ASSIGNMENT 2 : LAB 1

Question 1:

Write a program that prints the quadrant number of a point (x,y) on a plane. Recall that points in quadrant 1 have positive x and y values, points in quadrant 2 have a negative x value and a positive y value, points in quadrant 3 have negative x and y values, and the remaining points are in the quadrant 4. If a point is on an axis, choose the quadrant with the lower quadrant number.

Name the source code of this program as P1.java and the compiled class code as P1.class (this is automatically done after compilation) inside the sub-directory lab1.

Test cases: 4 points : each from one of the four quadrants, e.g., (1,1), (-1, 1), (-1, -1), (1, -1).

Expected outputs: (1,1) – quadrant 1; (-1, 1) – quadrant 2; (-1, -1) – quadrant 3; (1, -1) – quadrant 4.

ANSWER:

SOURCE CODE :

```
/**
 *
 * @author harsh
 */
import java.util.Scanner;
public class P1
{
    public static void main (String args[])
    {
```

```java
Scanner sc = new Scanner(System.in);

int x,y;

// quadrants input variables

System.out.println("Enter an integer: x ");

    x = sc.nextInt();

System.out.println("Enter an integer: y ");

    y = sc.nextInt();




//checking the conditions and displaying the desired output

if(x>=0 && y>=0)

{

    System.out.println("quad 1");


    System.out.println("Input Integer is: "+x+ " " +y);


}


else if(x<=0 && y>=0)

{

    System.out.println("quad 2");


    System.out.println("Input Integer is: "+x+ " " +y);


}
```

```java
        else if(x<=0 && y<=0)

{

    System.out.println("quad 3");


    System.out.println("Input Integer is: "+x+ " " +y);


}


    else

{

    System.out.println("quad 4");


    System.out.println("Input Integer is: " +x+ " " +y);


}

}

}
```
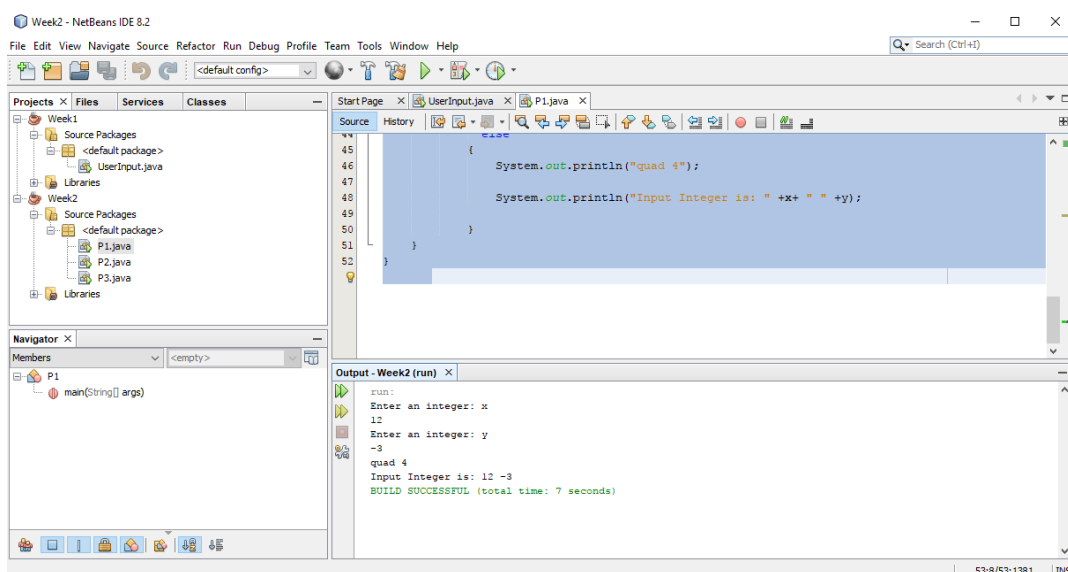
OUTPUT

QUESTION 2

Write a program that reads a character from the user and then uses a switch statement to achieve what the following if statement does.

```
if ((choice == 'A') || (choice == 'a'))
    printf("Action movie fan\n");
else if ((choice == 'C') || (choice == 'c'))
    printf("Comedy movie fan\n");
else if ((choice == 'D') || (choice == 'd'))
    printf("Drama movie fan\n");
else
    printf("Invalid choice\n");
```

Name the source code of this program as P2.java and name the compiled class code as P2.class inside the sub-directory lab1.

Test cases: 'a', 'A', 'c', 'C', 'd', 'D', 'b', 'B'.

Expected outputs: 'a', 'A' – Action movie fan; 'c', 'C' – Comedy movie fan; 'd', 'D' – Drame movie fan; 'b', 'B' – Invalid choice.

ANSWER:

SOURCE CODE

```
/**
 *
 * @author harsh
 */


import java.util.Scanner;


public class P2 {
```

```java
  public static void main(String args[])

{

    char ch ;

    System.out.println("Please Enter Your Choice\n");


    Scanner x = new Scanner(System.in);

    //taking input from user


    System.out.println("Enter A Case Character");


    ch= x.next().charAt(0); // taking character at 0th position


    switch(ch)

    {

                //different cases - user will input the choice

        case 'a':

        case 'A':

            System.out.println("action movie fan " +ch);

        break;//to break the sequence of execution or terminate the program
        when the condition is met

        case 'C':

        case 'c':

            System.out.println("comedy movie fan: " +ch);

        break;


        case 'D':

        case 'd':
```

System.out.println("drama movie fan: " +ch);

break;

default:

System.out.println("Wrong Choice!"); //default statement upon wrong choice

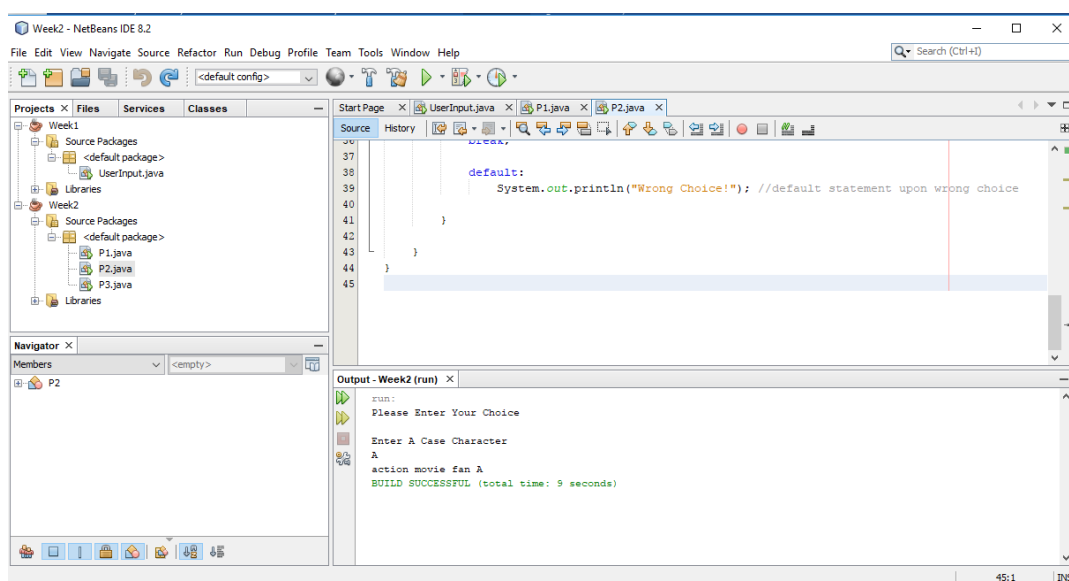
    }

  }
}

OUTPUT:

QUESTION 3:

The salary scheme for a company is given as follows:
Salary range for grade A: $700 - $899
Salary range for grade B: $600 - $799
Salary range for grade C: $500 - $649

A person whose salary is between $600 and $649 is in grade C if his merit points are below 10, otherwise he is in grade B. A person whose salary is between $700 and $799 is in grade B if his merit points are below 20, otherwise, he is in grade A. Write a program to read in a person's salary and his merit points, and displays his grade.

Name the source code of this program as P3.java and name the compiled class code as P3.class inside the sub-directory lab1.

Test cases: (1) salary : $500, merit : 10; (2) salaray : $610, merit : 5; (3) salary : $610, merit : 10; (4) salary : $710, merit : 15; (5) salary : $710, merit : 20; (6) salary : 800, merit : 30.

Expected outputs: (1) salary : $500, merit : 10 – Grade C; (2) salary : $610, merit : 5 – Grade C; (3) salary : $610, merit : 10 – Grade B; (4) salary : $710, merit : 15 – Grade B; (5) salary : $710, merit : 20 – Grade A; (6) salary : 800, merit : 30 – Grade A.

SOURCE CODE:

```
/**
 *
 * @author harsh
 */



import java.util.Scanner;

public class P3 {
```

```java
    public static void main (String args[])

  {

    Scanner s=new Scanner(System.in);

    System.out.println("Enter the Salary");

    int sal=s.nextInt();

    System.out.println("Enter the Merits");

    int mer=s.nextInt();

    if((sal> 700 && sal< 900)||(sal> 700 && sal< 800) )

    {

      if(mer<20)

        {

          System.out.println("GRADE B");

        }

      else

        {

          System.out.println("GRADE A");

        }


    }

    else if((sal>= 600 && sal< 800)||(sal>= 600 && sal< 650))

    {

      if(mer<10)

        {

          System.out.println("GRADE C");

        }

      else
```

```
        {

            System.out.println("GRADE B");

        }


    }

    else if(sal> 500 && sal< 600)

    {

        System.out.println("GRADE C");


    }


}
```

OUTPUT: