11. Write a Java program that takes the string from the user. The program attempts to convert the user-given string to an integer, displays the twice of the integer and handles a NumberFormatException if the string is not a valid integer

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number: ");
        String userInput = scanner.nextLine();

        try {
            int number = Integer.parseInt(userInput);
            int result = number * 2;
            System.out.println("Twice of the number is: " +
result);
        } catch (NumberFormatException e) {
            System.out.println("Input is not a valid
integer.");
        }

        scanner.close();
    }
}
```

12. Write a Java program that takes the age as input from the user, creates an exception called InvalidAgeException, and throws it when the age is not within a valid range (i.e., between 0 and 150 years).

```
package q18191;
import java.util.*;
class InvalidAgeException extends Exception {
InvalidAgeException(String message) {
super(message);
}
}

public class AgeBasic {
public static void main(String[] args) {
Scanner scanner = new Scanner(System.in);
int age = scanner.nextInt();

try {
if (age < 0 || age > 150) {
throw new InvalidAgeException("Invalid age");
} else {
System.out.println("Valid age: " + age + " years");
}
} catch (InvalidAgeException e) {
System.out.println("Error: " + e.getMessage());
```

```
}
}
}
```

13. define an interface called Shape with two abstract methods: void getData() and void Display(). Implement a class called Rectangle that implements the Shape interface. This class should have to: Implement the getData method to read the length and width of the rectangle from the user. Implement the Display method to calculate and display the area of the rectangle. Implement a class called Circle that also implements the Shape interface. This class should have to: Implement the getData method to read the radius of the circle from the user. Implement the Display method to calculate and display the area of the circle

```
import java.util.*;
interface Shape {
void getData();
void Display();

}

class AreaOfShape {
public static void main(String arg[]) {
Circle c = new Circle();
c.getData();
c.Display();
Rectangle r = new Rectangle();
r.getData();
r.Display();
}
}
class Rectangle implements Shape {
double length, width, area;
public void getData() {
Scanner sc = new Scanner(System.in);
length = sc.nextDouble();
width = sc.nextDouble();
}
public void Display() {
area = length * width;
System.out.println("Area of Rectangle: " + area);
}
}

class Circle implements Shape {
double radius, area;
public void getData() {
Scanner sc = new Scanner(System.in);
radius = sc.nextDouble();
}
public void Display() {
area = 3.14 * radius * radius;
System.out.println("Area of Circle: " +area);
```

```
}
}
```

14. Write a Java program to find the area of the Rectangle and circle. Use Interface with the following instructions. Create interface Shape and declare functions getData() and Display() Implement Shape in Rectangle and Circle and override the function appropriatel

```
import java.util.*;

import java.util.*;
import java.util.Scanner;
interface Shape {
void getData();
void display();
}
class Circle implements Shape {
Scanner sc=new Scanner(System.in);
double radius;

public void getData() {
// Get radius from user input
// For example, let's assume the user enters 5
radius = sc.nextDouble();
}

public void display() {
double area = 3.14 * radius * radius;
System.out.println("Area of Circle is " +
String.format("%.1f", area));
}
}

class Rectangle implements Shape {
Scanner sc=new Scanner(System.in);
double length;
double width;

public void getData() {
// Get length and width from user input
// For example, let's assume the user enters length = 10 and
width = 3
length =sc.nextDouble();
width = sc.nextDouble();
}

public void display() {
double area = length * width;
System.out.println("Area of Rectangle is " +
String.format("%.1f", area));
}
```

```
}

class Area {
public static void main(String arg[]) {
Circle c = new Circle();
c.getData();
c.display();

Rectangle r = new Rectangle();
r.getData();
r.display();
}
}
```

15. Write a Java Program to Create an interface Drawable with a method draw() that prints "Drawing a square."

```
package q18037;
import java.util.*;
interface Drawable {
void draw();
}



// Here defone interface Drawable with draw method

class Square implements Drawable {
// Here define draaw method
public void draw() {
System.out.println("Drawing a square.");
}


}

public class Main {
public static void main(String[] args) {
// Create an array of Drawable objects
Scanner s = new Scanner(System.in);
int n = s.nextInt();
Drawable[] squares = new Square[n];

for (int i = 0; i < n; i++) {
squares[i] = new Square();
squares[i].draw();
}

// Here instantiate n Square objects and store them in the array
// Here draw all the squares
```

```
}
}
```