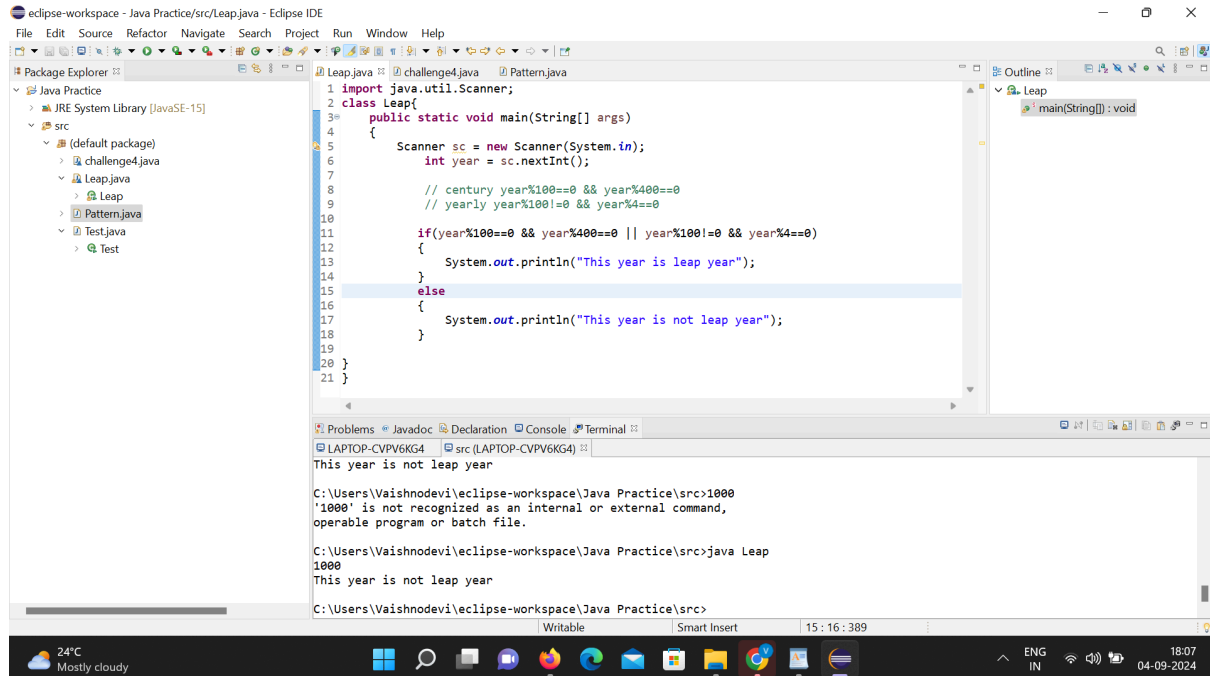


Assignment 2

1) Write a program that checks if a given year is a leap year or not using both if-else and switch-case.



```
1 import java.util.Scanner;
2 class Leap{
3     public static void main(String[] args)
4     {
5         Scanner sc = new Scanner(System.in);
6         int year = sc.nextInt();
7
8         // century year%100==0 && year%400==0
9         // yearly year%100!=0 && year%4==0
10
11         if(year%100==0 && year%400==0 || year%100!=0 && year%4==0)
12         {
13             System.out.println("This year is leap year");
14         }
15         else
16         {
17             System.out.println("This year is not leap year");
18         }
19     }
20 }
21 }
```

Problems Javadoc Declaration Console Terminal

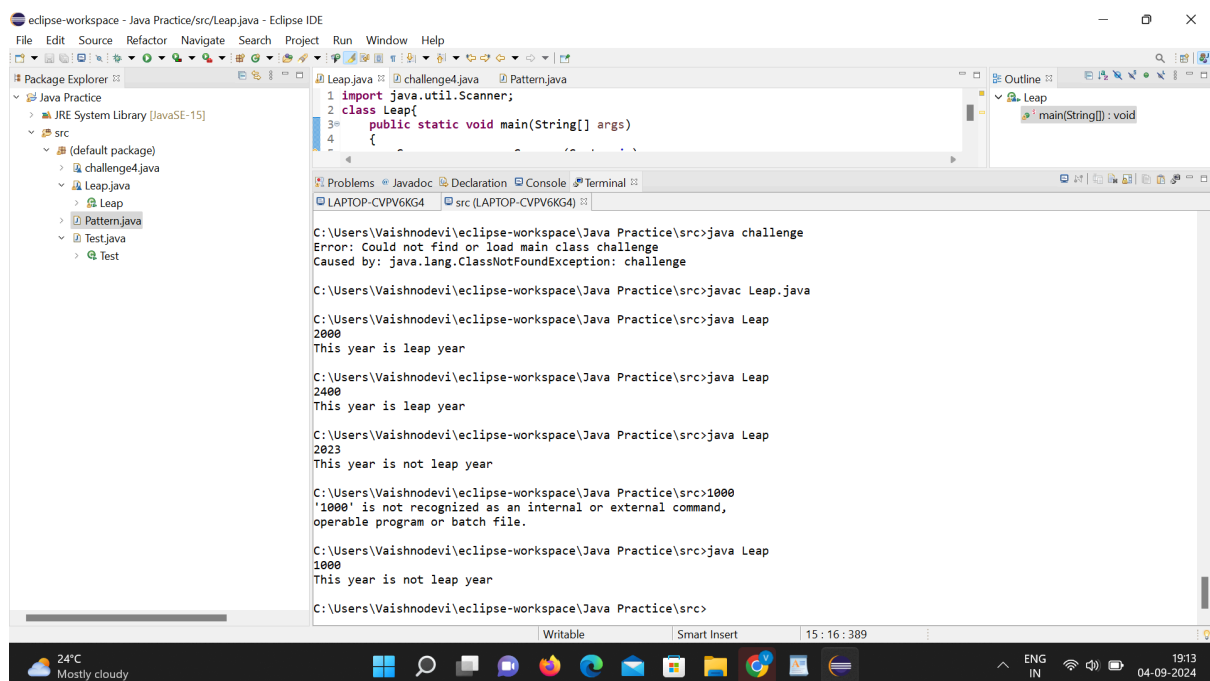
LAPTOP-CVPV6KG4 src (LAPTOP-CVPV6KG4)

This year is not leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>1000
'1000' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Vaishnodevi\workspace\Java Practice\src>java Leap
1000
This year is not leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>



```
1 import java.util.Scanner;
2 class Leap{
3     public static void main(String[] args)
4     {
5         Scanner sc = new Scanner(System.in);
6         int year = sc.nextInt();
7
8         // century year%100==0 && year%400==0
9         // yearly year%100!=0 && year%4==0
10
11         if(year%100==0 && year%400==0 || year%100!=0 && year%4==0)
12         {
13             System.out.println("This year is leap year");
14         }
15         else
16         {
17             System.out.println("This year is not leap year");
18         }
19     }
20 }
21 }
```

Problems Javadoc Declaration Console Terminal

LAPTOP-CVPV6KG4 src (LAPTOP-CVPV6KG4)

C:\Users\Vaishnodevi\workspace\Java Practice\src>java challenge
Error: Could not find or load main class challenge
Caused by: java.lang.ClassNotFoundException: challenge

C:\Users\Vaishnodevi\workspace\Java Practice\src>javac Leap.java

C:\Users\Vaishnodevi\workspace\Java Practice\src>java Leap
2000
This year is leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>java Leap
2400
This year is leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>java Leap
2023
This year is not leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>1000
'1000' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\Vaishnodevi\workspace\Java Practice\src>java Leap
1000
This year is not leap year

C:\Users\Vaishnodevi\workspace\Java Practice\src>

3) Write a program that checks if a person is eligible to vote based on their age.

The screenshot shows the Eclipse IDE with a project named 'Java Practice'. The 'src' package contains several Java files, including 'Vote.java'. The 'Vote.java' file is open in the editor, showing the following code:

```
1 import java.util.Scanner;
2 class Vote
3 {
4     public static void main(String[] args)
5     {
6         Scanner sc = new Scanner(System.in);
7         System.out.println("Enter your age");
8         int age = sc.nextInt();
9
10        if(age>18)
11        {
12            System.out.println("You are eligible to Vote");
13        }
14        else
15        {
16            System.out.println("You are not eligible to Vote");
17        }
18    }
19 }
20 }
21 }
```

The 'Outline' view on the right shows the 'main(String[]) : void' method. The 'Console' view at the bottom shows the output of the program:

```
LAPTOP-CVPV6KG4 | src (LAPTOP-CVPV6KG4) |
Enter your age
10
You are not eligible to Vote

C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java Vote
Enter your age
40
You are eligible to Vote

C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>
```

The status bar at the bottom indicates the system is connected, encoding is UTF-8, and the temperature is 24°C. The date and time are 04-09-2024, 20:18.

4)Write a program that takes a month (1-12) and prints the corresponding season (Winter, Spring, Summer, Autumn) using a switch case

The screenshot shows the Eclipse IDE with a project named 'Java Practice'. The 'src' package contains several Java files, including 'month.java'. The 'month.java' file is open in the editor, showing the following code:

```
1 import java.util.Scanner;
2 class month
3 {
4     public static void main(String[] args)
5     {
6         Scanner sc = new Scanner(System.in);
7
8         int m = sc.nextInt();
9
10        switch(m)
11        {
12            case 3: case 4: case 5: case 6:
13                System.out.println("Summer");
14                break;
15
16            case 7: case 8: case 9: case 10:
17                System.out.println("Monsoon");
18                break;
19
20            case 11: case 12: case 1: case 2:
21                System.out.println("Winter");
22                break;
23        }
24    }
25 }
```

The 'Outline' view on the right shows the 'main(String[]) : void' method. The 'Console' view at the bottom shows the output of the program:

```
C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java month
1
Winter

C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java month
5
Summer

C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>7
'7' is not recognized as an internal or external command,
```

The status bar at the bottom indicates the system is connected, encoding is UTF-8, and the temperature is 24°C. The date and time are 04-09-2024, 21:22.

The screenshot shows the Eclipse IDE with a Java project named 'Java Practice'. The package explorer on the left shows the project structure. The main editor displays the code for 'month.java'. The code uses a switch statement to print the season based on a month number. The console shows the output of the program.

```
6 Scanner sc = new Scanner(System.in);
7
8 int m = sc.nextInt();
9
10 switch(m)
11 {
12     case 3: case 4: case 5: case 6:
13         System.out.println("Summer");
14         break;
15
16     case 7: case 8: case 9: case 10:
17         System.out.println("Monsoon");
18         break;
19
20     case 11: case 12: case 1: case 2:
21         System.out.println("Winter");
22         break;
23 }
24
25 }
26
27 }
```

Console Output:

```
Summer
C:\Users\Vaishnodevi\workspace\Java Practice\src>7
C:\Users\Vaishnodevi\workspace\Java Practice\src>java month
7
Monsoon
C:\Users\Vaishnodevi\workspace\Java Practice\src>
```

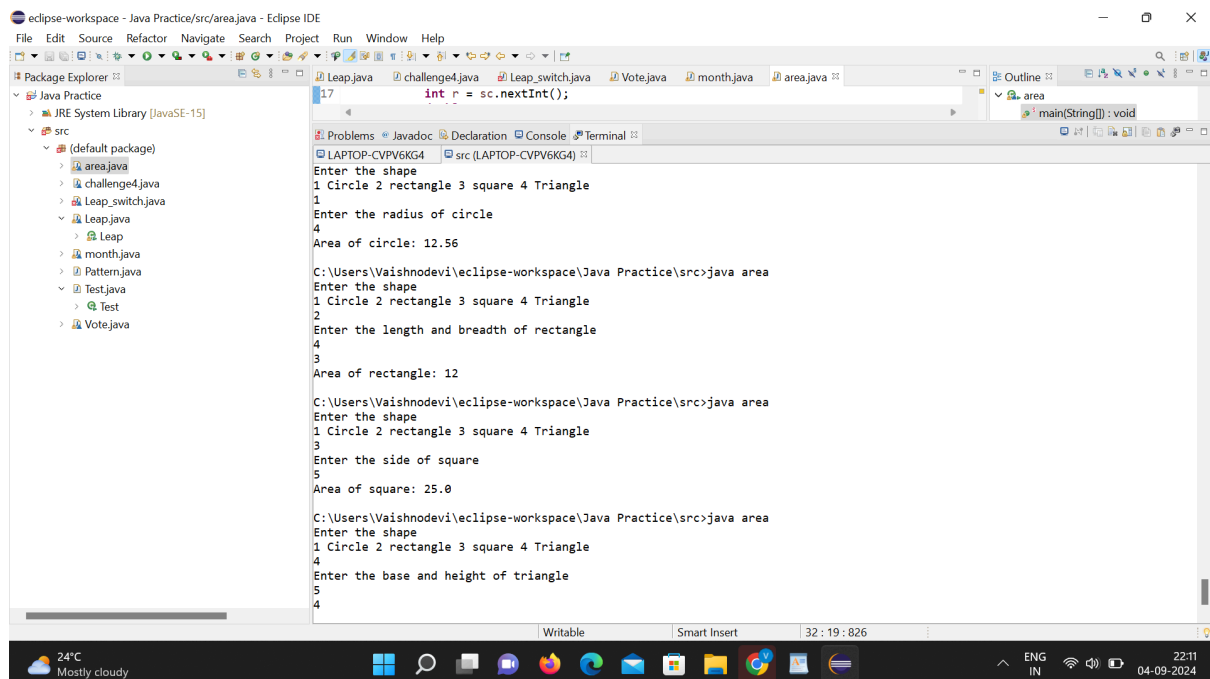
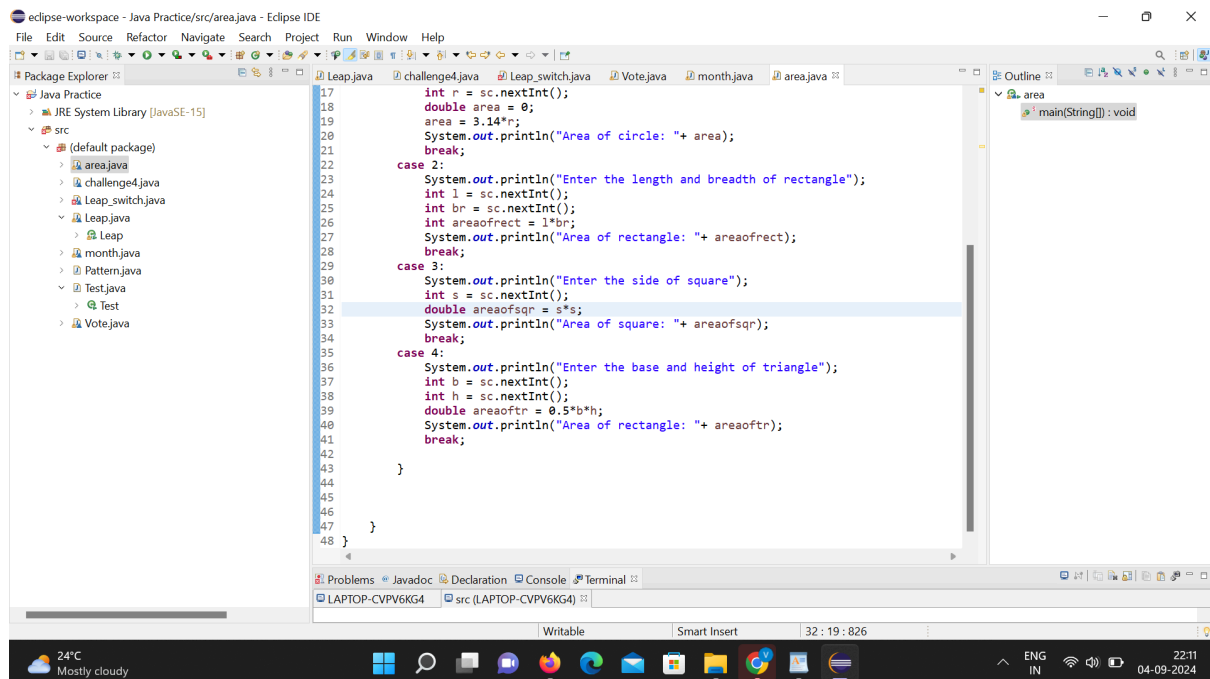
5) Write a program that allows the user to select a shape (Circle, Square, Rectangle, Triangle) and then calculates the area based on user-provided dimensions using a switch case.

The screenshot shows the Eclipse IDE with a Java project named 'Java Practice'. The package explorer on the left shows the project structure. The main editor displays the code for 'area.java'. The code uses a switch statement to calculate the area of a shape based on user input. The console shows the output of the program.

```
1 import java.util.Scanner;
2 class area
3 {
4     public static void main(String[] args)
5     {
6         Scanner sc = new Scanner(System.in);
7
8         System.out.println("Enter the shape");
9         System.out.println(1+ " Circle "+2+ " rectangle "+3+ " square "+4+ " Triangle ");
10
11         int a = sc.nextInt();
12
13         switch(a)
14         {
15             case 1:
16                 System.out.println("Enter the radius of circle");
17                 int r = sc.nextInt();
18                 double area = 0;
19                 area = 3.14*r;
20                 System.out.println("Area of circle: "+ area);
21                 break;
22             case 2:
23                 System.out.println("Enter the length and breadth of rectangle");
24                 int l = sc.nextInt();
25                 int br = sc.nextInt();
26                 int areaofrect = l*br;
27                 System.out.println("Area of rectangle: "+ areaofrect);
28                 break;
29             case 3:
30                 System.out.println("Enter the side of square");
31                 int s = sc.nextInt();
32                 double areaofsqr = s*s;
```

Console Output:

```
Enter the shape
1 Circle 2 rectangle 3 square 4 Triangle
1
Enter the radius of circle
5
Area of circle: 78.5
2
Enter the length and breadth of rectangle
5
5
Area of rectangle: 25
3
Enter the side of square
5
Area of square: 25
```



```
eclipse-workspace - Java Practice/src/area.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Java Practice
  JRE System Library [JavaSE-15]
  src
    (default package)
      area.java
      challenge4.java
      Leap_switch.java
      Leap.java
      month.java
      Pattern.java
      Test.java
      Vote.java
  area.java
17 int r = sc.nextInt();
18
19 Enter the radius of circle
20 4
21 Area of circle: 12.56
22
23 C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java area
24 Enter the shape
25 1 Circle 2 rectangle 3 square 4 Triangle
26 2
27 Enter the length and breadth of rectangle
28 4
29 3
30 Area of rectangle: 12
31
32 C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java area
33 Enter the shape
34 1 Circle 2 rectangle 3 square 4 Triangle
35 3
36 Enter the side of square
37 5
38 Area of square: 25.0
39
40 C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>java area
41 Enter the shape
42 1 Circle 2 rectangle 3 square 4 Triangle
43 4
44 Enter the base and height of triangle
45 5
46 4
47 Area of rectangle: 10.0
48
49 C:\Users\Vaishnodevi\eclipse-workspace\Java Practice\src>
```

2) Implement a program that calculates the Body Mass Index (BMI) based on height and weight input using if-else to classify the BMI into categories (underweight, normal weight, overweight, etc).

```
eclipse-workspace - Java Practice/src/BMI.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer
Java Practice
  JRE System Library [JavaSE-15]
  src
    (default package)
      area.java
      BMI.java
      challenge4.java
      Leap_switch.java
      Leap.java
      month.java
      Pattern.java
      Test.java
      Vote.java
  BMI.java
1 import java.util.Scanner;
2
3 class BMI{
4     public static void main(String[] args)
5     {
6         Scanner sc = new Scanner(System.in);
7
8         System.out.println("Enter the weight and height");
9
10        float w = sc.nextFloat();
11        float h = sc.nextFloat();
12
13        float bmi = w/(h*h);
14        System.out.println("Your BMI is: " + bmi);
15
16        if (bmi<18.5)
17        {
18            System.out.println("Underweight");
19        }
20        else
21        {
22            if(bmi>=18.5 && bmi<24.9)
23            {
24                System.out.println("Normal Weight");
25            }
26            else
27            {
28                if(bmi>=25 && bmi<29.9)
29                {
30                    System.out.println("Overweight");
31                }
32            }
33        }
34    }
35 }
```

