# PROJECT BASED LEARNING REPORT

On

# ONLINE LIBRARY MANAGEMENT SYSTEM

**Submitted by:**
Team Members:
1. Simra Fatima - 1/24/SET/BCS/307
2. Kiranjeet Kaur - 1/24/SET/BCS/295
3. Drishti Parashar - 1/24/SET/BCS/298
4. Mayank Kashyap - 1/24/SET/BCS/281

**Under the Guidance of:**
MR. ASHOK MADAAN
(ASSISTANT PROFESSOR)

**Department of Computer Science and Engineering**
Manav Rachna International Institute of Research and Studies

**Academic Year:** 2025–2026

## ABSTRACT

The Car Rental System project is designed to automate car rental operations by providing an interface for customers to select vehicles, specify rental durations, and process payments efficiently. This system reduces manual errors, manages car availability, and simplifies billing for a rental company.

## INTRODUCTION

Car rental companies require software systems to manage vehicle bookings and client records. This project implements a desktop-based car rental management system in C++. It includes features such as user login, car selection, rental period specification, payment processing, and receipt generation.

## OBJECTIVES

- To develop a user-friendly car rental system in C++ using object-oriented programming concepts.
- To automate the car rental process to enhance operational efficiency.
- To provide a secure login system for administrators.
- To generate rental receipts and maintain transaction records.

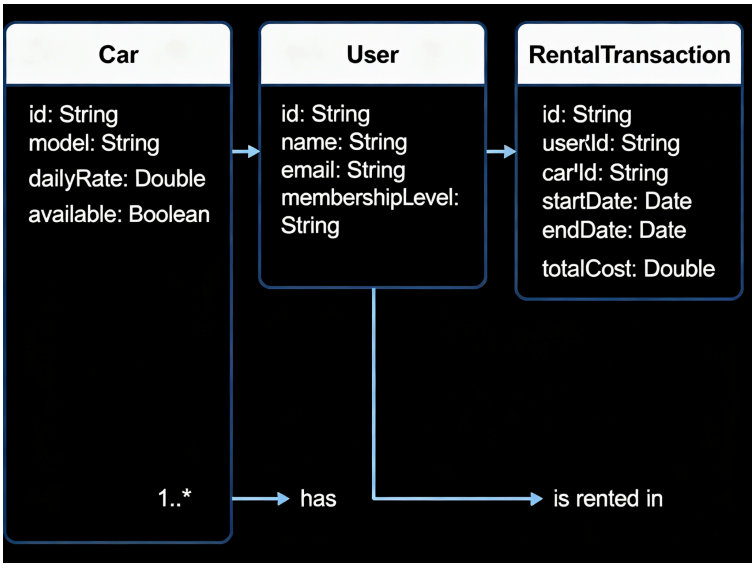
## SYSTEM ANALYSIS

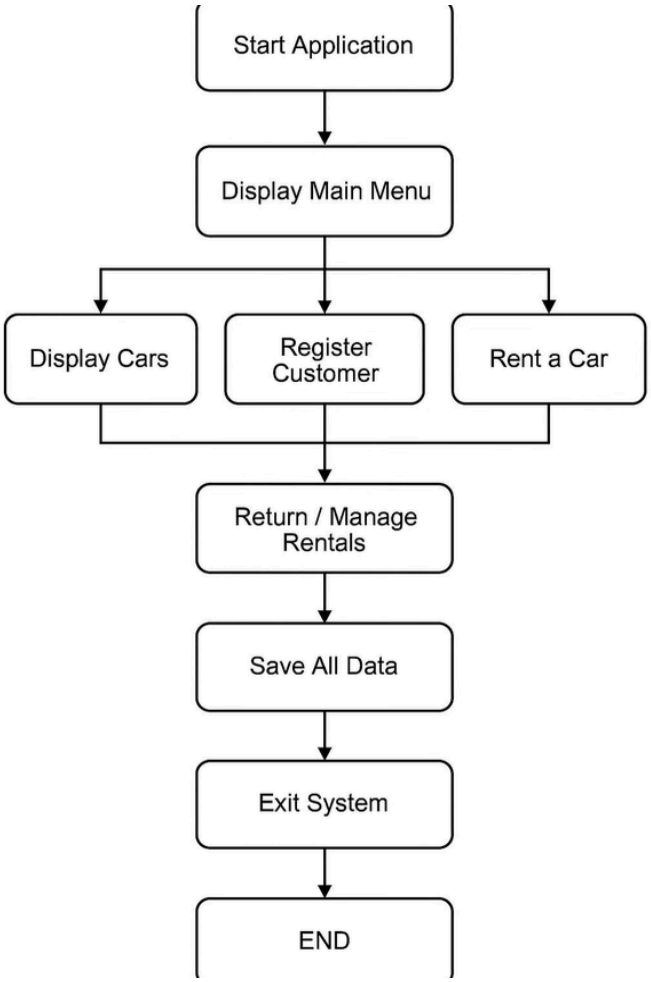
The system will maintain a list of available cars with their rental prices, manage customer rental requests, validate payments, and update car availability post rental. A login mechanism restricts system access to authorized users.

## DESIGN

**Class Structure**:

- Customer : Base class storing customer name, car model and car number.
- Rent : Derived class that manages rental days, rental fee calculations, and displays invoices.
- Welcome : Displays welcome message loaded from file.






## IMPLEMENTATION

- The system starts with a login prompt.
- Once logged in, the admin can view available cars and rent them to customers.
- Cars can only be rented if available, and payment validation is provided.
- Rental receipts are displayed after successful transactions.

## SOURCE CODE

```
#include <iostream>
#include <fstream>
#include <conio.h>
#include <stdlib.h>
#include <unistd.h>
#include <dos.h>
#include <iomanip>
```

```
using namespace std;
class customer
{
        private:
        public:
        string customername;
   string carmodel;
   string carnumber;
   char data;

};
class rent : public customer
{
        public:
        int days=0,rentalfee=0;
        void data()
        {
                int login();
        login();
        cout << "\tPlease Enter your Name: ";
   cin >> customername;
   cout<<endl;
   do
   {
      cout <<"\t======== Car Rental System ======== \n\n"<<endl;
      cout <<"\tPlease Select a Car"<<endl;
      cout<<"\tEnter 'A' for Tesla 2023."<<endl;
      cout<<"\ttEnter 'B' for Hyundai 2020."<<endl;
      cout<<"\tEnter 'C' for Ford 2022."<<endl;
      cout<<endl;
      cout<<"\tChoose a Car from the above options: ";
      cin >>carmodel;
      cout<<endl;
 cout<<"--------------------------------------------------------------------------"<<endl;
 if(carmodel=="A")
 {
        system("CLS");

                cout<<"You have choosed Tesla model 2023"<<endl;
                 ifstream inA("A.txt");
        char str[200];
        while(inA) {
        inA.getline(str, 200);
        if(inA) cout << str << endl;
```

```
}
sleep(2);
  }
  if(carmodel=="B")
  {
        system("CLS");

                cout<<"You have choosed Hyundai model 2020"<<endl;
                 ifstream inB("B.txt");
        char str[200];
        while(inB) {
        inB.getline(str, 200);
        if(inB) cout << str << endl;

    }
    sleep(2);
 }
 if(carmodel=="C")
 {
        system("CLS");
            cout<<"You have choosed Ford model 2022"<<endl;
                ifstream inC("C.txt");
        char str[200];
        while(inC) {
        inC.getline(str, 200);
        if(inC) cout << str << endl;
    }
    sleep(2);
}
if(carmodel !="A" && carmodel !="B" &&  carmodel !="C" )

     cout<<"Invaild Car Model. Please try again!"<<endl;
       }
while(carmodel !="A" && carmodel !="B" &&  carmodel !="C" );

cout<<"--------------------------------------------------------------------------------"<<endl;
   cout << "Please provide following information: "<<endl;

   cout<<"Please select a Car No. : ";
   cin >> carnumber;
   cout<<"Number of days you wish to rent the car : ";
   cin >> days;
   cout<<endl;
        }
```

```
        void calculate()
        {
                sleep(1);
                system ("CLS");
                cout<<"Calculating rent. Please wait....."<<endl;
                sleep(2);
                if(carmodel == "A"||carmodel=="a")
       rentalfee=days*56;
       if(carmodel == "B" ||carmodel=="b")
       rentalfee=days*60;
       if(carmodel == "C" ||carmodel=="c")
       rentalfee=days*75;
   }
void showrent()
   {
   cout << "\n                    Car Rental - Customer Invoice
"<<endl;
   cout << " ////////////////////////////////////////////////////////////"<<endl;
   cout << " | Invoice No.
:"<<"-----------------|"<<setw(10)<<"#BnC92243"<<" |"<<endl;
   cout << " | Customer
Name:"<<"----------------|"<<setw(10)<<customername<<" |"<<endl;
   cout << " | Car Model :"<<"-------------------|"<<setw(10)<<carmodel<<"
|"<<endl;
   cout << " | Car No. :"<<"---------------------|"<<setw(10)<<carnumber<<"
|"<<endl;
   cout << " | Number of days :"<<"--------------|"<<setw(10)<<days<<"
|"<<endl;
   cout << " | Your Rental Amount is
:"<<"--------|"<<setw(10)<<rentalfee<<" |"<<endl;
   cout << " | Caution Money :"<<"---------------|"<<setw(10)<<"0"<<"
|"<<endl;
   cout << " | Advanced :"<<"--------------------|"<<setw(10)<<"0"<<"
|"<<endl;
   cout << "
_____________________________________________________________________"<
<endl;
   cout <<"\n";
   cout << " | Total Rental Amount is
:"<<"-------|"<<setw(10)<<rentalfee<<" |"<<endl;
   cout << "
_____________________________________________________________________"<
<endl;
   int f;
```

```
    system("PAUSE");

    system ("CLS");

     ifstream inf("thanks.txt");

  char str[300];

  while(inf) {
    inf.getline(str, 300);
    if(inf) cout << str << endl;
  }
  inf.close();
          }
};
class welcome{;
          public:
          int welcum()
          {
 ifstream in("welcome.txt");

  if(!in) {
    cout << "Cannot open input file.\n";
  }
  char str[1000];
  while(in) {
    in.getline(str, 1000);
    if(in) cout << str << endl;
  }
  in.close();
  sleep(1);
  cout<<"\nStarting the program please wait....."<<endl;
  sleep(1);
  cout<<"\nloading up files....."<<endl;
  sleep(1);
  system ("CLS");
}
};
int main()
{
welcome obj1;
obj1.welcum();
rent obj2;
```

```
obj2.data();
obj2.calculate();
obj2.showrent();

return 0; //end of the program
}

int login(){
   string pass ="";
   char ch;
   cout<<"\n\n\n\n\n\n\n\n\tCAR RENTAL SYSTEM \n\n";
   cout<<"\t----------------------------";
   cout<<"\n\tLOGIN \n";
   cout<<"\t----------------------------\n\n";
   cout << "\tEnter Password: ";
   ch = _getch();
   while(ch != 13){
      pass.push_back(ch);
      cout << '*';
      ch = _getch();
   }
   if(pass == "admin"){
      cout << "\n\n\n\tAccess Granted! \n";
      system("PAUSE");
      system ("CLS");
   }else{
      cout << "\n\n\tAccess Aborted...\n\tPlease Try Again\n\n";
      system("PAUSE");
      system("CLS");
      login();
   }
}
```

## RESULTS AND DISCUSSION

The program correctly implements a secure login, ensures correct car selection, calculates rental fees based on user input, and generates a clear rental invoice. File input/output displays welcome and thank-you messages, enhancing user interaction. The program also handles invalid car inputs effectively by prompting for re-entry. The console-based interface is simple yet functional.

## CONCLUSION AND FUTURE WORK

The project demonstrates basic C++ programming constructs including inheritance, file handling, and user input validation. With simple enhancements, this project can be extended to include a full database backend and GUI for practical use in commercial car rental services.

## REFERENCES


1. C++ Programming textbooks and documentation
2. Sample code and projects from online educational resources
3. File handling and console application programming guides
4. GeeksforGeeks - https://www.geeksforgeeks.org/