OBJECT ORIENTED PROGRAMMING WITH JAVA 8– LAB 3

Q1. Write a program to store some numbers in an array and find the largest one among them.

Program:

```
import java.util.Scanner;
class ArrayLargestElement
{
  public static void main(String args[])
  {
   Scanner sc = new Scanner(System.in);
   System.out.print("Enter the number of elements :");
   int num = sc.nextInt();
   int[] x = new int[num];                              // create array to store numbers.
   System.out.println("Enter the Number :");       // take inputs from user
   for (int i = 0; i < num; i++){
      x[i] = sc.nextInt();
      }
   int largest = x[0]  ;                                  // to find the largest element

   for ( int i = 1; i < num ; i++) {
      if (x [i] > largest){
        largest = x[i];
        }
      }
   System.out.println("The largest number in the array is : " + largest);
    }
}
```

Output:

```
E:\java notes>java ArrayLargestElement
Enter the number of elements :5
Enter the Number :
60
40
80
90
760
The largest number in the array is : 760
```

Q2. Write a program to find the sum of any 10 numbers stored in an array.

Program:

```
import java.util.Scanner;
class SumNumberArray
{
    public static void main(String args[])
      {
         Scanner sc = new Scanner(System.in);
         int [] x= new int[5] ;                              //create new array
        System.out.println("Enter 5 numbers :");       //take 10 no from user
        for (int i = 0; i < 5; i++)
          {
              x[i] = sc.nextInt();
          }
   int sum = 0;                                          // calculate sum.
   for (int i = 0 ; i < 5 ; i++)
     {
       sum += x[i];
     }
   System.out.println(" The sum of the numbers is :" + sum);
  }
}
```

Output :

```
E:\java notes>java SumNumberArray
Enter 5 numbers :
5
6
2
3
1
 The sum of the numbers is :17
```

Q.3 Write a program to check whether a particular element is present in the array or not.

Program :

```
import java.util.Scanner;
class SElements
{
  public static void main(String args[])
    {
          Scanner sc = new Scanner(System.in);
          int [] x = {10,20,30,60};
          System.out.println("Enter the elements to search :");

     int n  =  sc.nextInt();
          boolean found = false;
          for(int number : x) {
             if (number == n) {
                    found = true;
                    break;
                }
              }
          if (found) {
                    System.out.println("The element " + n + " is present " );
       }
                    else {
                      System.out.println("The element " + n + " is not present " );       }}}
```

Output:

```
E:\java notes>java SElements
Enter the elements to search :
30
The element 30 is present

E:\java notes>java SElements
Enter the elements to search :
50
The element 50 is not present
```

Q4. Write a program to concatenate two arrays.

Program :

```
import java.util.Scanner;
class ConcArray
{
public static void main(String args[])
 {
        int [] x = {1,2,3};
        int [] y = {4,5,6};
        int length1 = x.length ;
        int length2 = y.length;
        int [] z = new int [length1 + length2];
        for (int i = 0; i < length1; i++) {
                z[i] = x[i];
            }
        for (int i = 0; i < length2; i++) {
              z[length1 + i ] = y[i];
            }
        System.out.print("Concatenate Array : [" );
        for (int i = 0; i < z.length ; i++) {
           System.out.print(z[i]);
                if (i < z.length -1) {
                  System.out.print(", ");
                }
            }
        System.out.println("]");
  }
}
```

Output:

```
E:\java notes>java ConcArray
Concatenate Array : [1, 2, 3, 4, 5, 6]
```

Q5 Create a class Employee with members empid, empname, designation, salary. Also define two methods to enter the details and display the details. Create an object and invoke the methods

Program :

```
import java.util.Scanner;
class Employee
{
  int empid;
  String empname, designation;
  double salary;

  void details ()                //enter employee details
   {
    Scanner sc = new Scanner(System.in);
    System.out.println("Enter employee details  :");
    System.out.print("Employee ID :");
    empid = sc.nextInt();
    sc.nextLine();
    System.out.print("Employee Name : ");
    empname = sc.nextLine();
    System.out.print("Designation :");
    designation = sc.nextLine();
    System.out.print("Salary :");
    salary = sc.nextDouble();
   }

   void displayDetails()        // display employee details
    {
     System.out.println("Enter the employee details :");
     System.out.println("Employee ID : " + empid);
     System.out.println("Employee Name :" + empname);
     System.out.println("Designation :" + designation);
     System.out.println("Salary :" + salary);
    }
  }
 class Empmain
 {
    public static void main(String args[])
    {
     Employee empl = new Employee();       //objects creation
     empl.details();
     empl.displayDetails();
    }
 }
```

Output :

```
E:\java notes>javac Empmain.java

E:\java notes>java Empmain
Enter employee details :
Employee ID :1
Employee Name : Ruhi
Designation :ABC
Salary :10000
Enter the employee details :
Employee ID : 1
Employee Name :Ruhi
Designation :ABC
Salary :10000.0
```

Q 6 Define a class Student with data members rollno, name, mark1, mark2, mark3, total, avg. Use appropriate methods for entering the details and displaying the details. Also define a method for calculating the total mark and average. Create an object for the class and invoke all the methods.

Program:

```
import java.util.Scanner;
class Student
{
  int rollno;
  String name;
  double m1,m2,m3,total,avg;

  void details() {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter roll no :");
    rollno = sc.nextInt();
    sc.nextLine();
    System.out.print("Enter Name: ");
    name = sc.nextLine();
    System.out.print("Enter Mark 1: ");
    m1 = sc.nextDouble();
    System.out.print("Enter Mark 2: ");
    m2 = sc.nextDouble();
    System.out.print("Enter Mark 3: ");
    m3 = sc.nextDouble();
  }
  void TotalAvg() {
    total = m1 + m2 + m3;
    avg = total/3;
  }
  void displayDetails() {
     System.out.println("Student Details :");
     System.out.println("Roll Number: " + rollno);
     System.out.println("Name: " + name);
     System.out.println("Mark 1: " + m1);
     System.out.println("Mark 2: " + m2);
     System.out.println("Mark 3: " + m3);
     System.out.println("Total Marks: " + total);
     System.out.println("Average: " + avg);
    }
  }
  class stdmain{
    public static void main(String [] args)
    {
       Student student = new Student();
       student.details();
       student.TotalAvg();
       student.displayDetails();
    }
  }
```

Output:

```
E:\java notes>javac stdmain.java

E:\java notes>java stdmain
Enter roll no :11
Enter Name: Rashi
Enter Mark 1: 90
Enter Mark 2: 85
Enter Mark 3: 96
Student Details :
Roll Number: 11
Name: Rashi
Mark 1: 90.0
Mark 2: 85.0
Mark 3: 96.0
Total Marks: 271.0
Average: 90.33333333333333
```

Q7.

Create a class named Rectangle with data members length and breadth. Create methods for entering the details and displaying the details. Create two more methods, one for finding the area and another for finding the perimeter of the rectangle. Create an object for the class and invoke all the methods.

Program:

```
import java.util.Scanner;
class Rectangle
{
 double length,breadth;

 void enterDetails() {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter the length :");
    length = sc.nextDouble();

    System.out.print("Enter the breadth :");
    breadth = sc.nextDouble();
   }
 double Area() {
    return length * breadth;
   }
 double Perimeter() {
    return 2*(length + breadth);
   }
 void displayDetails () {
    System.out.println("Rectangle Details : ");
    System.out.println("Length : " + length);
    System.out.println("Breadth : " + breadth);
    System.out.println("Area of the rectangle : " + Area());
    System.out.println("Perimeter of the rectangle : " + Perimeter());
   }
  }

class Studentmain
  {
    public static void main(String[] args)
     {
       Rectangle rect = new Rectangle();
       rect.enterDetails();
       rect.displayDetails();
     }
}
```

Output:

```
E:\java notes>javac Studentmain.java

E:\java notes>java Studentmain
Enter the length :5.2
Enter the breadth :3.5
Rectangle Details :
Length : 5.2
Breadth : 3.5
Area of the rectangle : 18.2
Perimeter of the rectangle : 17.4
```