Core Java

ASSIGNMENT 2

STUDENT NAME: TELORE GANESH BHASKAR| GT
ROLL NO:
CLASS: TYBBACA
GUIDE: PROF. DESHMUKH SHIVANI
ASSIGNMENT BASED ON:

ASSIGNMENT 2

SET-A

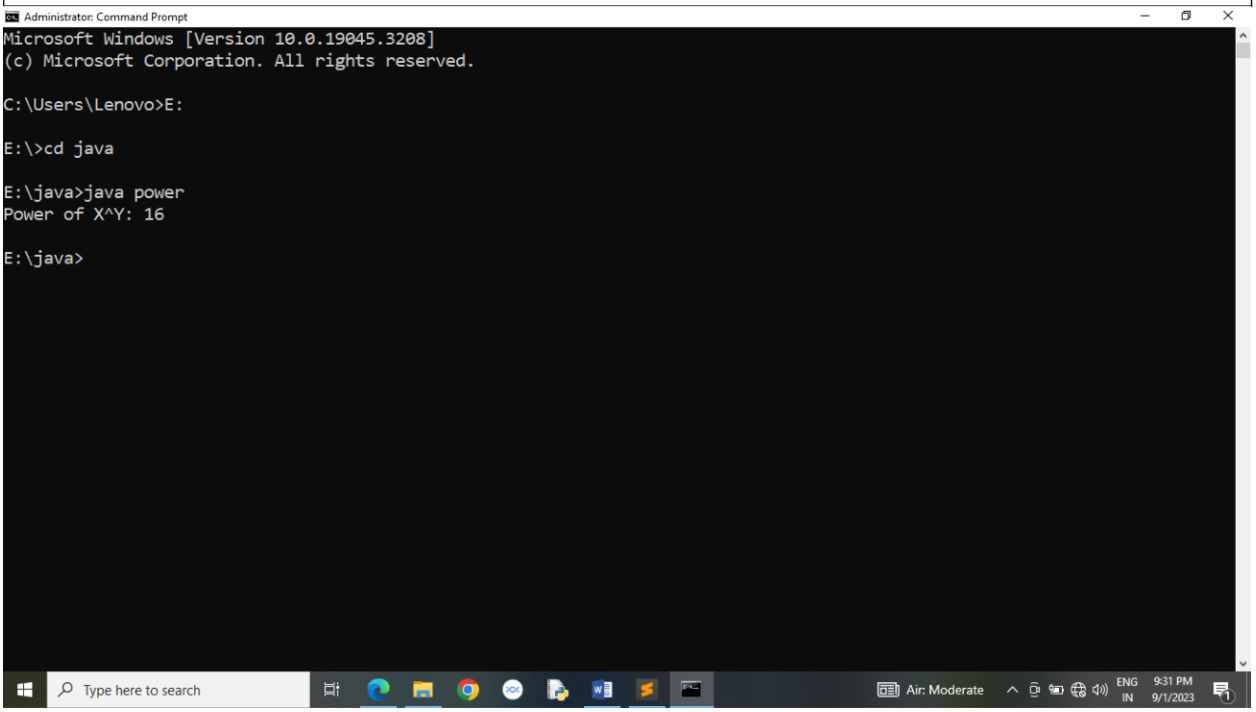
Q.1 Write a Java program to calculate power of a number using recursion.

Ans:

```
class power{

        public static void main(String []para){
                System.out.println("Power of X^Y: "+showres(2,4));
        }
        public static long showres(int base,int expo){
          if(expo!=0)
          return base*showres(base,expo-1);
                else
                        return 1;
        }
}
```

Output:



ASSIGNMENT 2

SET-A

Q.2 Write a Java program to display Fibonacci series using function.

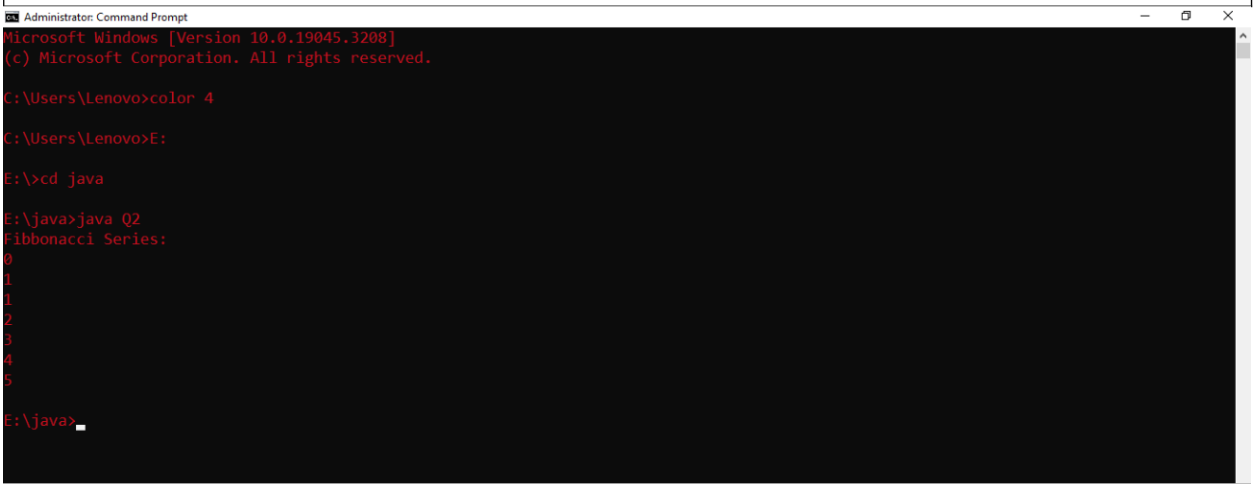
Ans:

```
class Q2{
        public static void calfibbonacci(int term){
                int n=0,n1=0,n2=1,count=1;
                if(term<=0){
                        System.out.println("Limit should be positive");
                }
                else if(term==1){
                        System.out.println("Fibbonacci series :"+n1);
                }
                else{
                        System.out.println("Fibbonacci Series: ");
                        while(count<term){
                                System.out.println(n1);
                           n=n+1;
                                n1=n2;
                                n2=n;
                                count=count+1;
                        }
                }
        }
        public static void main(String[] args) {
                calfibbonacci(8);

        }

}
```

Output:



ASSIGNMENT 2

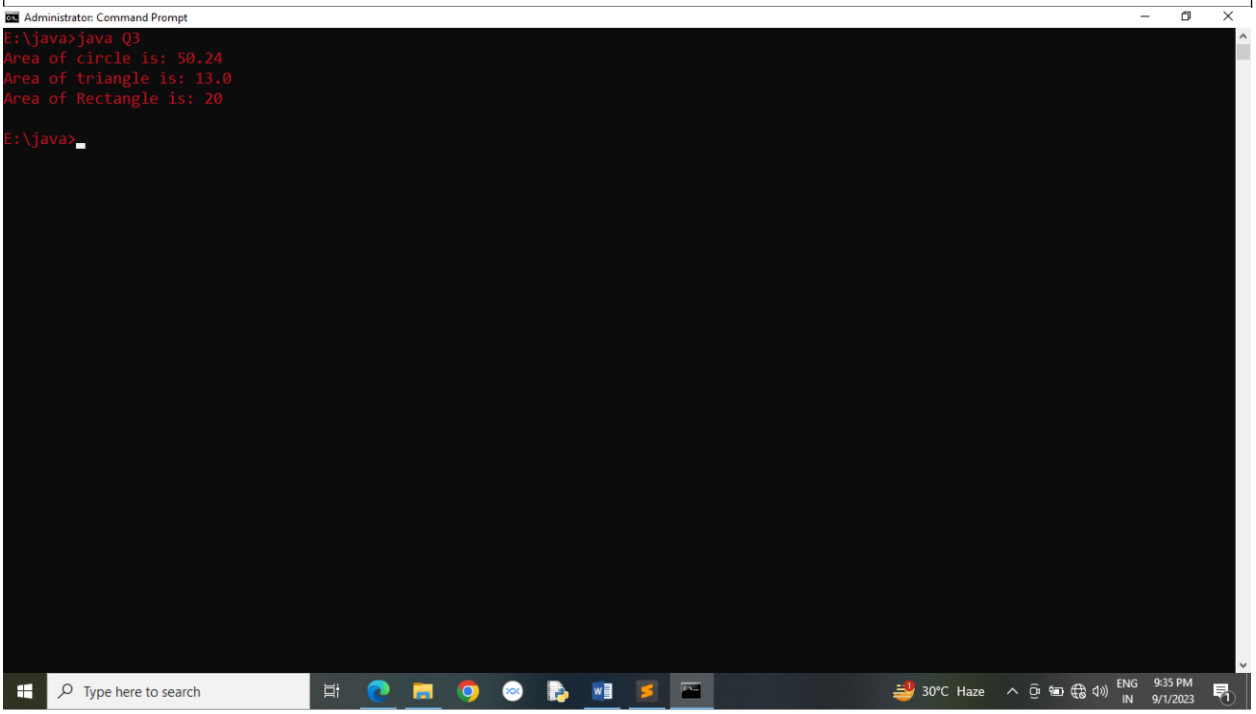
SET-A

Q.3 Write a Java program to calculate area of Circle, Triangle & Rectangle.(Use Method Overloading)

Ans:

```
class Q3{
        double pi=3.14;
        void area(float r){
                double circle=pi*(r*r);
                System.out.println("Area of circle is: "+circle);
        }
        void area(double b,int h){
                double triangle=0.5*b*h;
                System.out.println("Area of triangle is: "+triangle);
        }
        void area(int l,int w){
                int rectangle=l*w;
                System.out.println("Area of Rectangle is: "+rectangle);
        }
        public static void main(String[] args) {
                        Q3 obj=new Q3();
                        obj.area(4);
                        obj.area(5.2,5);
                        obj.area(4,5);
                }
}
```

Output:



ASSIGNMENT 2

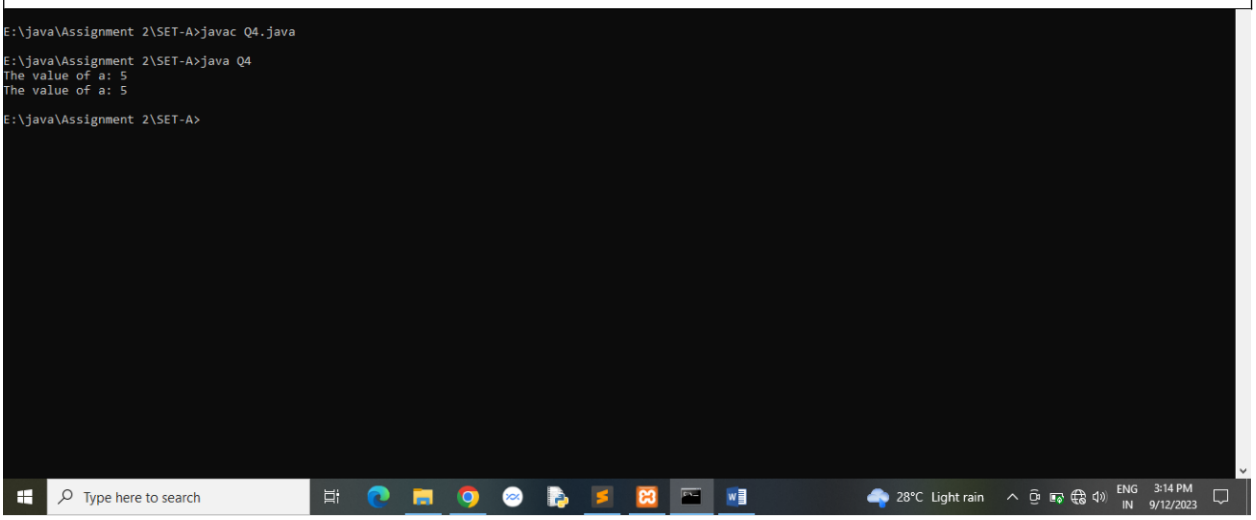
SET-A

Q.4 Write a Java program to Copy data of one object to another Object.

Ans:

```
class Q4{
 int a;
 void getdata(int x){
        this.a=x;
 }
 void show(){
        System.out.println("The value of a: "+a);
 }
 public static void main(String[] args) {
        Q4 q=new Q4();
        Q4 q1=q;
        q.getdata(5);
        q.show();
        q1.show();
 }
}
```

Output:



ASSIGNMENT 2

SET-A

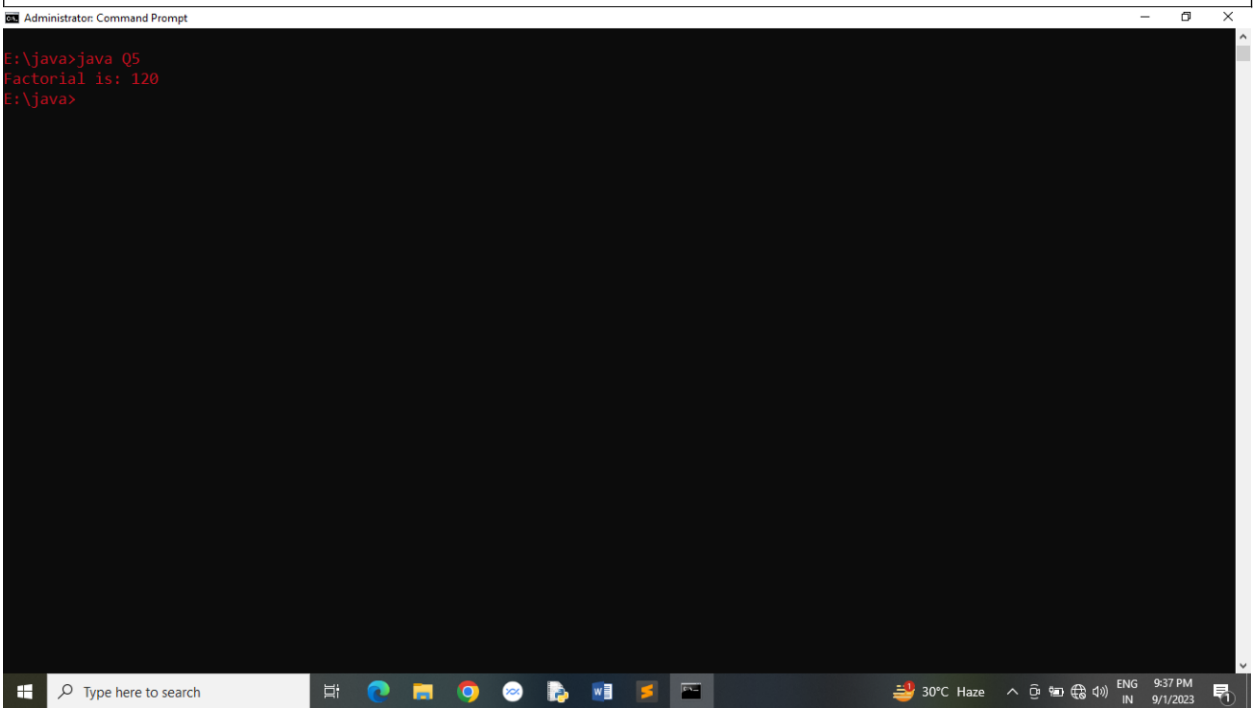
Q.5 Write a Java program to calculate factorial of a number using recursion.

Ans:

```
class Q5{
        public static void main(String[] para){
                        int num=5;
                        long fact=factorial(5);
                        System.out.print("Factorial is: "+fact);
        }
        public static long factorial(int n){
                if(n<=1){
                        return 1;
                }
                else{
                        return n*factorial(n-1);
                }
        }

}
```

Output:



ASSIGNMENT 2

SET-B

Q.1 Define a class person(pid,pname,age,gender). Define Default and parameterised constructor. Overload the constructor. Accept the 5 person details and display it.(use this keyword).

Ans:

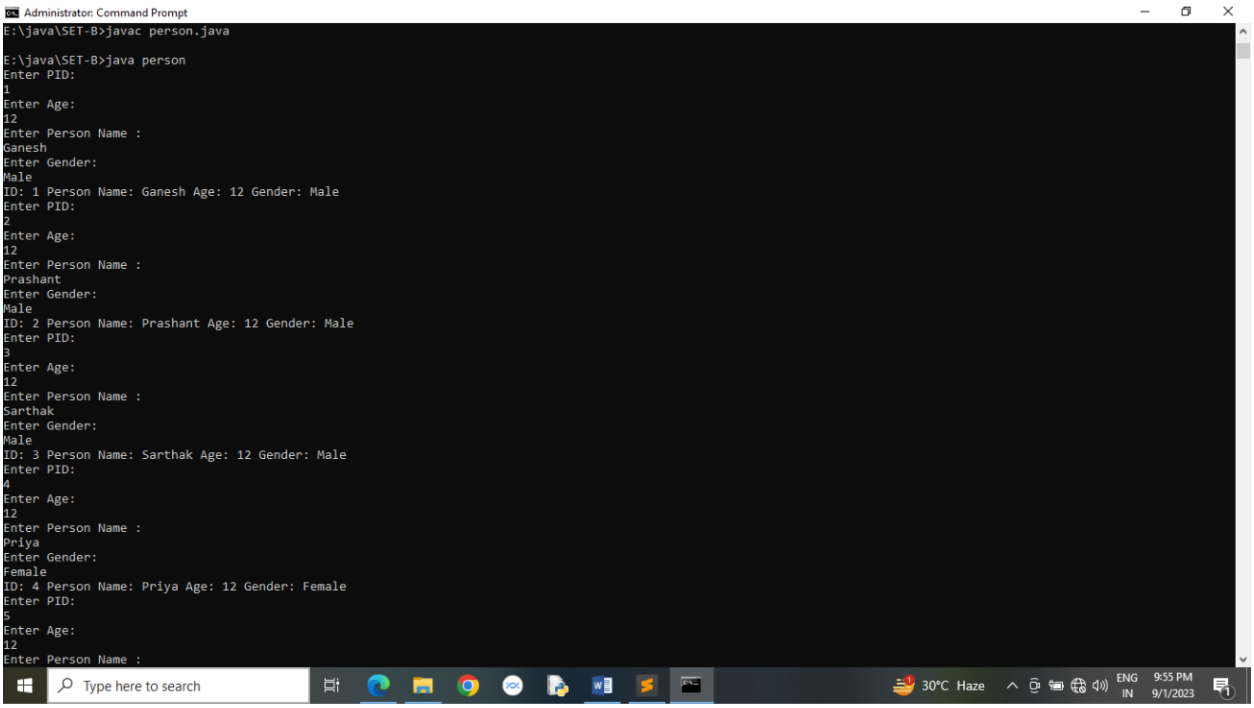
```
import java.util.Scanner;
class person{
        int pid,age;
        String pname,gender;
        person(int a,int b,String n, String g){
                this.pid=a;
                this.age=b;
                this.pname=n;
                this.gender=g;
                System.out.println("ID: "+pid+" Person Name: "+pname+" Age: "+age+" Gender:
"+gender);
        }



        public static void main(String[] para){
                Scanner sc=new Scanner(System.in);
                person[] per=new person[5];
                for(int i=0;i<5;i++){
        System.out.println("Enter PID: ");
        int pid=sc.nextInt();
        System.out.println("Enter Age: ");
        int age=sc.nextInt();
        sc.nextLine();
        System.out.println("Enter Person Name :");
        String pname=sc.nextLine();
        System.out.println("Enter Gender: ");
        String gender=sc.nextLine();
        per[i]=new person(pid,age,pname,gender);
                }
                sc.nextLine();


        }
}
```

Output:


Administrator: Command Prompt
E:\java\SET-B>javac person.java
E:\java\SET-B>java person
Enter PID:
1
Enter Age:
12
Enter Person Name :
Ganesh
Enter Gender:
Male
ID: 1 Person Name: Ganesh Age: 12 Gender: Male
Enter PID:
2
Enter Age:
12
Enter Person Name :
Prashant
Enter Gender:
Male
ID: 2 Person Name: Prashant Age: 12 Gender: Male
Enter PID:
3
Enter Age:
12
Enter Person Name :
Sarthak
Enter Gender:
Male
ID: 3 Person Name: Sarthak Age: 12 Gender: Male
Enter PID:
4
Enter Age:
12
Enter Person Name :
Priya
Enter Gender:
Female
ID: 4 Person Name: Priya Age: 12 Gender: Female
Enter PID:
5
Enter Age:
12
Enter Person Name :
Type here to search
30°C Haze
ENG
IN
9:55 PM
9/1/2023

ASSIGNMENT 2

SET-B

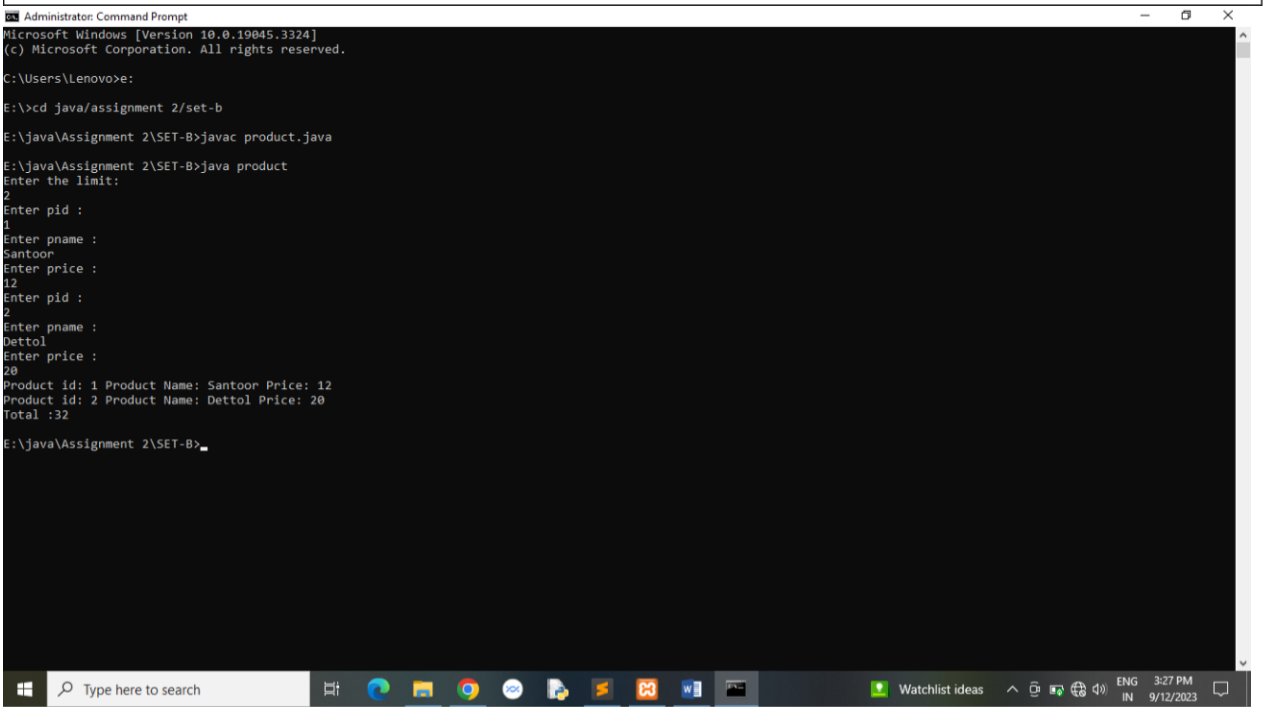
Q.2 Define a class product(pid,pname,price). Write a function to accept the product details, to display product details and to calculate total amount. (use array of Objects)

Ans:

```
import java.util.Scanner;
class product{
	int pid;
	String pname;
	int price;
	static int total=0;
	void getdetails(int a,String b,int c){
		this.pid=a;
		this.pname=b;
		this.price=c;
		total=total+price;
	}
	void display(){
		System.out.print("Product id: "+pid+" Product Name: "+pname+" Price: "+price);
		System.out.print("\n");
	}
	double gettotal(){
		return price;
	}
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.println("Enter the limit: ");
		int n=sc.nextInt();
		product[] obj=new product[n];
		for(int i=0;i<n;i++){
			System.out.println("Enter pid :");
			int pid=sc.nextInt();
			sc.nextLine();
			System.out.println("Enter pname :");
			String pname=sc.nextLine();
			System.out.println("Enter price :");
			int price=sc.nextInt();
			obj[i]= new product();
			obj[i].getdetails(pid,pname,price);
		}
		for(int i=0;i<n;i++)
		   obj[i].display();
		System.out.println("Total :"+total);
	}
```

```
}
```

Output:



ASSIGNMENT 2
SET-B
Q.3 Define a class Student(rollno,name,per). Create n objects of the student class and Display it using toString().(Use parameterized constructor)

Ans:

```
class student{
        int rollno;
        String name;
        double per;
        student(int a,String b,double c){
                rollno=a;
                name=b;
                per=c;
        }
        public String toString(){
                return rollno+" "+name+" "+per;
        }
        public static void main(String[] args) {
                student s1=new student(1,"Ganesh",90.2);
                student s2=new student(2,"Priya",82.2);
                System.out.println(s1);
                System.out.println(s2);
        }
}
```

Output:

ASSIGNMENT 2
SET-B

Q.4 Define a class MyNumber having one private integer data member. Write a default constructor to initialize it to 0 and another constructor to initialize it to a value. Write methods isNegative, isPositive. Use command line argument to pass a value to the object and perform the above tests.

Ans:

```
class MyNumber{
        private int data1;
        MyNumber(){
                data1=0;
        }
        MyNumber(int a){
                this.data1=a;
        }
        void isNegative(){
                if(data1<0){
                        System.out.println("Value is negative");
                }
        }
        void isPositive(){
                if(data1<=0){
                        System.out.println("Value is Positive");
                }
        }
        public static void main(String[] args) {
                MyNumber n=new MyNumber();
                MyNumber n1=new MyNumber(1);
                System.out.println("First Constructor Result: ");
                n.isNegative();
                n.isPositive();
                System.out.println("Second Constructor Result: ");
                n1.isPositive();
                n1.isNegative();
        }

}
```

Output:

ASSIGNMENT 2

SET-C

Q.1 Define class Student(rno, name, mark1, mark2). Define Result class(total, percentage) inside the student class. Accept the student details & display the mark sheet with rno, name, mark1, mark2, total, percentage. (Use inner class concept)

Ans:

```
class student{
        int rno;
        String name;
        double mark1;
        double mark2;

        void getdata(int a,String b,double c,double d){
                rno=a;
                name=b;
                mark1=c;
                mark2=d;
        }
        void show(){
                System.out.println("******Marksheet******");
                System.out.println("Rollno: "+rno);
                System.out.println("Student Name: "+name);
                System.out.println("Mark1: "+mark2);
                System.out.println("Mark2: "+mark1);
        }
        class result{
                double total,percentage;
                void calculateres(){
                        total=mark1+mark2;
                        percentage=total/2;
                        System.out.println("Total :"+total);
                        System.out.println("Percentage: "+percentage+"%");
                }
        }

                public static void main(String[] args) {
                        student s=new student();
                        s.getdata(1,"Ganesh",92,94);
                        s.show();
                        student.result s1=s.new result();
        s1.calculateres();
                }
        }
```

Output:


Administrator: Command Prompt
E:\java\SET-C>color 4
E:\java\SET-C>java student
******Marksheet******
Rollno: 1
Student Name: Ganesh
Mark1: 94.0
Mark2: 92.0
Total :186.0
Percentage: 93.0%
E:\java\SET-C>

ASSIGNMENT 2

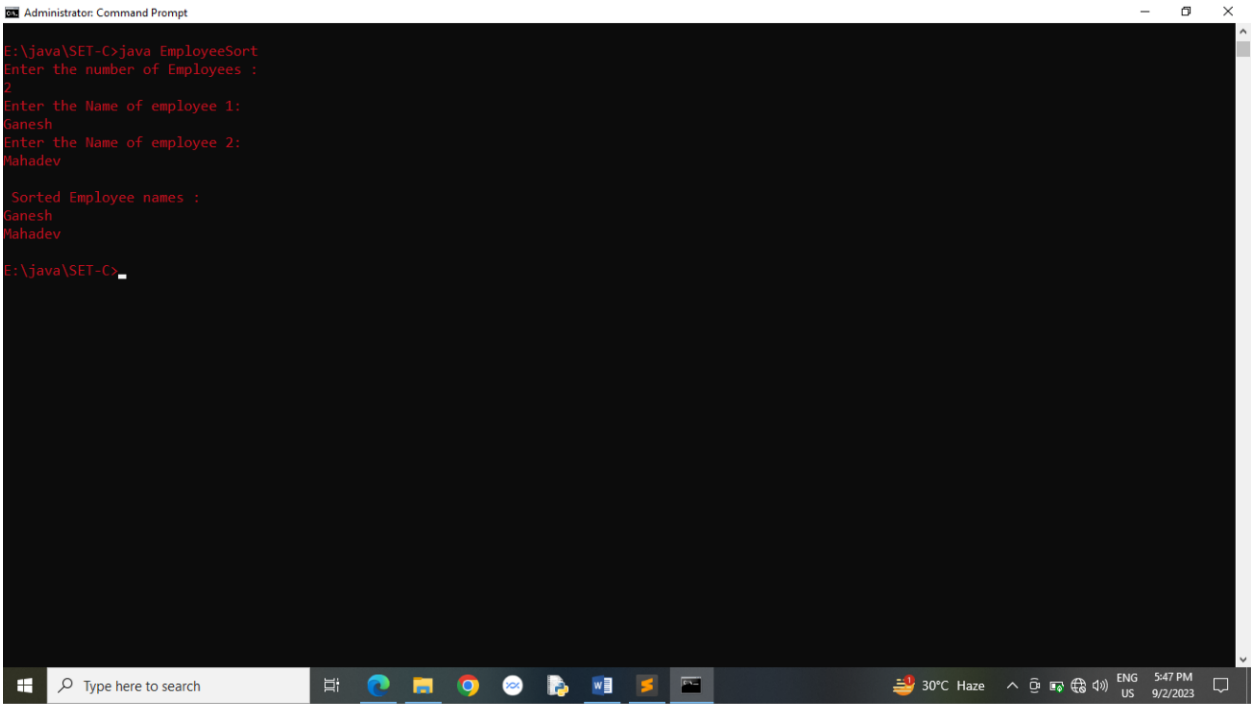
SET-C

Q.2 Write a java program to accept n employee names from user. Sort them in ascending order and Display them.(Use array of object nd Static keyword)

Ans:

```
import java.util.*;
class Employee{
        String name;
        public Employee(String name){
                this.name=name;
        }
}
        public class EmployeeSort{
                static void sortEmployees(Employee[] employees){
                        for(int i=0;i<employees.length-1;i++){
                                for(int j=0;j<employees.length-i-1;j++){
                                        if(employees[j].name.compareTo(employees[j+1].name)>0){
                                                Employee temp=employees[j];
                                                employees[j]=employees[j+1];
                                                employees[j+1]=temp;
                                        }
                                }
                        }
                }
                public static void main(String[] args) {
                        Scanner sc=new Scanner(System.in);
                        System.out.println("Enter the number of Employees :");
                        int n=sc.nextInt();
                        Employee[] employees=new Employee[n];
                        sc.nextLine();
                        for(int i=0;i<n;i++){
                                System.out.println("Enter the Name of employee "+(i+1)+":");
                                String name=sc.nextLine();
                                employees[i]=new Employee(name);
                        }
                                sortEmployees(employees);
                                System.out.println("\n Sorted Employee names :");
                                for(int i=0;i<n;i++){
                                        System.out.println(employees[i].name);
                                }
                        }
                }
```

Output:


Administrator: Command Prompt
E:\java\SET-C>java EmployeeSort
Enter the number of Employees :
2
Enter the Name of employee 1:
Ganesh
Enter the Name of employee 2:
Mahadev
Sorted Employee names :
Ganesh
Mahadev
E:\java\SET-C>
Type here to search
30°C Haze
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US
5:47 PM
9/2/2023

ASSIGNMENT 2

SET-C

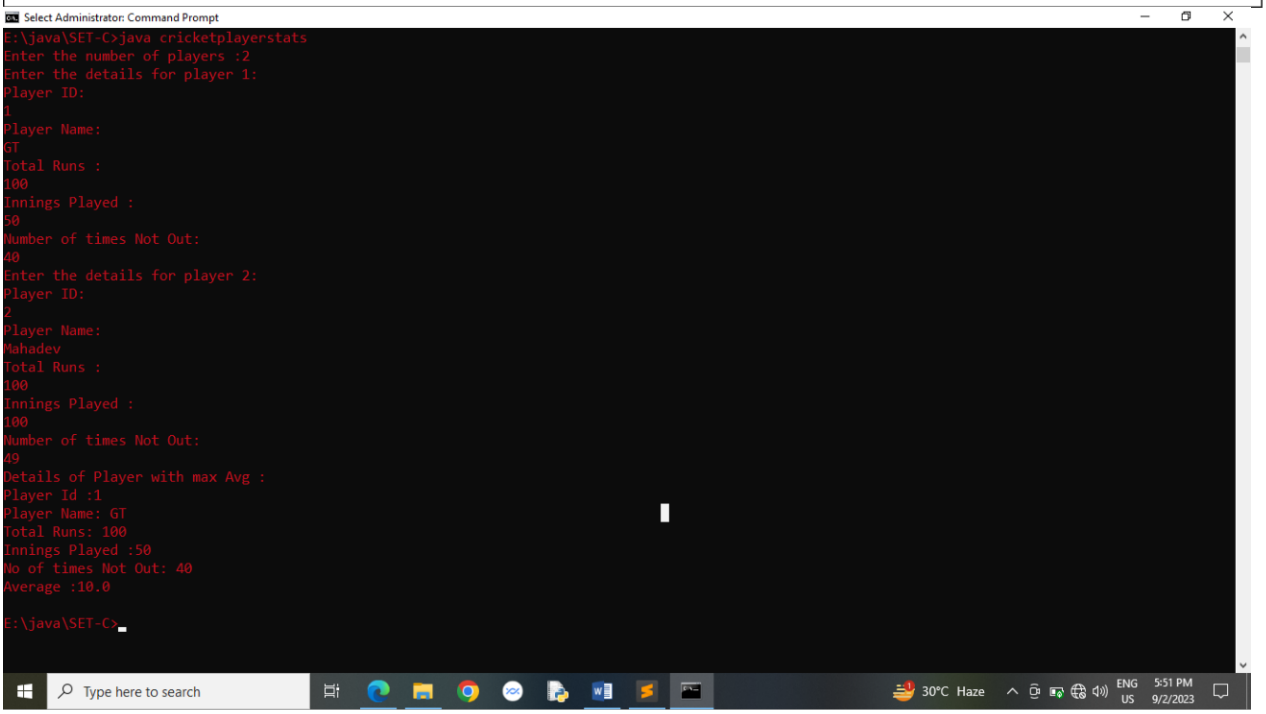
Q.3 Write a java program to accept details of 'n' cricket players(pid, pname, totalRuns, InningsPlayed, NotOuttimes). Calculate the average of all the players. Display the details of player having maximum average.

Ans:

```
import java.util.*;
class CricketPlayer{
        int pid;
        String pname;
        int totalRuns;
        int inningsplayed;
        int notouttimes;
        public CricketPlayer(int pid, String pname,int totalRuns,int inningsplayed,int notouttimes){
                this.pid=pid;
                this.pname=pname;
                this.totalRuns=totalRuns;
                this.inningsplayed=inningsplayed;
                this.notouttimes=notouttimes;
        }
        public double calculateAvg(){
                if(inningsplayed-notouttimes>0){
                        return(double)totalRuns/(inningsplayed-notouttimes);
                }
                else{
                        return 0.0;
                }
        }
}
class cricketplayerstats{
        public static void main(String[] args) {
                Scanner sc=new Scanner(System.in);
                System.out.print("Enter the number of players :");
                int n=sc.nextInt();
                CricketPlayer[] players=new CricketPlayer[n];
                for(int i=0;i<n;i++){
                        System.out.println("Enter the details for player "+(i+1)+": ");
                        System.out.println("Player ID: ");
                        int pid=sc.nextInt();
                   sc.nextLine();
                        System.out.println("Player Name: ");
                        String pname=sc.nextLine();
                        System.out.println("Total Runs :");
                        int totalRuns=sc.nextInt();
                        System.out.println("Innings Played :");
                        int inningsplayed=sc.nextInt();
```

```
                        System.out.println("Number of times Not Out: ");
                        int notouttimes=sc.nextInt();
                        players[i]=new
 CricketPlayer(pid,pname,totalRuns,inningsplayed,notouttimes);
                }
                double maxAvg=-1;
                CricketPlayer maxAvgPlayer=null;
                for(CricketPlayer player: players){
                        double average=player.calculateAvg();
                        if(average>maxAvg){
                                maxAvg=average;
                                maxAvgPlayer=player;
                        }
                }
                System.out.println("Details of Player with max Avg :");
                System.out.println("Player Id :"+maxAvgPlayer.pid+"\nPlayer Name:
 "+maxAvgPlayer.pname+"\nTotal Runs: "+maxAvgPlayer.totalRuns+
                        "\nInnings Played :"+maxAvgPlayer.inningsplayed+"\nNo of times Not Out:
 "+maxAvgPlayer.notouttimes+
                        "\nAverage :"+maxAvg);
        }
}
```

Output:



ASSIGNMENT 2

SET-C

Q.4 Write a java program to accept details of 'n' books. And Display the quantity of given book.

Ans:

```
import java.util.Scanner;
class Book{
	int bookid;
	String bookname;
	String author;
	int quantity;
	public Book(int bookid,String bookname,String author,int quantity){
		this.bookid=bookid;
		this.bookname=bookname;
		this.author=author;
		this.quantity=quantity;
	}
}
public class bookinventory{
	public static void main(String[] args) {
		Scanner sc=new Scanner(System.in);
		System.out.print("Enter the Number of Books: ");
		int n=sc.nextInt();
		Book[] books=new Book[n];
		for(int i=0;i<n;i++){
			System.out.println("Book ID: ");
			int bookid=sc.nextInt();
			sc.nextLine();
			System.out.println("Book Name: ");
			String bookname=sc.nextLine();
			System.out.println("Author :");
			String author=sc.nextLine();
			System.out.println("Quantity :");
			int quantity=sc.nextInt();
			books[i]=new Book(bookid,bookname,author,quantity);
		}
		sc.nextLine();
		System.out.println("Enter the Name of Book to Search :");
		String searchBookname=sc.nextLine();
		boolean bookFound=false;
		for(Book book:books){
			if(book.bookname.equalsIgnoreCase(searchBookname)){
				System.out.println("Quantity of "+book.bookname+":
"+book.quantity);
				bookFound=true;
				break;
			}
```

```
                }
                if(!bookFound){
                        System.out.println("Book not found..!");
                }
        }
}
```

Output: