(Q1.1)) Create a Calculator class with overloaded add methods:

- **Define a Calculator class with overloaded methods to add two integers, two doubles, and three integers.**
- **Implement methods add(int a, int b), add(double a, double b), and add(int a, int b, int c).**
- **Write a display method to print the results of each addition.**

Code

```
class Calculator {

    // Method to add two integers
    int add(int a, int b) {
        return a + b;
    }

    // Method to add two doubles
    double add(double a, double b) {
        return a + b;
    }

    // Method to add three integers
    int add(int a, int b, int c) {
        return a + b + c;
    }

    // Method to display the results
    void display() {
        System.out.println("Adding two integers: " + add(3, 4));
        System.out.println("Adding two doubles: " + add(3.5, 4.5));
        System.out.println("Adding three integers: " + add(3, 4, 5));
    }
}
class MainClass {
    public static void main(String[] args) {
        // Creating a Calculator object and displaying the results
        Calculator calculator = new Calculator();
        calculator.display();
    }
}
```

Output

```
PS D:\JAVA from beginning> cd "d:\JAVA from beginning\" ; if ($?) { javac Mainclass.java } ; if ($?) { java Mainclass }
Adding two integers 7
Adding two doubles 10.00
Adding three integers 12
```

(Q1.2) Create a Printer class with overloaded print methods:

- **Define a Printer class with overloaded methods to print an integer, a double, and a string.**
- **Implement methods print(int a), print(double a), and print(String s).**
- **Write a display method to show the usage of each print method.**

Code

```
class Printer {
   void print(int a) {
      System.out.println("The integer value is " + a);
   }
 void print(double a) {
      System.out.println("The double value is " + a);
   }
 void print(String s) {
      System.out.println("The string value is " + s);
   }
void display() {
      // Demonstrating the usage of each print method
      print(10);          // Calling print method with an integer
      print(3.14);        // Calling print method with a double
      print("Hello World");  // Calling print method with a string
  }
}
public class Main{
   public static void main(String args[]){
Printer p=new Printer();
   p.display();
}
   }
```

Output

```
java -cp /tmp/kaN4eNtNfj/Main
The integer value is 10
The double value is 3.1
The string value is Hello World
```

(Q1.3)) Create a Geometry class with overloaded area methods:

● Define a Geometry class with overloaded methods to calculate the area of a circle, a rectangle, and a triangle . ● Implement methods area(double radius), area(double length, double width), and area(double base, double height, boolean isTriangle).

● Write a display method to print the area calculations for each shape.

Code

```
class Geometry {
  // Method to calculate the area of a circle
  double area(double radius) {
     return Math.PI * radius * radius;
  }

  // Method to calculate the area of a rectangle
  double area(double length, double width) {
     return length * width;
  }
```

```
// Method to calculate the area of a triangle
   double area(double base, double height, boolean isTriangle) {
      if (isTriangle) {
         return 0.5 * base * height;
      }
      return 0.0;  // Returning 0.0 if isTriangle is false (shouldn't happen in this context)
   }

   // Display method to print the area calculations for each shape
   void display() {
      double circleArea = area(5.0); // Example radius
      double rectangleArea = area(4.0, 6.0); // Example length and width
      double triangleArea = area(3.0, 7.0, true); // Example base and height

      System.out.println("Area of the circle: " + circleArea);
      System.out.println("Area of the rectangle: " + rectangleArea);
      System.out.println("Area of the triangle: " + triangleArea);
   }
}
public class Main {
   public static void main(String[] args) {
      Geometry geometry = new Geometry();
      geometry.display();
   }
}
```

Output

```
Pjava -cp /tmp/sqBvXWD5KV/Main
Area of the circle: 78.53981633974483
Area of the rectangle: 24.0
Area of the triangle: 10.5

=== Code Execution Successful ===
```

(Q1.4) Create a Converter class with overloaded convert methods:

- **Define a Converter class with overloaded methods to convert a string to an integer, a string to a double, and a string to a boolean.**
- **Implement methods convert(String s, String type), where type can be "int", "double", or "boolean".**
- **Write a display method to show the conversion results for each type.**

Code

```
public class Converter {
// Overloaded method to convert String to Integer
 public int convert(String s, String type) {
 if (type.equalsIgnoreCase("int")) {
 return Integer.parseInt(s);
 }
```

```
    throw new IllegalArgumentException("Invalid type for this method");
  }
// Overloaded method to convert String to Double
    public double convert(String s, double d) {
        return Double.parseDouble(s);
    }

    // Overloaded method to convert String to Boolean
    public boolean convert(String s, boolean b) {
        return Boolean.parseBoolean(s);
    }

    // Display method to show the conversion results
    public void display(String s, String type) {
        if (type.equalsIgnoreCase("int")) {
            int result = convert(s, type);
            System.out.println("Converted String to Integer: " + result);
        } else if (type.equalsIgnoreCase("double")) {
            double result = convert(s, 0.0);
            System.out.println("Converted String to Double: " + result);
        } else if (type.equalsIgnoreCase("boolean")) {
            boolean result = convert(s, false);
            System.out.println("Converted String to Boolean: " + result);
        } else {
            System.out.println("Invalid type specified!");
        }
    }
// Main method to test the Converter class
    public static void main(String[] args) {
        Converter converter = new Converter();

        // Test cases
        converter.display("123", "int");
        converter.display("45.67", "double");
        converter.display("true", "boolean");
    }
}
```

Output

```
java -cp /tmp/giYU8LoDqp/Converter
Converted String to Integer: 123
Converted String to Double: 45.67
Converted String to Boolean: true

=== Code Execution Successful ===
```