3️⃣

Assignment_3_SandeepSir : Aditi Mehre_KH

1️⃣ 1. Working with java.lang.Boolean

b. Convert `boolean` to `String` using `Boolean.toString()`

```
java
Copy code
public class Main {
    public static void main(String[] args) {
        // Task b
        boolean status = true;
        String statusStr = Boolean.toString(status);
        System.out.println("Boolean to String: " + statusStr);
    }
}
```

c. Convert `String` ("true") to `boolean` using `Boolean.parseBoolean()`

```
java
Copy code
public class Main {
    public static void main(String[] args) {
        // Task c
        String strStatus = "true";
        boolean parsedStatus = Boolean.parseBoolean(strStatus);
        System.out.println("String to boolean: " + parsedStatus);
    }
}
```

d. Attempt to convert `String` ("1" or "0") to `boolean` using `Boolean.parseBoolean()`

```
java
Copy code
public class Main {
    public static void main(String[] args) {
        // Task d
        String strStatus = "1";  // You can change this to "0" for testing
        boolean parsedStatus = Boolean.parseBoolean(strStatus);
        System.out.println("String ('1' or '0') to boolean: " + parsedStatus);
    }
}
```

e. Declare a method-local variable `status` of type `boolean` with the value `true` and convert it to the corresponding wrapper class using `Boolean.valueOf()`.

```
java
Copy code
public class Main {
    public static void main(String[] args) {
        boolean status = true;

        // Convert boolean to Boolean wrapper class
        Boolean boolObj = Boolean.valueOf(status);

        // Output the result
        System.out.println("Boolean object: " + boolObj);
    }
}
```

f. Declare a method-local variable strStatus of type String with the value "true" and convert it to the corresponding wrapper class using Boolean.valueOf(). (Hint: Use Boolean.valueOf(String)).

```
public class Main {
    public static void main(String[] args) {
        String strStatus = "true";

        Boolean boolObj = Boolean.valueOf(strStatus);

        System.out.println("Boolean object: " + boolObj);
    }
}
```

2. Working with java.lang.Byte

```
public class Main {
    public static void main(String[] args) {
        // Task 2b
        System.out.println("Bytes used to represent a byte: " + Byte.BYTES);

        // Task 2c
          System.out.println("Minimum byte value: " + Byte.MIN_VALUE);
        System.out.println("Maximum byte value: " + Byte.MAX_VALUE);

        // Task 2d
        byte number = 10;
        String numberStr = Byte.toString(number);
          System.out.println("Byte to String: " + numberStr);

        // Task 2e
        String strNumber = "15";
        byte parsedByte = Byte.parseByte(strNumber);
           System.out.println("String to byte: " + parsedByte);

        // Task 2f
        try {
            String strNumber = "Ab12Cd3";
            byte parsedByte = Byte.parseByte(strNumber);  // This will throw a NumberFormatException
            System.out.println("String to byte: " + parsedByte);
        } catch (NumberFormatException e) {
            System.out.println("Exception caught: " + e);
        }

        // Task 2g
           byte anotherNumber = 20;
        Byte byteObj = Byte.valueOf(anotherNumber);
        System.out.println("Byte to Byte wrapper class: " + byteObj);

        // Task 2h
        String anotherStrNumber = "30";
          Byte anotherByteObj = Byte.valueOf(anotherStrNumber);
        System.out.println("String to Byte wrapper class: " + anotherByteObj);

        // Task 2i
        byte b = 25;
          int byteToInt = b; // byte to int
        short byteToShort = b; // byte to short
        long byteToLong = b; // byte to long
          System.out.println("Byte to int: " + byteToInt);
        System.out.println("Byte to short: " + byteToShort);
        System.out.println("Byte to long: " + byteToLong);
    }
}
```

3. Working with java.lang.Short

```
public class Main {
    public static void main(String[] args) {
        // Task 3b
        System.out.println("Bytes used to represent a short: " + Short.BYTES);

        // Task 3c
        System.out.println("Minimum short value: " + Short.MIN_VALUE);
           System.out.println("Maximum short value: " + Short.MAX_VALUE);

        // Task 3d
        short number = 100;
            String numberStr = Short.toString(number);
        System.out.println("Short to String: " + numberStr);

        // Task 3e
        String strNumber = "150";
           short parsedShort = Short.parseShort(strNumber);
        System.out.println("String to short: " + parsedShort);

        // Task 3f
        try {
            String invalidStrNumber = "Ab12Cd3";
            short invalidParsedShort = Short.parseShort(invalidStrNumber);  // This will throw NumberFormatException
            System.out.println("Invalid string to short: " + invalidParsedShort);
        } catch (NumberFormatException e) {
            System.out.println("Exception caught: " + e);
        }

        // Task 3g
        short anotherNumber = 200;
        Short shortObj = Short.valueOf(anotherNumber);
        System.out.println("Short to Short wrapper class: " + shortObj);

        // Task 3h
        String anotherStrNumber = "250";
        Short anotherShortObj = Short.valueOf(anotherStrNumber);
        System.out.println("String to Short wrapper class: " + anotherShortObj);

        // Task 3i
        short s = 300;
        int shortToInt = s;   // short to int
        long shortToLong = s; // short to long
          float shortToFloat = s; // short to float
        System.out.println("Short to int: " + shortToInt);
          System.out.println("Short to long: " + shortToLong);
        System.out.println("Short to float: " + shortToFloat);
    }
}
```

4. Working with java.lang.Integer

```
public class Main {
    public static void main(String[] args) {
        // Task 4b
        System.out.println("Bytes used to represent an int: " + Integer.BYTES);

        // Task 4c
        System.out.println("Minimum int value: " + Integer.MIN_VALUE);
           System.out.println("Maximum int value: " + Integer.MAX_VALUE);

        // Task 4d
        int number = 12345;
           String numberStr = Integer.toString(number);
        System.out.println("Int to String: " + numberStr);

        // Task 4e
        String strNumber = "6789";
           int parsedInt = Integer.parseInt(strNumber);
        System.out.println("String to int: " + parsedInt);
        System.out.println("Exception caught: " + e);
        }

        // Task 4g
        int anotherNumber = 54321;
           Integer intObj = Integer.valueOf(anotherNumber);
        System.out.println("Int to Integer wrapper class: " + intObj);

        // Task 4h
```

```
        String anotherStrNumber = "98765";
        Integer anotherIntObj = Integer.valueOf(anotherStrNumber);
          System.out.println("String to Integer wrapper class: " + anotherIntObj);

        // Task 4i
           int num1 = 10;
        int num2 = 20;
           int sum = Integer.sum(num1, num2);
        System.out.println("Sum of two integers: " + sum);

        // Task 4j
        int min = Integer.min(num1, num2);
        int max = Integer.max(num1, num2);
  System.out.println("Minimum value: " + min);
        System.out.println("Maximum value: " + max);

        // Task 4k
        int value = 7;
        String binaryStr = Integer.toBinaryString(value);
         String octalStr = Integer.toOctalString(value);
        String hexStr = Integer.toHexString(value);
            System.out.println("Binary representation: " + binaryStr);
        System.out.println("Octal representation: " + octalStr);
          System.out.println("Hexadecimal representation: " + hexStr);

        // Task 4l
        int intVal = 100;
       ong intToLong = intVal;  // int to long
        double intToDouble = intVal;  // int to double
        s hort intToShort = (short) intVal;  // int to short
          System.out.println("Int to long: " + intToLong);
        System.out.println("Int to double: " + intToDouble);
          System.out.println("Int to short: " + intToShort);
    }
}
```

5. Working with java.lang.Long

```
public class Main {
    public static void main(String[] args) {
        // Task 5b
        System.out.println("Bytes used to represent a long: " + Long.BYTES);

        // Task 5c
          System.out.println("Minimum long value: " + Long.MIN_VALUE);
        System.out.println("Maximum long value: " + Long.MAX_VALUE);

        // Task 5d
        long number = 123456789L;
          String numberStr = Long.toString(number);
        System.out.println("Long to String: " + numberStr);

        // Task 5e
        String strNumber = "987654321";
            long parsedLong = Long.parseLong(strNumber);


        System.out.println("String to long: " + parsedLong);



        // Task 5g
        long anotherNumber = 5432109876L;
        Long longObj = Long.valueOf(anotherNumber);
        System.out.println("Long to Long wrapper class: " + longObj);

          // Task 5h
        String anotherStrNumber = "123456789";

         Long anotherLongObj = Long.valueOf(anotherStrNumber);
          System.out.println("String to Long wrapper class: " + anotherLongObj);

        // Task 5i
         long num1 = 1123L;
          long num2 = 9845L;
            long sum = Long.sum(num1, num2);
        System.out.println("Sum of two long values: " + sum);

        // Task 5j
          long min = Long.min(1122L, 5566L);
```

```
        long max = Long.max(1122L, 5566L);
           System.out.println("Minimum value: " + min);
        System.out.println("Maximum value: " + max);

        // Task 5k
        long value = 7L;
        String binaryStr = Long.toBinaryString(value);
        S tring octalStr = Long.toOctalString(value);
           String hexStr = Long.toHexString(value);
        System.out.println("Binary representation: "
        + binaryStr);
           System.out.println("Octal representation: " + octalStr);
        System.out.println("Hexadecimal representation: " + hexStr);

        // Task 5l
        long longVal = 100000L;
          int longToInt = (int) longVal;  // long to int (explicit cast required)
   double longToDouble = longVal;  // long to double
        short longToShort = (short) longVal;  // long to short (explicit cast required)
           System.out.println("Long to int: " + longToInt);
        System.out.println("Long to double: " + longToDouble);
           System.out.println("Long to short: " + longToShort);
    }
}
```

6. Working with java.lang.Float

```
public class Main {
    public static void main(String[] args) {
        // Task 6b
           System.out.println("Bytes used to represent a float: " + Float.BYTES);

        // Task 6c
        System.out.println("Minimum float value: " + Float.MIN_VALUE);
          System.out.println("Maximum float value: " + Float.MAX_VALUE);

        // Task 6d
          float number = 123.45f;
        String numberStr = Float.toString(number);
        System.out.println("Float to String: " + numberStr);

        // Task 6e
        String strNumber = "678.90";
           float parsedFloat = Float.parseFloat(strNumber);
        System.out.println("String to float: " + parsedFloat);



        // Task 6g
         float anotherNumber = 543.21f;
        Float floatObj = Float.valueOf(anotherNumber);
        System.out.println("Float to Float wrapper class: " + floatObj);

          // Task 6h
        String anotherStrNumber = "123.45";
         Float anotherFloatObj = Float.valueOf(anotherStrNumber);
        System.out.println("String to Float wrapper class: " + anotherFloatObj);

        // Task 6i
          float num1 = 112.3f;
            float num2 = 984.5f;
         float sum = Float.sum(num1, num2);
        System.out.println("Sum of two float values: " + sum);

        // Task 6j
        float min = Float.min(112.2f, 556.6f);
             float max = Float.max(112.2f, 556.6f);
          System.out.println("Minimum value: " + min);
          System.out.println("Maximum value: " + max);

        // Task 6k
        float negativeValue = -25.0f;
           double sqrtResult = Math.sqrt(negativeValue);
        System.out.println("Square root of -25.0f: " + sqrtResult);

        // Task 6l
        float zero1 = 0.0f;
        float zero2 = 0.0f;

        float divisionResult = zero1 / zero2;
```

```
        System.out.println("0.0f / 0.0f result: " + divisionResult);

        // Task 6m
           float floatVal = 100.75f;
        int floatToInt = (int) floatVal;  // float to int (explicit cast required)
           double floatToDouble = floatVal;  // float to double
           long floatToLong = (long) floatVal;  // float to long (explicit cast required)
         System.out.println("Float to int: " + floatToInt);
           System.out.println("Float to double: " + floatToDouble);
        System.out.println("Float to long: " + floatToLong);
    }
}
```

8. Conversion between Primitive Types and Strings

```
public class ConversionExample {
    public static void main(String[] args) {
        // Initialize variables
        int intValue = 123;
        double doubleValue = 456.78;
         boolean booleanValue = true;
        char charValue = 'A';
          long longValue = 123456789L;
        float floatValue = 12.34f;
          short shortValue = 12345;
        byte byteValue = 127;

        //  using toString() method of wrapper class
        System.out.println("Using toString() method:");
         System.out.println("int: " + Integer.toString(intValue));
        System.out.println("double: " + Double.toString(doubleValue));
          System.out.println("boolean: " + Boolean.toString(booleanValue));
        System.out.println("char: " + Character.toString(charValue));
          System.out.println("long: " + Long.toString(longValue));
        S ystem.out.println("float: " + Float.toString(floatValue));
          System.out.println("short: " + Short.toString(shortValue));
        System.out.println("byte: " + Byte.toString(byteValue));

        // using valueOf() method of String class
        System.out.println("\\nUsing String.valueOf() method:");
        System.out.println("int: " + String.valueOf(intValue));
           System.out.println("double: " + String.valueOf(doubleValue));
        System.out.println("boolean: " + String.valueOf(booleanValue));
            System.out.println("char: " + String.valueOf(charValue));
        ystem.out.println("long: " + String.valueOf(longValue));
        System.out.println("fl oat: " + String.valueOf(floatValue));
        System.out.println("short: " + String.valueOf(shortValue));
          System.out.println("byte: " + String.valueOf(byteValue));
    }
}
```

9. Default Values of Primitive Types

```
public class DefaultValues {
    // Instance variables
    int instanceInt;
    double instanceDouble;
    boolean instanceBoolean;
      char instanceChar;
    long instanceLong;
      float instanceFloat;
    short instanceShort;
      byte instanceByte;

    // Static variables
    static int staticInt;
      static double staticDouble;
    static boolean staticBoolean;
      static char staticChar;
    static long staticLong;
    s tatic float staticFloat;
    static short staticShort;
      static byte staticByte;

    public static void main(String[] args) {
        DefaultValues defaultValues = new DefaultValues();

        // Print instance variable default values
```

```
        System.out.println("Instance variable default values:");
           System.out.println("int: " + defaultValues.instanceInt);
        System.out.println("double: " + defaultValues.instanceDouble);
         System.out.println("boolean: " + defaultValues.instanceBoolean);
           System.out.println("char: " + defaultValues.instanceChar);
        System.out.println("long: " + defaultValues.instanceLong);
          System.out.println("float: " + defaultValues.instanceFloat);
          System.out.println("short: " + defaultValues.instanceShort);
        System.out.println("byte: " + defaultValues.instanceByte);

        // Print static variable default values
        System.out.println("\\nStatic variable default values:");
        System.out.println("int: " + staticInt);
           System.out.println("double: " + staticDouble);
         System.out.println("boolean: " + staticBoolean);
         System.out.println("char: " + staticChar);
         System.out.println("long: " + staticLong);
           System.out.println("float: " + staticFloat);
          System.out.println("short: " + staticShort);
         System.out.println("byte: " + staticByte);
    }
}
```

10. Arithmetic Operations with Command Line Input

```
public class ArithmeticOperations {
    public static void main(String[] args) {
        if (args.length != 3) {

            return;
        }

        int num1 = Integer.parseInt(args[0]);
          int num2 = Integer.parseInt(args[2]);
         String operator = args[1];
        int result;

        switch (operator) {
            case "+":
                result = num1 + num2;
                System.out.println("Result: " + result);
                break;
            case "-":
                result = num1 - num2;
                 System.out.println("Result: " + result);
                break;
            case "*":
                result = num1 * num2;
                 System.out.println("Result: " + result);
                break;
            case "/":
                if (num2 == 0) {
                    System.out.println("Error: Division by zero");
                 } else {
                    result = num1 / num2;
                    System.out.println("Result: " + result);
                }
                break;
              default:
                System.out.println("Error: Invalid operator. Use +, -, *, or /.");
                break;
        }
    }
}
```