



Project Submission

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Submitted To

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Introduction:

The project is based on writing a program for a ride-sharing service like Uber Moto, Pathao. The program is done in C++ using the concept of Object-Orientated Programming. The program is a simplified version of any ride-sharing service.

Task-1:

As stated earlier, the code is simple, but it fulfills all the requirements to complete the task. I have also added comments to ensure a better understanding of the code.

Source Code:

```
#include<iostream>

using namespace std;

class Ride{
public:
    int car_base_fare =50;
    int motorcycle_base_fare =30;
    int bicycle_base_fare =20;

    //variables for fare
    float distance_fare, duration_fare, total_fare, promo_fare;

    float grand_total, online_discount, distance;

    //for choosing option;
    int vehicle, promo, payment_mode;

public:
```

```
//menu for vehicles
```

```
void menu()
```

```
{
```

```
cout<<"1. Car"<<endl;
```

```
cout<<"2. Motorcycle"<<endl;
```

```
cout<<"3. Bicycle"<<endl;
```

```
}
```

```
//menu for promos
```

```
void menu1()
```

```
{
```

```
cout<<"\n1. Flat 50 Taka discount"<<endl;
```

```
cout<<"2. 20% discount"<<endl;
```

```
cout<<"3. 25% discount but max 60 Taka"<<endl;
```

```
}
```

```
//menu for payment mode
```

```
void menu2()
```

```
{
```

```
cout<<"\n1. Online payment"<<endl;
```

```
cout<<"2. Offline payment"<<endl;
```

```
}
```

```
//function to read input
```

```
void input(){
```

```
do{
```

```
cout<<"Choose the transportation option that you want to use from [1 - 3] = ";
```

```
cin>>vehicle; //reading vehicle type
```

```
}while (vehicle < 1 || vehicle > 3);
```

```
cout<<"\nEnter the distance to travel(in Kilometers) = ";
```

```
cin>>distance; //reading distance
```

```
menu1();
```

```
do{
```

```
cout<<"Choose promo [1 - 3] = ";
```

```
cin>>promo; //reading promo
```

```
}while (promo < 1 || promo > 3);
```

```
menu2();
```

```
do{
```

```
cout<<"Choose your payment method [1 or 2] = ";
```

```
cin>>payment_mode; //reading payment mode
```

```
}while (payment_mode < 1 || payment_mode > 2);
```

```
}
```

```
//function to do all calculations (distance fare, duration fare,
```

```
//total fare, promo fare and grand total
```

```
void calculation()
```

```
{
```

```
//check vehicle type and calculate distance fare, duration fare, total fare
```

```
switch (vehicle)
```

```
{
```

```
//if vehicle is car
```

```
case 1:
```

```
distance_fare = 25 * distance;
duration_fare = 2 * distance; //duration=(distance/60)*60 minute= distance & duration fare=distance*2
total_fare = car_base_fare + distance_fare + duration_fare;
break;
```

```
//if vehicle is motorcycle
```

```
case 2:
```

```
distance_fare = 15 * distance;
```

```
duration_fare = 2 * (distance / 70) * 60;
```

```
total_fare = motorcycle_base_fare + distance_fare + duration_fare;
```

```
break;
```

```
//if vehicle is bicycle
```

```
case 3:
```

```
distance_fare = 10 * distance;
```

```
duration_fare = 2 * distance * 3;
```

```
total_fare = bicycle_base_fare + distance_fare + duration_fare;
```

```
}
```

```
//check promo type and calculate promo fare
```

```
switch (promo){
```

```
//if promo is flat $50
```

```
case 1:
```

```
promo_fare = 50;
```

```
break;
```

```
//if promo is 20%
```

```
case 2:
```

```
promo_fare = total_fare * 0.2;
break;

//if promo is 25% and max 60
case 3:
//if promo_fare is less than 60
if ((total_fare * 0.25) < 60)
{
promo_fare = total_fare * 0.25;
}

else{
promo_fare = 60;
}
}

//checking payment mode
//if Online
if (payment_mode == 1){
online_discount = promo_fare * 0.1;
}

//if Offline
else
online_discount = 0;

grand_total = total_fare - promo_fare - online_discount;
}
```

```
//function to display bill
```

```
void display(){
```

```
cout<<"\n-----Generated Bill -----"<<endl;
```

```
cout<<"....."<<endl;
```

```
//checking vehicle type
```

```
switch (vehicle){
```

```
//if vehicle is car
```

```
case 1:
```

```
cout<<"Base fare = "<<car_base_fare<<" Taka" <<endl;
```

```
cout<<"Distance fare = "<<distance_fare<<" Taka" <<endl;
```

```
cout<<"Duration fare = "<<duration_fare<<" Taka" <<endl;
```

```
cout<<"Total fare = "<<total_fare<<" Taka" <<endl;
```

```
cout<<"Promo fare = "<<promo_fare<<" Taka" <<endl;
```

```
cout<<"Online payment discount = "<<online_discount<<" Taka" <<endl;
```

```
cout<<"Grand total = "<<grand_total<<" Taka";
```

```
break;
```

```
//if vehicle is motorcyle
```

```
case 2:
```

```
cout<<"Base fare = "<<motorcycle_base_fare<<" Taka" <<endl;
```

```
cout<<"Distance fare = "<<distance_fare<<" Taka" <<endl;
```

```
cout<<"Duration fare = "<<duration_fare<<" Taka" <<endl;
```

```
cout<<"Total fare = "<<total_fare<<" Taka" <<endl;
```

```
cout<<"Promo fare = "<<promo_fare<<" Taka" <<endl;
```

```
cout<<"Online payment discount = "<<online_discount<<endl;
```

```
cout<<"Grand total = "<<grand_total<<" Taka";
```

```
break;
```

```
//if vehicle is bicycle
```

```
case 3:
```

```
cout<<"Base fare = "<<bicycle_base_fare<<" Taka" <<endl;
```

```
cout<<"Distance fare = "<<distance_fare<<" Taka" <<endl;
```

```
cout<<"Duration fare = "<<duration_fare<<" Taka" <<endl;
```

```
cout<<"Total fare = "<<total_fare<<" Taka" <<endl;
```

```
cout<<"Promo fare = "<<promo_fare<<" Taka" <<endl;
```

```
cout<<"Online payment discount = "<<online_discount<<" Taka" <<endl;
```

```
cout<<"Grand total = "<<grand_total<<" Taka";
```

```
}
```

```
}
```

```
};
```

```
//main function
```

```
int main()
```

```
{
```

```
cout<<"          WELCOME TO CHOLO RIDE-SHARING SERVICE          "<<endl;
```

```
//creating object of Ride class
```

```
Ride ride;
```

```
cout<<"Available Vehicles For Ride-Sharing Service: "<<endl;
```

```
ride.menu();
```

```
ride.input();
```

```
ride.calculation();
```

```
ride.display();
```

```
return 0;
```


}

Output Screen:

```
G:\Others\final.exe
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 1

Enter the distance to travel(in Kilometers) = 5

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 1

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 1

-----Generated Bill-----
-----
Base fare = 50 Taka
Distance fare = 125 Taka
Duration fare = 10 Taka
Total fare = 185 Taka
Promo fare = 50 Taka
Online payment discount =5 Taka
Grand total = 130 Taka
Process returned 0 (0x0)   execution time : 21.881 s
Press any key to continue.
```

**When a customer selects car and provides the required information as distance=5 km,
promo type=1 and Online Payment**

```
"E:\Study Materials\3-1\cse\Final Assignment\170061035_Md. Zubayer.exe"
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 1

Enter the distance to travel(in Kilometers) = 100

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 2

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 2

-----Generated Bill-----
-----
Base fare = 50 Taka
Distance fare = 2500 Taka
Duration fare = 200 Taka
Total fare = 2750 Taka
Promo fare = 550 Taka
Online payment discount =0 Taka
Grand total = 2200 Taka
Process returned 0 (0x0)   execution time : 23.331 s
Press any key to continue.
```

When a customer selects car and provides the required information as distance=100 km, promo type=2 and Offline Payment

```
"E:\Study Materials\3-1\cse\Final Assignment\170061035_Md. Zubayer.exe"
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 2

Enter the distance to travel(in Kilometers) = 1

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 3

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 2

-----Generated Bill-----
-----
Base fare = 30 Taka
Distance fare = 15 Taka
Duration fare = 1.71429 Taka
Total fare = 46.7143 Taka
Promo fare = 11.6786 Taka
Online payment discount = 0
Grand total = 35.0357 Taka
Process returned 0 (0x0)   execution time : 23.678 s
Press any key to continue.
```

When a customer selects motorcycle and provides the required information as distance=1 km, promo type=3 and Offline Payment

```
G:\Others\final.exe
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 2

Enter the distance to travel(in Kilometers) = 20

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 3

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 1

-----Generated Bill-----
-----
Base fare = 30 Taka
Distance fare = 300 Taka
Duration fare = 34.2857 Taka
Total fare = 364.286 Taka
Promo fare = 60 Taka
Online payment discount = 6
Grand total = 298.286 Taka
Process returned 0 (0x0)   execution time : 21.121 s
Press any key to continue.
```

When a customer selects motorcycle and provides the required information as distance=20 km, promo type=3 and Online Payment

```
"E:\Study Materials\3-1\cse\Final Assignment\170061035_Md. Zubayer.exe"
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 3

Enter the distance to travel(in Kilometers) = 10

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 1

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 1

-----Generated Bill-----
-----
Base fare = 20 Taka
Distance fare = 100 Taka
Duration fare = 60 Taka
Total fare = 180 Taka
Promo fare = 50 Taka
Online payment discount = 5 Taka
Grand total = 125 Taka
Process returned 0 (0x0)   execution time : 21.017 s
Press any key to continue.
```

When a customer selects bicycle and provides the required information as distance=10 km, promo type=1 and Online Payment

```
G:\Others\final.exe
WELCOME TO CHOLO RIDE-SHARING SERVICE
Available Vehicles For Ride-Sharing Service:
1. Car
2. Motorcycle
3. Bicycle
Choose the transportation option that you want to use from [1 - 3] = 3

Enter the distance to travel(in Kilometers) = 3

1. Flat 50 Taka discount
2. 20% discount
3. 25% discount but max 60 Taka
Choose promo [1 - 3] = 2

1. Online payment
2. Offline payment
Choose your payment method [1 or 2] = 1

-----Generated Bill-----
-----
Base fare = 20 Taka
Distance fare = 30 Taka
Duration fare = 18 Taka
Total fare = 68 Taka
Promo fare = 13.6 Taka
Online payment discount = 1.36 Taka
Grand total = 53.04 Taka
Process returned 0 (0x0)   execution time : 26.582 s
Press any key to continue.
```

When a customer selects bicycle and provides the required information

Task-2:

Although comments have been added to the code for the explanation of what I did, in this section, I'm going to discuss each of the things I have implemented in the code.

Explanation of the Code:

First of all, a class is declared called 'Ride'. Under this class, there are some variables and functions with public access.

1. Variables for fare: distance_fare, duration_fare, total_fare and promo_fare
2. Variables for base fare: car_base_fare, motorcycle_base_fare, bicycle_base_fare, grand_total, online_discount and distance
3. Variables for taking input: vehicle, promo and payment_mode

After this, I made three functions for display the menu-menu(), menu 1() and menu 2(). These functions will help the user to select their options.

Then, input() function is created to take the input from the user. A User can input 1 or 2 or 3 for selecting his/her preferable vehicle. The user has to do the similar thing for selecting his promo

code and payment method. He/she can simply put the value of distance that he/she willing to travel.

For doing all the calculation, a function is also created called calculation() and its return type is void. Here switch statement is used. For calculating the duration fare I used:

Car: duration= (distance / 60) *60 minutes= distance & duration fare=distance*2

Motorcycle: duration fare = 2 * (distance / 70) * 60

Bicycle: duration= (distance /20)* 60 minutes = distance *3 and duration fare = 2 * distance * 3

Total fare is calculated in this way - Total fare =base fare + distance fare + duration fare for each of the vehicles. Then Promo Fare is calculated for three options. Based on the payment method selected by the user, an online payment discount is also calculated. Finally, grand total fare is calculated using this: grand total fare = total fare – promo fare – online discount.

After this, a display() function is created to display the user the output in which the user will be able to see the final bill with break down. In this case, a switch statement has also been used.

There are three cases in this switch statement. If the vehicle is a car then case 1 will be selected and break. If the vehicle is a motorcycle then case 2 will be selected and break. If the vehicle is a bicycle then case 3 will be selected and break.

Finally, in the main function, an object of the Class Ride has been created, which is called ride. Then the previously created functions are called for the object. In this way the programing code is completed and it fulfills all the requirements.

Conclusion:

This assignment gives me a good idea regarding how online ride-sharing apps and services work. I have implemented the OOP concept, which provides a clear structure for the program.