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SECTION: CSE2B

CLASS ROLL: 58

ENROLLMENT NUMBER: 12019009022112

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SUBJECT: OOP'S JAVA

Q1) class Calculation {

int z;

public void addition(int x, int y) {

z = x + y;

System.out.println("The sum of the given numbers:"+z);

}

public void Subtraction(int x, int y) {

z = x - y;

System.out.println("The difference between the given numbers:"+z);

}

}

public class My_Calculation extends Calculation {

public void multiplication(int x, int y) {

z = x * y;

System.out.println("The product of the given numbers:"+z);

}

public static void main(String args[]) {

int a = 20, b = 10;

My_Calculation demo = new My_Calculation();

demo.addition(a, b);

demo.Subtraction(a, b);

demo.multiplication(a, b);

}

}

```
Command Prompt
Microsoft Windows [Version 10.0.19041.867]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\user>cd C:\Users\user\Assingement_6

C:\Users\user\Assingement_6>javac My_Calculation.java

C:\Users\user\Assingement_6>java My_Calculation
The sum of the given numbers:30
The difference between the given numbers:10
The product of the given numbers:200

C:\Users\user\Assingement_6>
```

```
Q2) class Adder{
static int add(int a,int b){return a+b;}
static int add(int a,int b,int c){return a+b+c;}
}
public class Q2{
public static void main(String[] args){
System.out.println(Adder.add(11,11));
System.out.println(Adder.add(11,11,11));
}
}
```

```
Command Prompt

C:\Users\user\Assingement_6>javac Q2.java

C:\Users\user\Assingement_6>java Q2
22
33

C:\Users\user\Assingement_6>
```

```
Q3) class Vehicle{
void run(){System.out.println("Vehicle is running");}
}
public class Bike2 extends Vehicle{
void run(){System.out.println("Bike is running safely");}
public static void main(String args[]){
Bike2 obj = new Bike2();
obj.run();
}
```

```
}
```

Command Prompt

```
C:\Users\user\Assingement_6>javac Bike2.java
```

```
C:\Users\user\Assingement_6>java Bike2  
Bike is running safely
```

```
C:\Users\user\Assingement_6>
```

Q4) class ThreeDObject

```
{  
    double wholeSurfaceArea () {  
        return 0;  
    }  
    double volume() {  
        return 0;  
    }  
    double wholeSurfaceArea (int a,int b,int c) {  
        return 0;  
    }  
    double volume(int a,int b,int c) {  
        return 0;  
    }  
    double wholeSurfaceArea (int a,int b) {  
        return 0;  
    }  
    double volume(int a,int b) {  
        return 0;  
    }  
    double wholeSurfaceArea (int a) {  
        return 0;  
    }  
    double volume(int a) {  
        return 0;  
    }  
}  
class Box extends ThreeDObject  
{
```

```

double wholeSurfaceArea (int l,int b,int h ){
    double sa = 2*(l+b)*h;
    return sa;
}
double volume(int l,int b,int h){
    return l*b*h;
}
}
class Cube extends ThreeDObject
{
    double wholeSurfaceArea (int a){
        double sa = 4*a*a;
        return sa;
    }
    double volume(int a){
        return a*a*a;
    }
}
class Cylinder extends ThreeDObject
{
    double wholeSurfaceArea (int r,int h ){
        double sa = 2*3.14*r*(r+h);
        return sa;
    }
    double volume(int r,int h){
        return 3.14*r*r*h;
    }
}
class Cone extends ThreeDObject
{
    double wholeSurfaceArea (int r,int h ){
        double sa = 3.14*r*(r+Math.sqrt((r*r)+(h*h)));
        return sa;
    }
    double volume(int r,int h){
        double ar=3.14*r*r*h/3;
        return ar;
    }
}
}
public class MainClass

```

```

{
    public static void main(String args[])
    {
        ThreeDObject box = new Box();
        ThreeDObject cube = new Cube();
        ThreeDObject cylinder = new Cylinder();
        ThreeDObject cone = new Cone();
        //all the wsa
        System.out.println("The Whole Surface Area of Box is:
"+box.wholeSurfaceArea(3,5,7));
        System.out.println("The Whole Surface Area of Cube is:
"+cube.wholeSurfaceArea(3));
        System.out.println("The Whole Surface Area of Cone is:
"+cone.wholeSurfaceArea(3,7));
        System.out.println("The Whole Surface Area of Cylinder is:
"+cylinder.wholeSurfaceArea(3,7));
        //all the volume
        System.out.println("The volume of Box is: "+box.volume(3,5,7));
        System.out.println("The volume of Cube is: "+cube.volume(3));
        System.out.println("The volume of Cone is: "+cone.volume(3,7));
        System.out.println("The volume of Cylinder is: "+cylinder.volume(3,7));
    }
}

```

Command Prompt

```

C:\Users\user\Assingement_6>javac MainClass.java

C:\Users\user\Assingement_6>java MainClass
The Whole Surface Area of Box is: 112.0
The Whole Surface Area of Cube is: 36.0
The Whole Surface Area of Cone is: 100.00058265723801
The Whole Surface Area of Cylinder is: 188.4
The volume of Box is: 105.0
The volume of Cube is: 27.0
The volume of Cone is: 65.94
The volume of Cylinder is: 197.82

C:\Users\user\Assingement_6>

```

Q6) import java.util.*;

class staff

```
{
    Scanner in = new Scanner(System.in);
    String code,name;
    void getStaff()
    {
        System.out.print("Enter Code : ");
        code=in.nextLine();

        System.out.print("Enter Name : ");
        name=in.nextLine();
    }
}
```

void displayStaff()

```
{
    System.out.println("\nCODE : "+code);
    System.out.println("NAME : "+name);
}
}
```

class teacher extends staff

```
{
    String subject,publication;
    void getTeacher()
    {
        getStaff();
        System.out.print("Enter Subject : ");
        subject=in.nextLine();

        System.out.print("Enter Publication : ");
        publication=in.nextLine();
    }
}
```

```

void displayTeacher()
{
    displayStaff(); //calling displayStaff
    System.out.println("SUBJECT : "+subject);
    System.out.println("PUBLICATION : "+publication);
}
}

```

```

class typist extends staff
{
    String speed;
    void getTypist()
    {
        getStaff();
        System.out.print("Enter Speed : ");
        speed=in.nextLine();
    }
}

```

```

void displayTypist()
{
    displayStaff(); //calling displayStaff
    System.out.println("SPEED : "+speed);
}
}

```

```

class officer extends staff
{
    String grade;
    void getOfficer()
    {
        getStaff();
        System.out.print("Enter Grade : ");
        System.out.flush();
        grade=in.nextLine();
    }
    void displayOfficer()
    {
        displayStaff();
    }
}

```



```
        System.out.println("GRADE : "+grade);
    }
}
```

```
class regular extends typist
{
}
```

```
class casual extends typist
{
    String wages;
    void getCasual()
    {
        getTypist();
        System.out.print("Enter Daily Wages : ");
        wages=in.nextLine();
    }
}
```

```
void displayCasual()
{
    displayTypist(); //calling displayTypist
    System.out.println("WAGES : "+wages);
}
}
```

```
public class Education
{
    public static void main(String args[])
    {
        int choice=1;
        String str;
        Scanner in = new Scanner(System.in);
        while(choice!=0){
            System.out.println("\n\nChoose Your Choice...");
            System.out.println("1) Teacher Details");
            System.out.println("2) Typist Details ");
            System.out.println("3) Officer Details");
        }
    }
}
```

```
System.out.println("Press 0 (ZERO) to exit ");
System.out.print("Enter your choice : ");
choice=in.nextInt();
```

```
if(choice==0)
{
    System.out.println("Exiting methods....\n");
    System.exit(1);
}
```

```
switch(choice){
    case 1 : System.out.println("\n =====TEACHER DETAILS=====");
              System.out.println("\nInputing Data");
              teacher obj_teacher=new teacher();
              obj_teacher.getTeacher();
              System.out.println("\nDisplaying Data");
              obj_teacher.displayTeacher();
              break;
    case 2 : System.out.println("\n =====TYPIST DETAILS===== \n");
              System.out.println("\nInputing Data");
              casual obj_casual=new casual();
              obj_casual.getCasual();
              System.out.println("\nDisplaying Data");
              obj_casual.displayCasual();
              break;
    case 3 : System.out.println("\n =====OFFICER DETAILS===== \n");
              System.out.println("\nInputing Data");
              officer obj_officer=new officer();
              obj_officer.getOfficer();
              System.out.println("\nDisplaying Data");
              obj_officer.displayOfficer();
              break;
    }
}
}
```

```
Command Prompt
C:\Users\user\Assingement_6>javac Education.java
C:\Users\user\Assingement_6>java Education

Choose Your Choice...
1) Teacher Details
2) Typist Details
3) Officer Details
Press 0 (ZERO) to exit
Enter your choice : 1

=====TEACHER DETAILS=====

Inputing Data
Enter Code : 1202
Enter Name : Subhankar Dutta
Enter Subject : Mathematics
Enter Publication : Ayan

Displaying Data
CODE : 1202
NAME : Subhankar Dutta
SUBJECT : Mathematics
PUBLICATION : Ayan

Command Prompt
Choose Your Choice...
1) Teacher Details
2) Typist Details
3) Officer Details
Press 0 (ZERO) to exit
Enter your choice : 2

=====TYPYST DETAILS=====

Inputing Data
Enter Code : 1244
Enter Name : Sunil Kumar
Enter Speed : 30
Enter Daily Wages : 200

Displaying Data
CODE : 1244
NAME : Sunil Kumar
SPEED : 30
WAGES : 200

Choose Your Choice...
1) Teacher Details
2) Typist Details
3) Officer Details
```

```
Q7) import java.util.*;
class Building
{
    Scanner in = new Scanner(System.in);
    int floor,rooms,footage;
    void getDetials()
    {
        System.out.println("Enter the number of floors: ");
        floor = in.nextInt();
        System.out.println("Enter the number of rooms: ");
        rooms = in.nextInt();
    }
}
```

```

        System.out.println("Enter the number of footage: ");
        footage=in.nextInt();
    }
    void disp()
    {
        System.out.println("The number of floors are: "+floor);
        System.out.println("The number of rooms are: "+rooms);
        System.out.println("The number of footage are: "+footage);
    }
}
class House extends Building
{
    int bedroom,bathroom;
    void getRoom()
    {
        getDetials();
        System.out.println("Enter the number of bedrooms: ");
        bedroom = in.nextInt();
        System.out.println("Enter the number of bathroom: ");
        bathroom = in.nextInt();
    }
    void display()
    {
        disp();
        System.out.println("The number of bedrooms are: "+bedroom);
        System.out.println("The number of bathrooms are: "+bathroom);
    }
}
class MainWorking
{
    public static void main(String args[])
    {
        House obj = new House();
        obj.getRoom();
        obj.display();
    }
}

```

```
C:\Users\user\Assingement_6>java MainWorking
Enter the number of floors:
20
Enter the number of rooms:
300
Enter the number of footage:
400
Enter the number of bedrooms:
300
Enter the number of bathroom:
340
The number of floors are: 20
The number of rooms are: 300
The number of footage are: 400
The number of bedrooms are: 300
The number of bathrooms are: 340

C:\Users\user\Assingement_6>
C:\Users\user\Assingement_6>
```

```
Q8) import java.util.*;
class Building
{
    Scanner in = new Scanner(System.in);
    int floor,rooms,footage;
    void getDetials()
    {
        System.out.println("Enter the number of floors: ");
        floor = in.nextInt();
        System.out.println("Enter the number of rooms: ");
        rooms = in.nextInt();
        System.out.println("Enter the number of footage: ");
```

```

        footage=in.nextInt();
    }
    void disp()
    {
        System.out.println("The number of floors are: "+floor);
        System.out.println("The number of rooms are: "+rooms);
        System.out.println("The number of footage are: "+footage);
    }
}
class Office extends Building
{
    int tele,tab;
    void getOffice()
    {
        getDetials();
        System.out.println("Enter the number of telephones: ");
        tele = in.nextInt();
        System.out.println("Enter the number of Tabela: ");
        tab = in.nextInt();
    }
    void offdisp()
    {
        disp();
        System.out.println("The number of Telephones are: "+tele);
        System.out.println("The number of Tabela are: "+tab);
    }
}
class House extends Building
{
    int bedroom,bathroom;
    void getRoom()
    {
        getDetials();
        System.out.println("Enter the number of bedrooms: ");
        bedroom = in.nextInt();
        System.out.println("Enter the number of bathroom: ");
        bathroom = in.nextInt();
    }
    void display()
    {

```

```

        disp();
        System.out.println("The number of bedrooms are: "+bedroom);
        System.out.println("The number of bathrooms are: "+bathroom);
    }
}
class MainWorking
{
    public static void main(String args[])
    {
        Office obj = new Office();
        obj.getOffice();
        obj.offdisp();
    }
}

```

Command Prompt

```

C:\Users\user\Assingement_6>javac Building.java

C:\Users\user\Assingement_6>java MainWorking
Enter the number of floors:
40
Enter the number of rooms:
60
Enter the number of footage:
300
Enter the number of telephones:
23
Enter the number of Tabels:
50
The number of floors are: 40
The number of rooms are: 60
The number of footage are: 300
The number of Telephones are: 23
The number of Tables are: 50

```

```

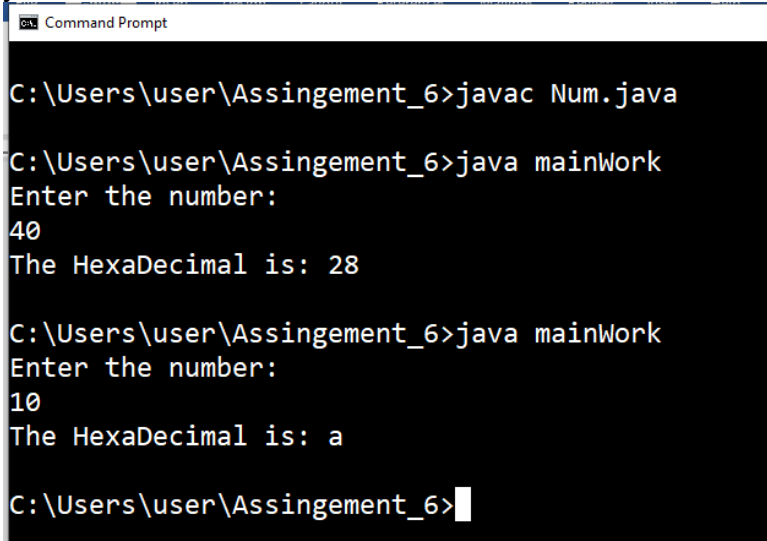
Q9) import java.util.*;
class Num
{
    int num;
    Scanner in = new Scanner(System.in);
    void showNum()
    {
        System.out.println("The number is: "+num);
    }
}
class HexNum extends Num
{

```

```

void getNum()
{
    System.out.println("Enter the number: ");
    num = in.nextInt();
}
void shownum()
{
    System.out.println("The HexaDecimal is: "+Integer.toHexString(num));
}
}
class mainWork
{
    public static void main(String args[])
    {
        HexNum obj = new HexNum();
        obj.getNum();
        obj.shownum();
    }
}

```



```

C:\Users\user\Assingement_6>javac Num.java
C:\Users\user\Assingement_6>java mainWork
Enter the number:
40
The HexaDecimal is: 28

C:\Users\user\Assingement_6>java mainWork
Enter the number:
10
The HexaDecimal is: a

C:\Users\user\Assingement_6>

```

Q10) import java.util.*;

```

class Num
{
    int num;
    Scanner in = new Scanner(System.in);
    void showNum()
    {
        System.out.println("The number is: "+num);
    }
}

```



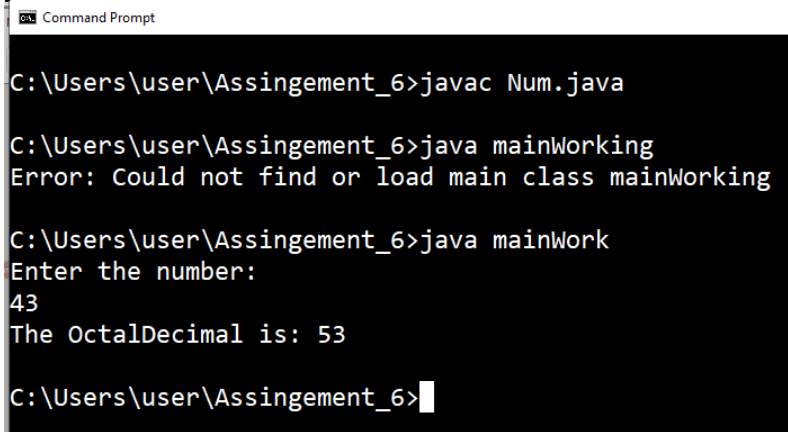
```

    }
}

class OctNum extends Num
{
    void getNum()
    {
        System.out.println("Enter the number: ");
        num = in.nextInt();
    }
    void shownum()
    {
        System.out.println("The OctalDecimal is: "+Integer.toOctalString(num));
    }
}

class mainWork
{
    public static void main(String args[])
    {
        OctNum obj = new OctNum();
        obj.getNum();
        obj.shownum();
    }
}

```



```

C:\Users\user\Assingement_6>javac Num.java

C:\Users\user\Assingement_6>java mainWorking
Error: Could not find or load main class mainWorking

C:\Users\user\Assingement_6>java mainWork
Enter the number:
43
The OctalDecimal is: 53

C:\Users\user\Assingement_6>

```

```

Q11) import java.util.*;
class Num
{
    int num;
    Scanner in = new Scanner(System.in);
    void showNum()
    {

```

```

        System.out.println("The number is: "+num);
    }
}
class HexNum extends Num
{
    void getNum()
    {
        System.out.println("Enter the number: ");
        num = in.nextInt();
    }
    void shownum()
    {
        System.out.println("The Hexadecimal is: "+Integer.toHexString(num));
    }
}
class OctNum extends Num
{
    void getNum()
    {
        System.out.println("Enter the number: ");
        num = in.nextInt();
    }
    void shownum()
    {
        System.out.println("The OctalDecimal is: "+Integer.toOctalString(num));
    }
}
class mainWork
{
    public static void main(String args[])
    {
        OctNum obj = new OctNum();
        HexNum obj1 = new HexNum();
        obj.getNum();
        obj1.getNum();
        obj.shownum();
        obj1.shownum();
    }
}

```

```
Command Prompt
C:\Users\user\Assingement_6>javac num.java
C:\Users\user\Assingement_6>java mainWork
Enter the number:
43
Enter the number:
43
The OctalDecimal is: 53
The HexaDecimal is: 2b
C:\Users\user\Assingement_6>
```

```
Q12) import java.util.*;
class Distance
{
    float miles;
    Scanner in = new Scanner(System.in);
    void getMiles()
    {
        System.out.println("Enter the miles:>> ");
        miles= in.nextFloat();
    }
    void travelTime()
    {
        //speed = distance/tyme;
        //tym = distance/speed
        //speed = 60 mile/hr
        float time;
        time = miles/60;
        System.out.println("The time of object is "+time+" hrs");
    }
}
class DistanceMKS extends Distance
{
    void travelTime()
    {
        double km = miles*1.60934;
        double time;
        time = km/100;
```

```

        System.out.println("The time of object is "+time+" sec");
    }
}
class MainClass
{
    public static void main(String args[])
    {
        Distance obj = new DistanceMKS();
        obj.getMiles();
        obj.travelTime();
    }
}

```

Command Prompt

```

C:\Users\user\Assingement_6>javac Distance.java
C:\Users\user\Assingement_6>java MainClass
Enter the miles:>>
40
The time of object is 0.643736 sec
C:\Users\user\Assingement_6>

```

```

Q13) import java.util.*;
class vehicle
{
    Scanner in = new Scanner(System.in);
    int wheels;
    float speed;
    void getPart()
    {
        System.out.println("Enter the number of wheels:>> ");
        wheels=in.nextInt();
        System.out.println("Enter the speed:>> ");
        speed = in.nextFloat();
    }
    void display()
    {
        System.out.println("The number of wheels are:>> "+wheels+"\n the speed is ::>>
"+speed);
    }
}

```

```

class car extends vehicle
{
    int passenger;
    void getPassenger()
    {
        getPart();
        System.out.println("Enter the number of passenger:>>");
        passenger=in.nextInt();
    }
    void showCar()
    {
        display();
        System.out.println("The number of passenger are:>> "+passenger);
    }
}
class truck extends vehicle
{
    int limit;
    void getLimit()
    {
        getPart();
        System.out.println("Enter the load limit:>>");
        limit=in.nextInt();
    }
    void showTruck()
    {
        display();
        System.out.println("The load limit are:>> "+limit);
    }
}
class MainClass
{
    public static void main(String args[])
    {
        car obj = new car();
        truck obj1 = new truck();
        obj.getPassenger();
        obj1.getLimit();
        obj.showCar();
        obj1.showTruck();
    }
}

```

```
}
```

```
}
```

Command Prompt

```
C:\Users\user\Assingement_6>javac vehicle.java
```

```
C:\Users\user\Assingement_6>java MainClass
```

```
Enter the number of wheels:>>
```

```
50
```

```
Enter the speed:>>
```

```
30
```

```
Enter the number of passenger:>>
```

```
40
```

```
Enter the number of wheels:>>
```

```
22
```

```
Enter the speed:>>
```

```
44
```

```
Enter the load limit:>>
```

```
54
```

```
The number of wheels are:>> 50
```

```
the speed is ::>> 30.0
```

```
The number of passenger are:>> 40
```

```
The number of wheels are:>> 22
```

```
the speed is ::>> 44.0
```

```
The load limit are:>> 54
```

Q14)

```
class Shape {
```

```
    public void display() {
```

```
        System.out.println("Inside display");
```

```
    }
```

```
}
```

```
class Rectangle extends Shape {
```

```
    public void area() {
```

```

        System.out.println("Inside area");
    }
}
class Cube extends Rectangle {
    public void volume() {
        System.out.println("Inside volume");
    }
}
public class Tester {
    public static void main(String[] arguments) {
        Cube cube = new Cube();
        cube.display();
        cube.area();
        cube.volume();
    }
}

```

Command Prompt

```

C:\Users\user\Assingement_6>javac Tester.java

C:\Users\user\Assingement_6>java Tester
Inside display
Inside area
Inside volume

C:\Users\user\Assingement_6>

```

Q5)

```

import java.util.*;
class Vehical
{
    protected String regnNumber, color, ownerName;
    protected int speed;
    Scanner in = new Scanner(System.in);
    void showData()
    {
        System.out.println("This is a vehicle class");
    }
}

```

```

    }
    void getVal()
    {
        System.out.println("Enter the Regestation Number:>> ");
        regnNumber=in.nextLine();
        System.out.println("Enter the color:>> ");
        color=in.nextLine();
        System.out.println("Enter the owner Name:>> ");
        ownerName=in.nextLine();
        System.out.println("Enter the Speed:>> ");
        speed=in.nextInt();

    }
    void Display()
    {
        System.out.println("The Regestation Number:>> "+regnNumber);
        System.out.println("The color:>> "+color);
        System.out.println("The owner Name:>> "+ownerName);
        System.out.println("The Speed:>> "+speed);

    }
}
class Bus extends Vehical
{
    private int routeNumber;
    void getBusVal()
    {
        getVal();
        System.out.println("Enter the Route Number:>> ");
        routeNumber=in.nextInt();
    }
    void showData()
    {
        super.showData();
        Display();
        System.out.println("The Route Number:>> "+routeNumber);
    }
}
class Car extends Vehical
{

```



```
private String manufacturerName;
void getCarVal()
{
    getVal();
    System.out.println("Enter the manufacturer Name:>> ");
    manufacturerName=in.nextLine();
}
void showData()
{
    super.showData();
    Display();
    System.out.println("The manufacturer Name:>> "+manufacturerName);
}
}
```

```
class MainClass
{
    public static void main(String args[])
    {
        Car car = new Car();
        Bus bus = new Bus();
        car.getCarVal();
        car.showData();
        bus.getBusVal();
        bus.showData();
    }
}
```

Command Prompt

```
Enter the color:>>
RED
Enter the owner Name:>>
Subhankar Dutta
Enter the Speed:>>
43
Enter the manufacturer Name:>>
This is a vehicle class
The Regestation Number:>> 453322
The color:>> RED
The owner Name:>> Subhankar Dutta
The Speed:>> 43
The manufacturer Name:>>
Enter the Regestation Number:>>
53432
Enter the color:>>
BLUE
Enter the owner Name:>>
AMAN ARORA
Enter the Speed:>>
60
Enter the Route Number:>>
32
This is a vehicle class
The Regestation Number:>> 53432
The color:>> BLUE
The owner Name:>> AMAN ARORA
The Speed:>> 60
The Route Number:>> 32
```

Windows taskbar search bar with the text "Type here to search" and icons for Windows, search, and taskbar.