**COMSATS UNIVERSITY ISLAMABAD ATTOCK CAMPUS**



**OOP PRJECT REPORT**

**OBJECT ORIENTED PROGRAMMING**

**(CSC 241)**

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* **PROJECT CODE**

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| */\**  *I'm working on my final project of OOP which is "Motorway Toll Plaza S" ...*  *Features I included is that...*  *1- Calculates total vehicles passed.*  *2- Receipts sold(one for each vehicle paying tax).*  *3- Total cash earned.*  *4- Number of each type of vehicle passed.*  *\*\*Below is the code of the program.*  *\*/*  #include<stdlib.h>  #include<cstring>  #include<iostream>  **using** **namespace** std;  int deposit\_ammount,return\_amount;  **class** **Tollbooth**  {  private:  **static** int t\_vehicles;  **static** float total\_cash;  **static** int total\_paid\_vehicles;  **static** int un\_paid\_vehicles;  string number,color;  public:  void get\_data()  {  cout<<"**\t**Enter number of vehicle : ";cin>>number;  cout<<"**\t**Enter color of vehicle : ";cin>>color;  system("cls");  cout<<"**\n\n\t**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* TAKE THE PRINT OUT \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***\n**";  cout<<"**\n\n\t** -------------------------------------------------------";  cout<<"**\n\t** <<<<<<<<<<<<<< MOTORWAY TOLL RECEIPT >>>>>>>>>>>>> **\n**";  }  void total\_vehicles()  { t\_vehicles++; }  void paying\_car()  { total\_paid\_vehicles++; }  void unpayed\_car()  { un\_paid\_vehicles++; }  void toll\_collected(float x)  { total\_cash=total\_cash+x; }  void show\_data()  {  cout<<"**\n\t**Total Vehicles passed : "<<t\_vehicles;  cout<<"**\n\t**Total Paid Vehicles : "<<total\_paid\_vehicles;  cout<<"**\n\t**Total Unpaid Vehicles : "<<un\_paid\_vehicles;  cout<<"**\n\t**Total Toll Tax collected : "<<total\_cash;  }  void show\_vehicle\_data()  {  cout<<"**\n\t** Number : "<<number<<"**\n\t** Color : "<<color<<endl;  }  };  int Tollbooth::t\_vehicles=0;  float Tollbooth::total\_cash=0;  int Tollbooth::total\_paid\_vehicles=0;  int Tollbooth::un\_paid\_vehicles=0;  **class** **Bus**:**public** Tollbooth  {  private:  **static** int t\_bus\_passed;  public:  void Bus\_passed()  {  t\_bus\_passed++;  paying\_car();  total\_vehicles();  toll\_collected(450);  }  void show\_data()  {  cout<<"**\t**Buses : "<<t\_bus\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\*";  cout<<"**\n\t**Amount Given : ";cin>>deposit\_ammount;  return\_amount=deposit\_ammount-450;  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Bus ";  show\_vehicle\_data();  cout<<"**\t** Tax paid : Rs.450 ";  cout<<"**\n\t** **\t\t\t\t**Amount Given : Rs."<<deposit\_ammount;  cout<<"**\n\t** **\t\t\t\t**Exchange : Rs."<<return\_amount;  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int Bus::t\_bus\_passed=0;  **class** **Truck**:**public** Tollbooth  {  private:  **static** int t\_truck\_passed;  public:  void truck\_passed()  {  t\_truck\_passed++;  paying\_car();  total\_vehicles();  toll\_collected(300);  }  void show\_data()  {  cout<<"**\t**Trucks : "<<t\_truck\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\*";  cout<<"**\n\t**Amount Given : ";cin>>deposit\_ammount;  return\_amount=deposit\_ammount-300;  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Truck ";  show\_vehicle\_data();  cout<<"**\t** Tax paid : Rs.300 ";  cout<<"**\n\t** **\t\t\t\t**Amount Given : Rs."<<deposit\_ammount;  cout<<"**\n\t** **\t\t\t\t**Exchange : Rs."<<return\_amount;  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int Truck::t\_truck\_passed=0;  **class** **Car**:**public** Tollbooth  {  private:  **static** int t\_car\_passed;  public:  void car\_passed()  {  t\_car\_passed++;  paying\_car();  total\_vehicles();  toll\_collected(40);  }  void show\_data()  {  cout<<"**\t**Cars : "<<t\_car\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\*";  cout<<"**\n\t**Amount Given : ";cin>>deposit\_ammount;  return\_amount=deposit\_ammount-40;  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Car ";  show\_vehicle\_data();  cout<<"**\t** Tax paid : Rs.40 ";  cout<<"**\n\t** **\t\t\t\t**Amount Given : Rs."<<deposit\_ammount;  cout<<"**\n\t** **\t\t\t\t**Exchange : Rs."<<return\_amount;  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int Car::t\_car\_passed=0;  **class** **Government\_Vehicles**:**public** Tollbooth  {  private:  **static** int t\_gv\_passed;  public:  void Gv\_passed()  {  t\_gv\_passed++;  unpayed\_car();  total\_vehicles();  toll\_collected(0);  }  void show\_data()  {  cout<<"**\t**Government Vehicles : "<<t\_gv\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\***\n**";  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Government owned ";  show\_vehicle\_data();  cout<<"**\n\t\t\t\t** NO TAX ON GOVERNMENT VEHICLE ";  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int Government\_Vehicles::t\_gv\_passed=0;  **class** **Van**:**public** Tollbooth  {  private:  **static** int t\_van\_passed;  public:  void van\_passed()  {  t\_van\_passed++;  paying\_car();  total\_vehicles();  toll\_collected(100);  }  void show\_data()  {  cout<<"**\t**Vans : "<<t\_van\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\*";  cout<<"**\n\t**Amount Given : ";cin>>deposit\_ammount;  return\_amount=deposit\_ammount-100;  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Van ";  show\_vehicle\_data();  cout<<"**\t** Tax paid : Rs.100 ";  cout<<"**\n\t** **\t\t\t\t**Amount Given : Rs."<<deposit\_ammount;  cout<<"**\n\t** **\t\t\t\t**Exchange : Rs."<<return\_amount;  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int Van::t\_van\_passed=0;  **class** **others**:**public** Tollbooth  {  private:  **static** int t\_others\_passed;  public:  void other\_passed()  {  t\_others\_passed++;  paying\_car();  total\_vehicles();  toll\_collected(200);  }  void show\_data()  {  cout<<"**\t**Other types : "<<t\_others\_passed<<endl;  }  void receipt()  {  cout<<"**\n\t**\*\*\*\*\*\*\*\* Enter Details \*\*\*\*\*\*\*\*\*\*";  cout<<"**\n\t**Amount Given : ";cin>>deposit\_ammount;  return\_amount=deposit\_ammount-200;  get\_data();  system("color f1");  cout<<"**\n\t** Vehicle type : Other ";  show\_vehicle\_data();  cout<<"**\t** Tax paid : Rs.200 ";  cout<<"**\n\t** **\t\t\t\t**Amount Given : Rs."<<deposit\_ammount;  cout<<"**\n\t** **\t\t\t\t**Exchange : Rs."<<return\_amount;  cout<<"**\n\n\t** -------------------------------------------------------"<<endl<<endl;  system("pause");  }  };  int others::t\_others\_passed=0;  int main()  {  Tollbooth t1;  Bus b\_OBJECT;  Truck t\_OBJECT;  Car c\_OBJECT;  Government\_Vehicles g\_OBJECT;  Van v\_OBJECT;  others o\_OBJECT;  system("color 3e");  cout<<"**\t\t** WELCOME TO MOTORWAY TOLLPLAZA SYSTEM**\n\n**";  cout<<" \*\*\*\*\*\*\*\* \*\* \*\* \*\* \*\*\*\*\*\*\* \*\* \*\* \*\*\*\*\*\*\* \*\* "<<std::endl;  cout<<" \*\* \* \* \*\* \*\* \*\* \*\* \*\* \* \* \* \* \* "<<endl;  cout<<" \*\* \* \* \*\* \*\* \*\*\*\*\*\*\* \*\* \*\*\*\*\*\* \* \*\*\*\*\*\* "<<endl;  cout<<" \*\* \* \* \*\* \*\* \*\* \*\* \*\* \*\* \* \*\* \*\* "<<endl;  cout<<" \*\* \*\* \*\*\*\*\* \*\*\*\*\* \*\* \*\*\*\*\* \*\* \*\* \*\*\*\*\*\*\* \*\* \*\* **\n\n**"<<endl;  char n;  **do**  {  cout<<"**\n\n**Enter 1 For Starting Program."<<endl;  cout<<"Enter 2 For Program information "<<endl;  cout<<"Enter 3 To Exit from Program "<<endl;  cout<<"**\n**Please enter choice : ";cin>>n;  **switch**(n)  {  **case**'1':  char vehicle;  **do**  {  system("color 3e");  system("cls");  cout<<"**\n\n\t**\*\*\*\*\*\*\*\*\*\*\* Motorway TollPlaza System \*\*\*\*\*\*\*\*\*\*\***\n\n**";  cout<<"TYPE OF VEHICLE with tax amount "<<endl;  cout<<"**\n**VEHICLE TAX **\n**"<<endl;  cout<<"( T ) for Truck ( Toll Tax Rs.300 )"<<endl;  cout<<"( B ) for Bus ( Toll Tax Rs.450 )"<<endl;  cout<<"( C ) for car ( Toll Tax Rs.40 )"<<endl;  cout<<"( G ) for Government vehicles ( No Toll Tax )"<<endl;  cout<<"( V ) for Van ( Toll Tax Rs.100 )"<<endl;  cout<<"( O ) for any other type ( Toll Tax Rs.200 )"<<endl;  cout<<"( S ) for details uptil now"<<endl;  cout<<"( E ) for ending program"<<endl;  cout<<"**\n**Select Option : ";cin>>vehicle;  **switch**(vehicle)  {  **case**'T':  t\_OBJECT.truck\_passed();  t\_OBJECT.receipt();  **break**;  **case**'B':  b\_OBJECT.Bus\_passed();  b\_OBJECT.receipt();  **break**;  **case**'C':  c\_OBJECT.car\_passed();  c\_OBJECT.receipt();  **break**;  **case**'G':  g\_OBJECT.Gv\_passed();  g\_OBJECT.receipt();  **break**;  **case**'V':  v\_OBJECT.van\_passed();  v\_OBJECT.receipt();  **break**;  **case**'O':  o\_OBJECT.other\_passed();  o\_OBJECT.receipt();  **break**;  **case**'S':  system("color 4e");  system("cls");  cout<<"**\n\t**<<<<<<<<<<<<<<<<<< DETAILS UPTIL NOW >>>>>>>>>>>>>>>>>>>**\n**";  t1.show\_data();  cout<<"**\n\n\t**<<<<<<<<<<<<<<< TYPE OF VEHICLES PASSED >>>>>>>>>>>>>>>>**\n**";  b\_OBJECT.show\_data();  t\_OBJECT.show\_data();  c\_OBJECT.show\_data();  g\_OBJECT.show\_data();  v\_OBJECT.show\_data();  o\_OBJECT.show\_data();  cout<<endl;  system("pause");  **break**;  **case**'E':  exit(1);  **break**;  default:  cout<<"Enter valid command.";  cout<<endl;  system("pause");  }  }  **while**(vehicle!='E');  **break**;  **case**'2':  cout<<"**\n\n**Program is about Motorway Toll Plaza Data of Vehicles"<<endl;  cout<<"This was made by Hamna Baig student of BS(EE)-III"<<endl<<endl;  cout<<"\*\*\*\*\*\*\*\* Features of this program \*\*\*\*\*\*\*\***\n**"<<endl;  cout<<"1. Total cash earned in a day."<<endl;  cout<<"2. Total Number of vehicles passed."<<endl;  cout<<"3. Respective fee of each type of vehicle."<<endl;  cout<<"4. Total number of payed and unpayed Vehicles"<<endl;  cout<<"5. Type of each vehicle passed"<<endl;  cout<<"6. Count of each type of vehicle."<<endl;  cout<<"7. Print of Receipt of each vehicle at a time"<<endl;  **break**;  **case**'3':  exit(1);  default:  cout<<"Enter valid command."<<endl;  }  }**while**(n!=3);  } |