20210601
Name         : Pratyay Dhond
Contact No.  : 9022137587
Address      : Dabha Nagpur
Amount       : Rs.6270.25/-
Discount     : Rs.2445.4/-
Total Bill   : Rs.3824.85/-

                                                         SIGN
Route : PNE->NGP->DEL
-----
                Wishing You A Happy Journey!
```

Bill (With Discount)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|      Account Registration      |
-----
Enter Your Full Name : James Scholz
Enter Your age : 21
Enter Your Phone no : 1012245846
Enter your address : New York City, USA

Do you want to set a password or use suggested password?
Press 1. to set password
Press 2. to use suggested Password
choice : 2
```

Account Creation (Input Details)


```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|           Set Password           |
-----
Enter your password : Pomodoro
Reenter your password : Pomodoro
Password Set Successfully
Data Written to file successfully
Press any key to continue . . .
```

Setting Password entered by user

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|       Password Generation       |
-----
Enter size of password : 8
Do you want your password to have lower case letters ?
Press 1. for Yes ,Press 0 for No
Choice : 1
Do you want your password to have Upper case letters ?
Press 1. for Yes ,Press 0 for No
Choice : 1
Do you want your password to consist of numbers ?
Press 1. for Yes ,Press 0 for No
Choice : 1
Do you want your password to consist of special symbols ?
Press 1. for Yes ,Press 0 for No
Choice : 1
```

Setting Suggested Password(Inputting specifications)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|           Password Generation           |
-----
Password specifications :

Password size           : 8
lower case characters   : true
Upper case characters   : true
Numeric characters      : true
Special characters      : true

Generating Password.....
Encrypting password...
Password   : K!nXf5~2

Data Written to file successfully
Press any key to continue . . .
```

Genrating Random Password

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|           Account Details           |
-----
Account No : 20210616
Name       : James Scholz
Age        : 21
Contact No : 1012245846
Address    : New York City, USA
Password   : K!nXf5~2
Press any key to continue . . .
```

Displaying user data

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|           Train Booking           |
-----
Enter name       : James
Enter Mobile No  : 120354651
Enter Age        : 21
Enter Address    : New York City, USA
```

Reservation Without Logging In (Entering Details)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
|           Select Station           |
-----
Locations Available :
1.Pune
2.Mumbai
3.Delhi
4.Goa
5.Chennai
6.Bangalore
7.Jaipur
8.Nashik
Choose Your Pickup Station : 1
Choose Your Destination Station : 3
Enter date for booking : (DD-MM-YYYY) : 06-07-2021_
```

Select stations(Pickup and Destination)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
                IT Railway System
            Breaking the barriers with the speed...

Bill No. 20210628                                     30-06-2021
                                                         19:53:34
-----

Pick up      : Pune
Destination  : Delhi
Date         : 06-07-2021
Account No.  : 00000000
Name         : James
Contact No.  : 120354651
Address      : New York City, USA
Amount       : Rs.6270.25/-
Discount     : Rs.0/-
Total Bill   : Rs.6270.25/-

                                                         SIGN
-----
Route : PNE->NGP->DEL
-----
                Wishing You A Happy Journey!

Press any key to continue . . .
```

Bill(Without Logging in)

```
D:\coding\CPP\Project Trials\Railway System\RailwaySystem V1.10.exe
-----
Process exited after 2332 seconds with return value 0
Press any key to continue . . .
```

Exitting Program

Conclusion:

Hence, by making the code for this mini-project on “IT railway system”, I applied various concepts of Object Oriented Programming with C++ such as files, classes, pointers, various libraries like ctime, windows.h, string, etc. to practical use and learnt how they work in real world scenarios.