Job No: 05

Job Name: Write a program using try-catch, and nested try-catch in Java.

Objectives: Acquire the skills to understand try-catch in java.

Required Equipment:
1. Laptop/Desktop.
2. Java IDE (Eclipse/NetBeans/IntelliJ IDEA Community Edition)

Working Procedure:
Program:

© CircleArea.java ✕

```java
import java.util.Scanner;
public class CircleArea {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        try {
            System.out.print("Enter the radius of the circle: ");
            double radius = scanner.nextDouble();
            if (radius < 0) {
                throw new IllegalArgumentException("Radius cannot be negative.");
            }
            double area = Math.PI * radius * radius;
            System.out.println("The area of the circle is: " + area);
        } catch (Exception e) {
            System.out.println("Error: " + e.getMessage());
        } finally {
            scanner.close();
        }
    }
}
```

Output:

Run ☐ CircleArea ✕

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition
Enter the radius of the circle: -5
Error: Radius cannot be negative.

Process finished with exit code 0
```

Another output:

Run ☐ CircleArea ✕

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community
Enter the radius of the circle: 5
The area of the circle is: 78.53981633974483

Process finished with exit code 0
```

Program:

© CircleArea.java ×

```java
1    import java.util.Scanner;
2    public class CircleArea {
3        public static void main(String[] args) {
4            Scanner scanner = new Scanner(System.in);
5            try {
6                System.out.print("Enter the radius of the circle: ");
7                double radius = scanner.nextDouble();
8                try {
9                    if (radius < 0) {
10                       throw new IllegalArgumentException("Radius cannot be negative.");
11                   }
12                   double area = Math.PI * radius * radius;
13                   System.out.println("The area of the circle is: " + area);
14               } catch (IllegalArgumentException e) {
15                   System.out.println("Error: " + e.getMessage());
16               }
17           } catch (Exception e) {
18               System.out.println("Error: Invalid input.");
19           } finally {
20               scanner.close();
21           }
22       }
23   }
24   
```

Output:

Run   ☐ CircleArea ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community
Enter the radius of the circle: 2
The area of the circle is: 12.566370614359172

Process finished with exit code 0
```

Program:

© CircleArea.java ×

```java
1    import java.util.InputMismatchException;
2    import java.util.Scanner;
3    public class CircleArea {
4        public static void main(String[] args) {
5            Scanner scanner = new Scanner(System.in);
6            try {
7                System.out.print("Enter the radius of the circle: ");
8                double radius = scanner.nextDouble();
9                try {
10                   if (radius < 0) {
11                       throw new IllegalArgumentException("Radius cannot be negative.");
12                   }
13                   try {
14                       double area = Math.PI * radius * radius;
15                       System.out.println("The area of the circle is: " + area);
```

```
16              } catch (ArithmeticException e) {
17                  System.out.println("Error: Arithmetic exception occurred.");
18              }
19          } catch (IllegalArgumentException e) {
20              System.out.println("Error: " + e.getMessage());
21          }
22      } catch (InputMismatchException e) {
23          System.out.println("Error: Invalid input. Please enter a valid numeric value.");
24      } finally {
25          scanner.close();
26      }
27  }
28 }
29 |
```

Program:

Run   CircleArea ×

```
"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition
Enter the radius of the circle: 3
The area of the circle is: 28.274333882308138

Process finished with exit code 0
```

Caution:

1. File name and class name should be same.
2. Write file name first letter would be capital letter.

Conclusion: Now I am able to explain and write java program using try catch.