Problem 1 : Accelerate the Car (20 Marks)

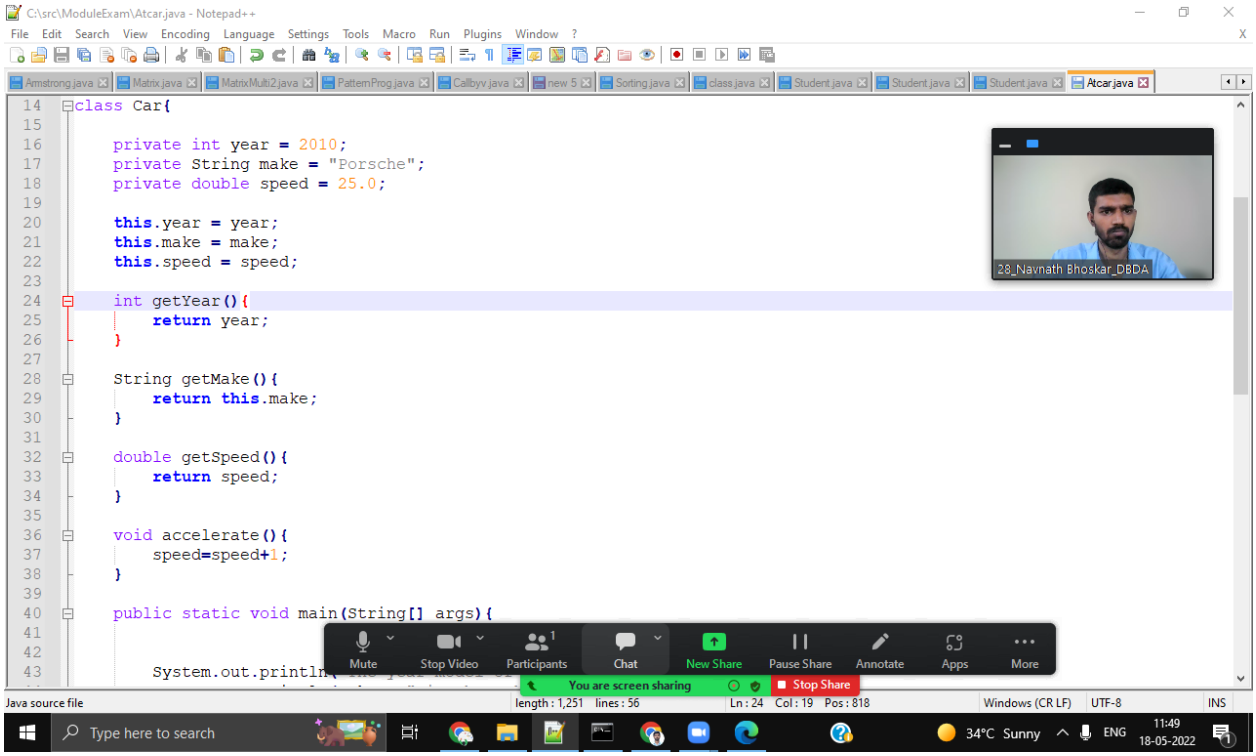
Create a new Java class named Car that has the following private fields

```
class Car{
	private int year;
	private String make;
	private double speed;


	Car(int year, String make, double beg_speed){
		this.year=year;
		this.make=make;
		this.speed=beg_speed;


	}

	public int getYear(){
		return this.year;
	}
	public String getMake(){
		return this.make;
	}
	public double getSpeed(){
		return this.speed;
	}
	public void Accelerate(){
		 this.speed++;
	}
}
```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class Car{
private int year = 2010;
private String make = "Porsche";
private double speed = 25.0;
this.year = year;
this.make = make;
this.speed = speed;
int getYear(){
return year;
}
String getMake(){
return this.make;
}
double getSpeed(){
return speed;
}
void accelerate(){
speed=speed+1;
}
public static void main(String[] args){
System.out.println
28_Navnath Bhoskar_DBDA
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Java source file
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Write a separate java class RaceTrack

```
class RaceTrack{

public static void main(String... args){

Car c1= new Car(2022,"TATA_Nexon",130.0);
Car c2= new Car(2021,"TATA_Altroz",105.0);
Car c3= new Car(2022,"Xuv",103.0);
System.out.println(c1.getYear()+" "+c1.getSpeed()+" "+c1.getMake());
System.out.println(c2.getYear()+" "+c2.getSpeed()+" "+c2.getMake());
System.out.println(c3.getYear()+" "+c3.getSpeed()+" "+c3.getMake());


c1.Accelerate();
c2.Accelerate();
c3.Accelerate();

System.out.println(c1.getSpeed());
System.out.println(c2.getSpeed());
System.out.println(c3.getSpeed());

    }
}
```

Problem 2 : Inventory Management (20 Marks)

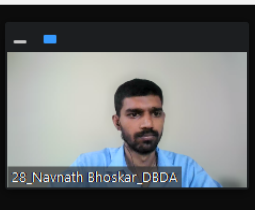
```
import java.util.*;
class Item{
	Integer item_id;
	String item_name;
	Item(int item_id,String item_name  ){
		this.item_name=item_name;
		this.item_id=item_id;
	}
	Item(){}
	void setitem_id(int item_id){
		this.item_id=item_id;
	}
	void setitem_name(String item_name){
		this.item_name=item_name;
	}
	public String toString(){
		return this.item_id+" "+this.item_name;
	}
	@Override
	public boolean equals(Object o){
		if(o instanceof Item){
				Item temp= (Item) o;
				if(this.item_id.equals(temp.item_id) &&
(this.item_name.equals(temp.item_name) )){
					return true;
				}
			}
		return false;
	}
	@Override
	public int hashCode(){
		//System.out.println("hashCode invoked!!");
		int prime = 13;
		int val = 1;
		val = val*prime + this.item_id.hashCode();
		val = val*prime + this.item_name.hashCode();
		return val;
		//return 40;
	}

}
class namesort implements Comparator<Item>{
```

```
	public int compare(Item I1,Item I2){
		return I1.item_name.compareTo(I2.item_name);
	}
}
class idsort implements Comparator<Item>{
	public int compare(Item I1,Item I2){
		return I1.item_id-(I2.item_id);
	}
}




class Inventory{
	static Item I=new Item();
	static ArrayList<Item> list=new ArrayList<> ();
	public static void main(String[] args){
		Scanner sc=new Scanner(System.in);
		int choice;
		Item I1=new Item(1,"A");
		Item I2=new Item(3,"R");
		Item I3=new Item(2,"Z");
		Item I4=new Item(4,"H");
		Item I5=new Item(10,"M");
		list.add(I1);
		list.add(I2);
		list.add(I3);
		list.add(I4);
		list.add(I5);
		do{
		System.out.println("Enter your choice ==");
	   System.out.println("1) Add Item.\n2) Display complete inventory in sorted order of item
names as well as item_id.\n3) Remove Item.\n4) Exit");

		 choice=sc.nextInt();
		switch(choice){
			case 1:
					System.out.println("Enter your details  as follows");
					System.out.println("Enter Item you want add");
					//int n=sc.nextInt();

					for(int i=1;i<=1;i++){
						System.out.println("Enter id of item ");
						int d=sc.nextInt();
```

```
                                        I.setitem_id(d);
                                        System.out.println("Enter name of item ");
                                        sc.nextLine();
                                        String ss=sc.nextLine();
                                        I.setitem_name(ss);
                                        if (!list.contains(I)){
                                        list.add(I);}

                                    }
                                    System.out.println("Added items  as follows");
                                    System.out.println(list);
                                        break;
                                case 2:
                                        System.out.println("before sorting");
                                        System.out.println(list);
                                        System.out.println("Sorting by id");
                                        idsort n2=new idsort();
                                        Collections.sort(list,n2);
                                        System.out.println(list);
                                        System.out.println("Sorting by name");
                                        namesort n1=new namesort();
                                        Collections.sort(list,n1);
                                        System.out.println(list);
                                        break;
                                case 3:
                                        System.out.println("List as follows");
                                        System.out.println(list);
                                        System.out.println("Enter index od item which you
want to remove index start from 0");
                                        int re=sc.nextInt();
                                        list.remove(re);
                                        System.out.println("List after removal");
                                        System.out.println(list);
                                        break;
                                case 4:
                                        System.out.println("Thank you");
                                        break;

                }
                }while(choice!=4);


        }
```

}

```
Enter your choice ==
1) Add Item.
2) Display complete inventory in sorted order of item names as well as itemId.
3) Remove Item.
4) Exit
1
Enter your details  as follows
Enter Item you want add
Enter id of item
5
Enter name of item
Ice Cream
Added items  as follows
[1 A, 4 H, 10 M, 3 R, 2 Z, 5 Ice Cream]
Enter your choice ==
1) Add Item.
2) Display complete inventory in sorted order of item names as well as itemId.
3) Remove Item.
4) Exit
```



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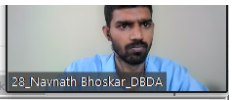


```
34  class Inventory{
35      static Item I=new Item();
36      static ArrayList<Item> list=new ArrayList<> ();
37      public static void main(String[] args){
38          Scanner sc=new Scanner(System.in);
39          int choice;
40          Item I1=new Item(1,"A");
41          Item I2=new Item(3,"R");
42          Item I3=new Item(2,"Z");
43          Item I4=new Item(4,"H");
44          Item I5=new Item(10,"M");
45          list.add(I1);
46          list.add(I2);
47          list.add(I3);
48          list.add(I4);
49          list.add(I5);
50          do{
51          System.out.println("Enter your choice ==");
52          System.out.println("1) Add Item.\n2) Display complete inventory in sorted order of item names as well as itemIc
53
54           choice=sc.nextInt();
55          switch(choice){
56              case 1:
57                  System.out.println("Enter your details  as follows");
58                  System.out.println("Enter Item you want add");
59                  //int n=sc.nextInt();
60
61                  for(in
62                      Sy
```

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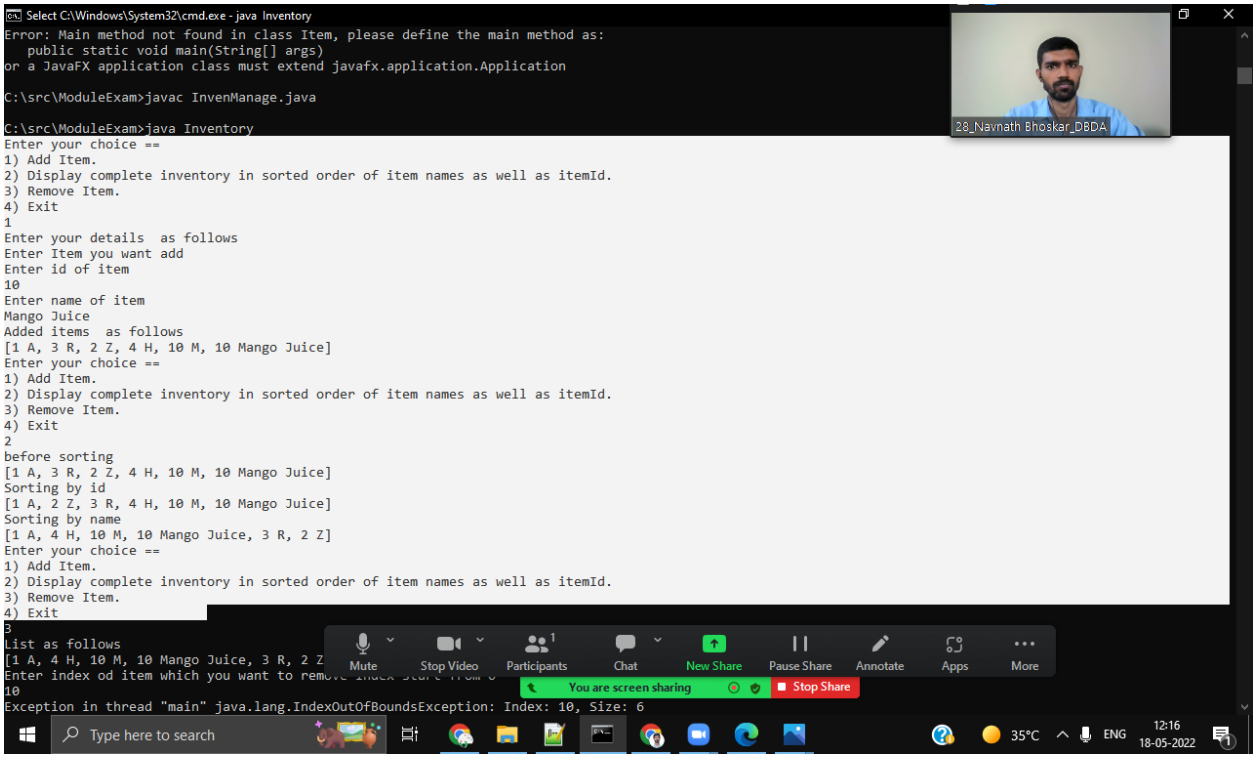
Select C:\Windows\System32\cmd.exe - java Inventory
Error: Main method not found in class Item, please define the main method as:
public static void main(String[] args)
or a JavaFX application class must extend javafx.application.Application
C:\src\ModuleExam>javac InvenManage.java
C:\src\ModuleExam>java Inventory
Enter your choice ==
1) Add Item.
2) Display complete inventory in sorted order of item names as well as itemId.
3) Remove Item.
4) Exit
1
Enter your details as follows
Enter Item you want add
Enter id of item
10
Enter name of item
Mango Juice
Added items as follows
[1 A, 3 R, 2 Z, 4 H, 10 M, 10 Mango Juice]
Enter your choice ==
1) Add Item.
2) Display complete inventory in sorted order of item names as well as itemId.
3) Remove Item.
4) Exit
2
before sorting
[1 A, 3 R, 2 Z, 4 H, 10 M, 10 Mango Juice]
Sorting by id
[1 A, 2 Z, 3 R, 4 H, 10 M, 10 Mango Juice]
Sorting by name
[1 A, 4 H, 10 M, 10 Mango Juice, 3 R, 2 Z]
Enter your choice ==
1) Add Item.
2) Display complete inventory in sorted order of item names as well as itemId.
3) Remove Item.
4) Exit
3
List as follows
[1 A, 4 H, 10 M, 10 Mango Juice, 3 R, 2 Z
Enter index od item which you want to remo
10
Exception in thread "main" java.lang.IndexOutOfBoundsException: Index: 10, Size: 6
28_Navnath Bhoskar_DBDA
Mute
Stop Video
Participants
Chat
New Share
Pause Share
Annotate
Apps
More
You are screen sharing
Stop Share
Type here to search
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ENG
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18-05-2022