

Note: Consider the following before starting the assignment:

- A **static field** declared inside a class is called a **class-level variable**. To access this variable, use the class name and the dot operator (e.g., `Integer.MAX_VALUE`).
- A **static method** defined inside a class is called a **class-level method**. To access this method, use the class name and the dot operator (e.g., `Integer.parseInt()`).
- When accessing static members within the same class, you do not need to use the class name.

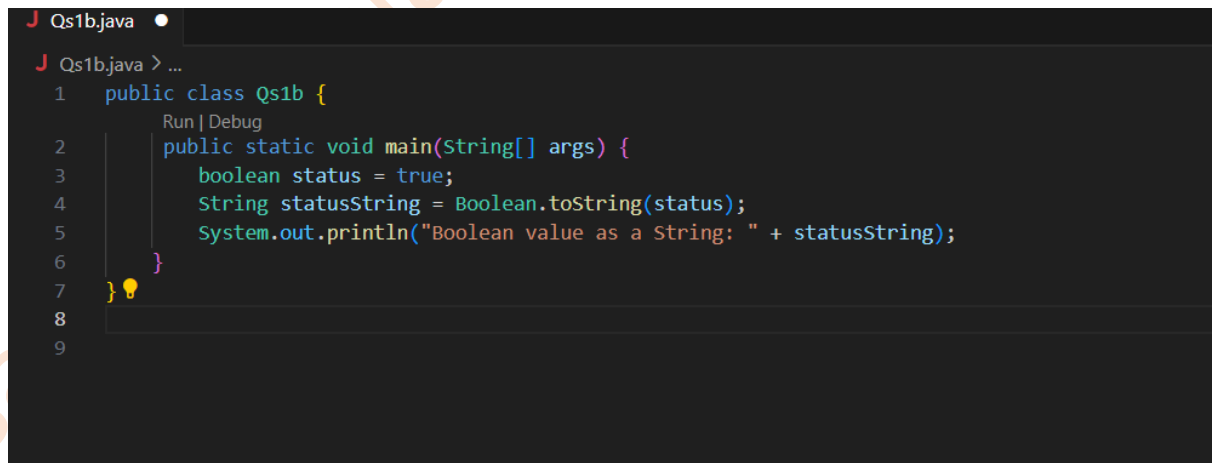
1. Working with `java.lang.Boolean`

a. Explore the [Java API documentation for `java.lang.Boolean`](#) and observe its modifiers and super types.

b. Declare a method-local variable `status` of type `boolean` with the value `true` and convert it to a `String` using the `toString` method. (Hint: Use `Boolean.toString(Boolean)`).

Ans:

```
public class Qs1b {  
    public static void main(String[] args) {  
        boolean status = true;  
        String statusString = Boolean.toString(status);  
        System.out.println("Boolean value as a String: " + statusString);  
    }  
}
```



```
Qs1b.java  
Qs1b.java > ...  
1  public class Qs1b {  
    Run | Debug  
2      public static void main(String[] args) {  
3          boolean status = true;  
4          String statusString = Boolean.toString(status);  
5          System.out.println("Boolean value as a String: " + statusString);  
6      }  
7  }  
8  
9
```

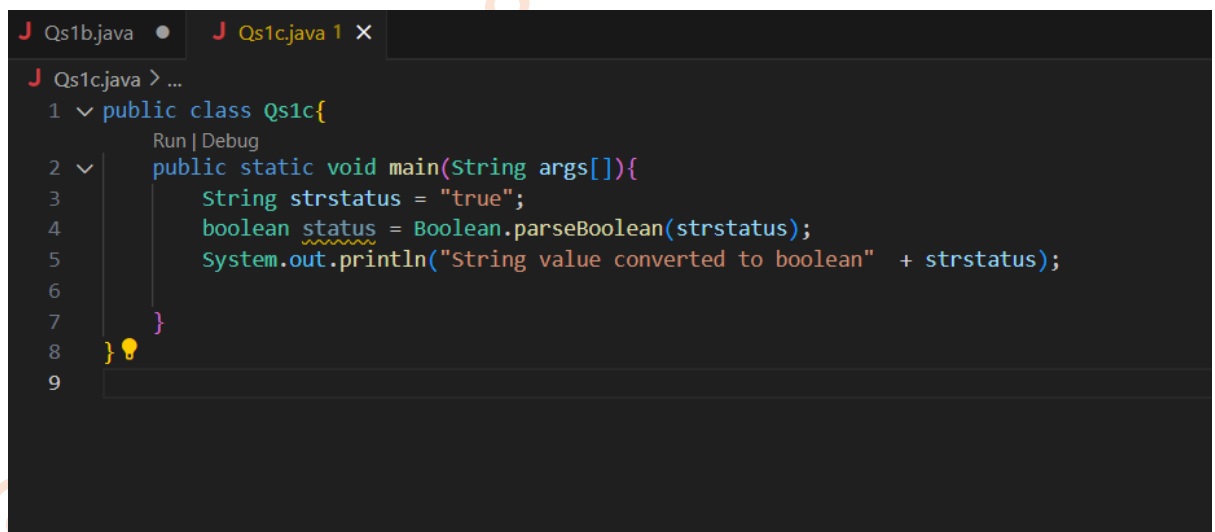
ASSIGNMENT NO.2

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1b
Boolean value as a String: true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

c. Declare a method-local variable `strStatus` of type `String` with the value `"true"` and convert it to a `boolean` using the `parseBoolean` method. (Hint: Use `Boolean.parseBoolean(String)`).

Ans:

```
public class Qs1c
{
    public static void main(String args[]){
        String strstatus = "true";
        boolean status = Boolean.parseBoolean(strstatus);
        System.out.println("String value converted to boolean" + strstatus);
    }
}
```



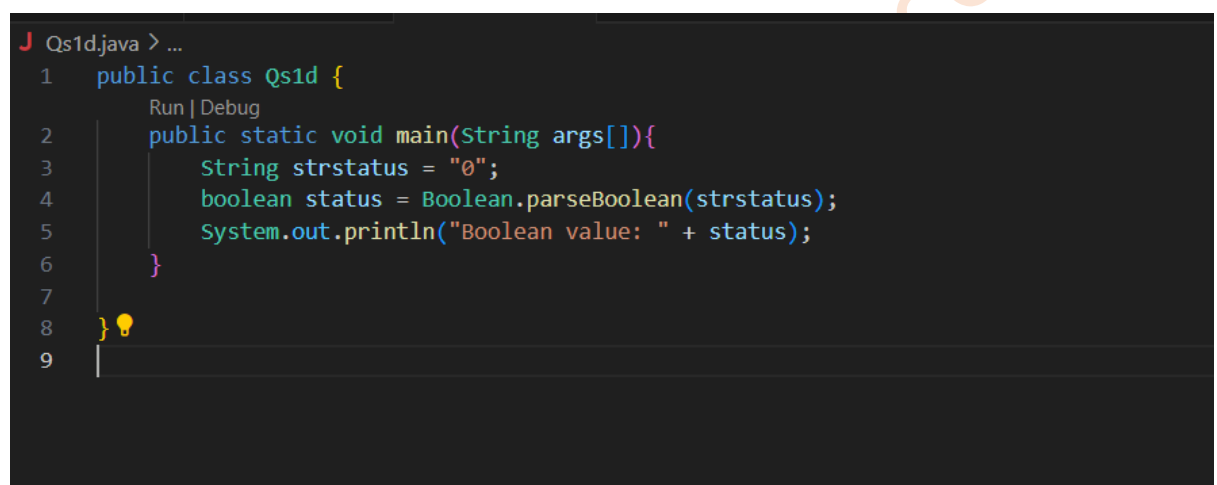
```
J Qs1b.java  J Qs1c.java 1 X
J Qs1c.java > ...
1  public class Qs1c{
   Run | Debug
2  public static void main(String args[]){
3      String strstatus = "true";
4      boolean status = Boolean.parseBoolean(strstatus);
5      System.out.println("String value converted to boolean" + strstatus);
6
7  }
8  }
9  }
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1c
String value converted to booleantrue
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

d. Declare a method-local variable `strStatus` of type `String` with the value "1" or "0" and attempt to convert it to a `boolean`. (Hint: `parseBoolean` method will not work as expected with "1" or "0").

Ans:

```
public class Qs1d {
    public static void main(String args[]){
        String strstatus = "0";
        boolean status = Boolean.parseBoolean(strstatus);
        System.out.println("Boolean value: " + status);
    }
}
```



```
Qs1d.java > ...
1  public class Qs1d {
    Run | Debug
2      public static void main(String args[]){
3          String strstatus = "0";
4          boolean status = Boolean.parseBoolean(strstatus);
5          System.out.println("Boolean value: " + status);
6      }
7
8  }
9  
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1d
Boolean value: false
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1d
Boolean value: false
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

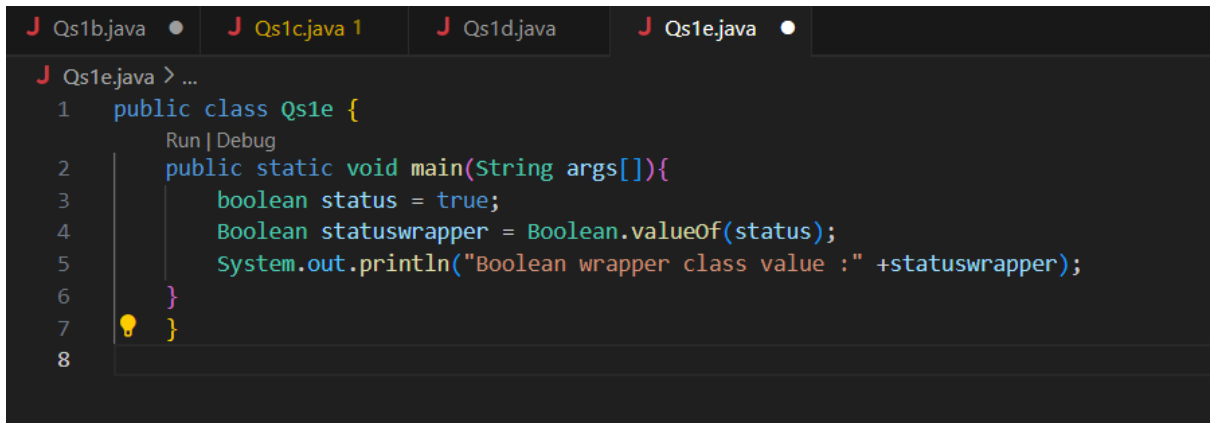
e. Declare a method-local variable `status` of type `boolean` with the value `true` and convert it to the corresponding wrapper class using `Boolean.valueOf()`. (Hint: Use `Boolean.valueOf(boolean)`).

Ans:

```
public class Qs1e {
    public static void main(String args[]){
```

ASSIGNMENT NO.2

```
    boolean status = true;
    Boolean statuswrapper = Boolean.valueOf(status);
    System.out.println("Boolean wrapper class value :" +statuswrapper);
}
}
```



```
J Qs1b.java • J Qs1c.java 1 J Qs1d.java J Qs1e.java •
J Qs1e.java > ...
1 public class Qs1e {
  Run | Debug
2     public static void main(String args[]){
3         boolean status = true;
4         Boolean statuswrapper = Boolean.valueOf(status);
5         System.out.println("Boolean wrapper class value :" +statuswrapper);
6     }
7     }
8
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1e
Boolean wrapper class value :true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

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)`).

Ans:

```
public class Qs1f {
    public static void main(String args[]){
        String strstatus ="true";
        Boolean statuswrapper = Boolean.valueOf(strstatus);
        System.out.println("Boolean wrapper class value :" +statuswrapper);
    }
}
```

```

}
J Qs1b.java • J Qs1c.java 1 J Qs1d.java J Qs1e.java • J Qs1f.java X
J Qs1f.java > ...
1 public class Qs1f {
    Run | Debug
2     public static void main(String args[]){
3         String strstatus = "true";
4         Boolean statuswrapper = Boolean.valueOf(strstatus);
5         System.out.println("Boolean wrapper class value :" +statuswrapper);
6     }
7
8 }
9

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1f
Boolean wrapper class value :true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

g. Experiment with converting a `boolean` value into other primitive types or vice versa and observe the results.

Ans:

1. Boolean to String

```

public class Qs1g {
    public static void main(String args[]){
        //boolean to String
        boolean boolvalue = true;
        String strvalue = Boolean.toString(boolvalue);
        System.out.println("String value :" +strvalue);
    }
}

```

```

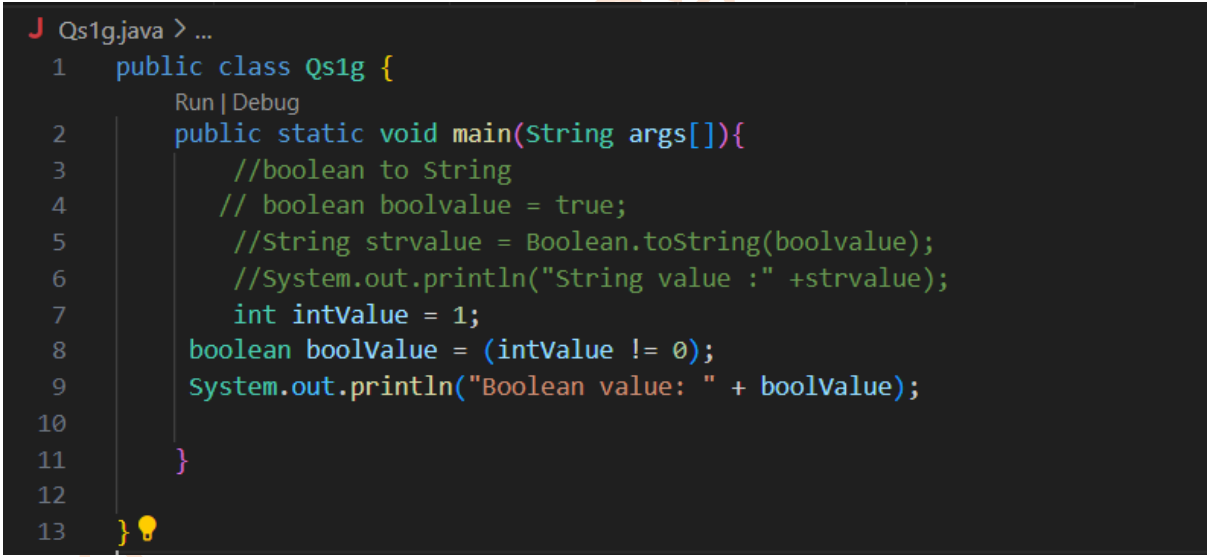
J Qs1g.java > ...
1 public class Qs1g {
    Run | Debug
2     public static void main(String args[]){
3         //boolean to String
4         boolean boolvalue = true;
5         String strvalue = Boolean.toString(boolvalue);
6         System.out.println("String value :" +strvalue);
7     }
8
9 }
10

```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1g
String value :true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

2. Int to Boolean

```
public class Qs1g {
    public static void main(String args[]){
        int intValue = 1;
        boolean boolValue = (intValue != 0);
        System.out.println("Boolean value: " + boolValue);
    }
}
```



```
J Qs1g.java > ...
1  public class Qs1g {
    Run | Debug
2      public static void main(String args[]){
3          //boolean to String
4          // boolean boolvalue = true;
5          //String strvalue = Boolean.toString(boolvalue);
6          //System.out.println("String value :" +strvalue);
7          int intValue = 1;
8          boolean boolValue = (intValue != 0);
9          System.out.println("Boolean value: " + boolValue);
10
11     }
12
13 }
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1g
Boolean value: true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

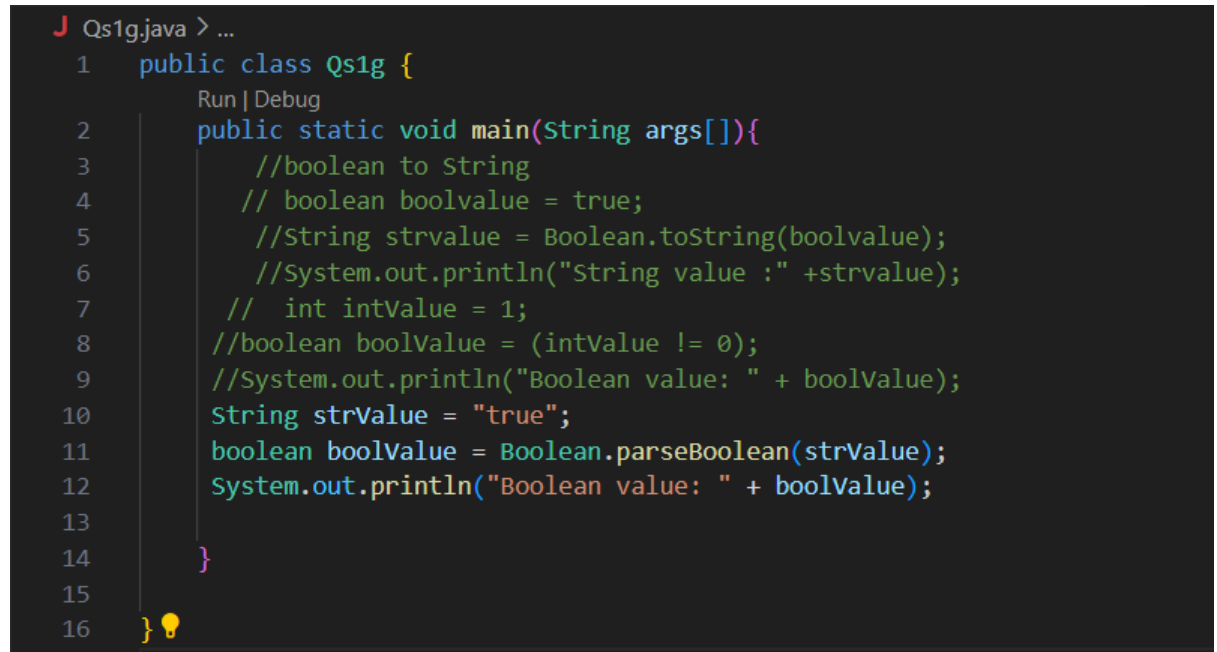
3. String to Boolean

```
public class Qs1g {
```

```

public static void main(String args[]){
String strValue = "true";
boolean boolValue = Boolean.parseBoolean(strValue);
    System.out.println("Boolean value: " + boolValue);
}
}

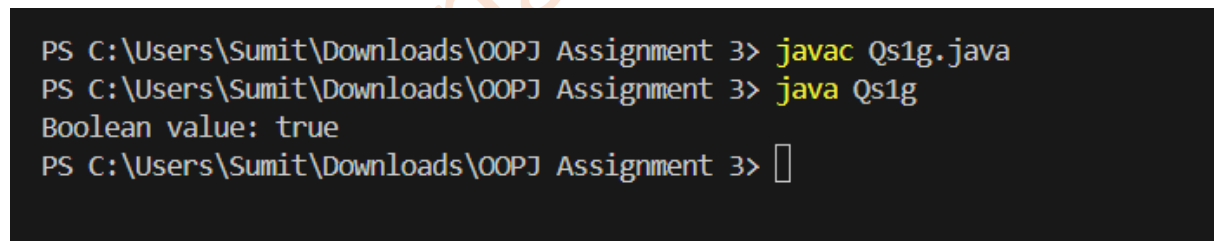
```



```

J Qs1g.java > ...
1  public class Qs1g {
    Run | Debug
2      public static void main(String args[]){
3          //boolean to String
4          // boolean boolvalue = true;
5          //String strvalue = Boolean.toString(boolvalue);
6          //System.out.println("String value :" +strvalue);
7          // int intValue = 1;
8          //boolean boolValue = (intValue != 0);
9          //System.out.println("Boolean value: " + boolValue);
10         String strValue = "true";
11         boolean boolValue = Boolean.parseBoolean(strValue);
12         System.out.println("Boolean value: " + boolValue);
13     }
14 }
15
16 }

```



```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs1g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs1g
Boolean value: true
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

2. Working with `java.lang.Byte`

a. Explore the [Java API documentation for `java.lang.Byte`](#) and observe its modifiers and super types.

b. Write a program to test how many bytes are used to represent a byte value using the `BYTES` field. (Hint: Use `Byte.BYTES`).

Ans:

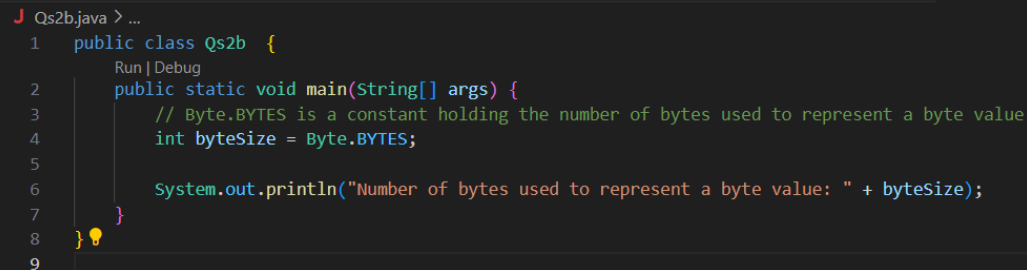
```

public class Qs2b {
    public static void main(String[] args) {
// Byte.BYTES is a constant holding the number of bytes used to represent a byte
value

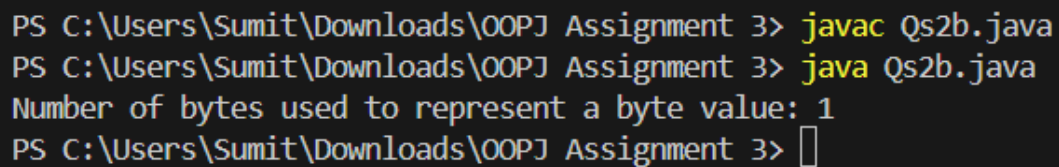
```

ASSIGNMENT NO.2

```
int byteSize = Byte.BYTES;
System.out.println("Number of bytes used to represent a byte value: " + byteSize);
}
}
```



```
J Qs2b.java > ...
1 public class Qs2b {
    Run | Debug
2     public static void main(String[] args) {
3         // Byte.BYTES is a constant holding the number of bytes used to represent a byte value
4         int byteSize = Byte.BYTES;
5
6         System.out.println("Number of bytes used to represent a byte value: " + byteSize);
7     }
8 }
9
```

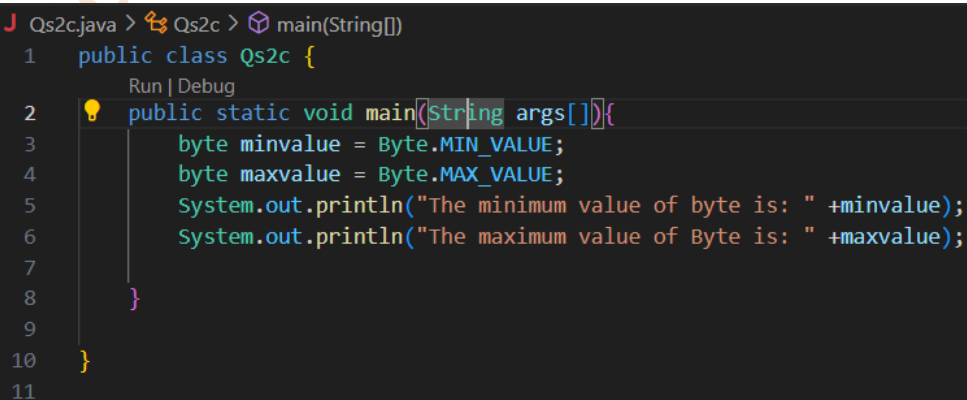


```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2b.java
Number of bytes used to represent a byte value: 1
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

c. Write a program to find the minimum and maximum values of byte using the MIN_VALUE and MAX_VALUE fields. (Hint: Use Byte.MIN_VALUE and Byte.MAX_VALUE).

Ans:

```
public class Qs2c {
    public static void main(String args[]){
        byte minvalue = Byte.MIN_VALUE;
        byte maxvalue = Byte.MAX_VALUE;
        System.out.println("The minimum value of byte is: " + minvalue);
        System.out.println("The maximum value of Byte is: " + maxvalue);
    }
}
```



```
J Qs2c.java > Qs2c > main(String[])
1 public class Qs2c {
    Run | Debug
2     public static void main(String args[]){
3         byte minvalue = Byte.MIN_VALUE;
4         byte maxvalue = Byte.MAX_VALUE;
5         System.out.println("The minimum value of byte is: " + minvalue);
6         System.out.println("The maximum value of Byte is: " + maxvalue);
7     }
8 }
9
10 }
11
```



```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2c
The minimum value of byte is: -128
The maximum value of Byte is: 127
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

d. Declare a method-local variable `number` of type `byte` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Byte.toString(byte)`).

Ans:

```
public class Qs2d {
    public static void main(String[] args) {
        byte number = 42;
        String numberAsString = Byte.toString(number);
        System.out.println("The byte value as a String is: " + numberAsString);
    }
}
```

```
J Qs2d.java > ...
1  public class Qs2d {
    Run | Debug
2      public static void main(String[] args) {
3          byte number = 42;
4          String numberAsString = Byte.toString(number);
5          System.out.println("The byte value as a String is: " + numberAsString);
6      }
7  }
8  █
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2d
The byte value as a String is: 42
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to a `byte` value using the `parseByte` method. (Hint: Use `Byte.parseByte(String)`).

Ans:

```
public class Qs2e {
    public static void main(String[] args) {
        String strnumber = "18";
        Byte number = Byte.parseByte(strnumber);
        System.out.println("The String value of a byte is: " +number);
    }
}
```

```
J Qs2e.java > ...
1  public class Qs2e {
    Run | Debug
2      public static void main(String[] args) {
3          String strnumber = "18";
4          Byte number = Byte.parseByte(strnumber);
5          System.out.println("The String value of a byte is: " +number);
6      }
7  }
8
9
10 }
11
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2e
The String value of a byte is: 18
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

f. Declare a method-local variable `strNumber` of type `String` with the value `"Ab12Cd3"` and attempt to convert it to a `byte` value. (Hint: `parseByte` method will throw a `NumberFormatException`).

Ans:

```
public class Qs2f {
    public static void main(String args[]){
        String strnumber = "Ab12Cd3";
        byte number = Byte.parseByte(strnumber);
        System.out.println("The String value of a Byte is : " +number);
    }
}
```

```

    }
}

J Qs2f.java > Qs2f
1  public class Qs2f {
    Run | Debug
2      public static void main(String args[]){
3          String strnumber = "Ab12Cd3";
4          byte number = Byte.parseByte(strnumber);
5          System.out.println("The String value of a Byte is :" +number);
6      }
7
8  }
9

```

```

PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL PORTS

    at java.base/java.lang.Byte.parseByte(Byte.java:219)
    at Qs2f.main(Qs2f.java:4)
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2f
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
    at java.base/java.lang.NumberFormatException.forInputString(NumberFormatException.java:67)
    at java.base/java.lang.Integer.parseInt(Integer.java:668)
    at java.base/java.lang.Byte.parseByte(Byte.java:193)
    at java.base/java.lang.Byte.parseByte(Byte.java:219)
    at Qs2f.main(Qs2f.java:4)
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

g. Declare a method-local variable `number` of type `byte` with some value and convert it to the corresponding wrapper class using `Byte.valueOf()`. (Hint: Use `Byte.valueOf(byte)`).

Ans:

```

public class Qs2g {
    public static void main(String args[]){
        byte number = 10;
        byte wrapper = Byte.valueOf(number);
        System.out.println("Wrapper class of Byte value is:" +wrapper);
    }
}

```

```

J Qs2g.java > ...
1  public class Qs2g {
    Run | Debug
2      public static void main(String args[]){
3          byte number = 10;
4          byte wrapper = Byte.valueOf(number);
5          System.out.println("Wrapper class of Byte value is:" +wrapper);
6      }
7
8  }
9

```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2g
Wrapper class of Byte value is:10
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

h. Declare a method-local variable `strNumber` of type `String` with some byte value and convert it to the corresponding wrapper class using `Byte.valueOf()`. (Hint: Use `Byte.valueOf(String)`).

Ans:

```
public class Qs2h {
    public static void main(String args[]){
        String strnumber = "45";
        Byte Bytevalue = Byte.valueOf(strnumber);
        System.out.println("Byte value :" +Bytevalue);
    }
}
```

```
J Qs2h.java > ...
1  public class Qs2h {
    Run | Debug
2      public static void main(String args[]){
3          String strnumber = "45";
4          Byte Bytevalue = Byte.valueOf(strnumber);
5          System.out.println("Byte value :" +Bytevalue);
6      }
7
8  }
9
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2h.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2h
Byte value :45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

i. Experiment with converting a `byte` value into other primitive types or vice versa and observe the results.

Ans:

```
public class Qs2i {
    public static void main(String[] args) {
        // Declare a byte value
        byte byteValue = 42;
        // Convert byte to other primitive types
        int intValue = byteValue;
        short shortValue = byteValue;
        long longValue = byteValue;
        float floatValue = byteValue;
        double doubleValue = byteValue;
        char charValue = (char) byteValue;
        boolean booleanValue = (byteValue != 0);
        // Print the converted value
        System.out.println("Byte value: " + byteValue);
        System.out.println("Converted to int: " + intValue);
        System.out.println("Converted to short: " + shortValue);
        System.out.println("Converted to long: " + longValue);
        System.out.println("Converted to float: " + floatValue);
        System.out.println("Converted to double: " + doubleValue);
        System.out.println("Converted to char: " + charValue);
        System.out.println("Converted to boolean: " + booleanValue);
        // Convert other primitive types to byte
        byte fromInt = (byte) intValue;
        byte fromShort = (byte) shortValue;
        byte fromLong = (byte) longValue;
        byte fromFloat = (byte) floatValue;
        byte fromDouble = (byte) doubleValue;
        byte fromChar = (byte) charValue;
        // Print the converted byte values
        System.out.println("Converted from int: " + fromInt);
        System.out.println("Converted from short: " + fromShort);
        System.out.println("Converted from long: " + fromLong);
        System.out.println("Converted from float: " + fromFloat);
        System.out.println("Converted from double: " + fromDouble);
        System.out.println("Converted from char: " + fromChar);
    }
}
```

ASSIGNMENT NO.2

```

}
J Qs2i.java > Qs2i > main(String[])
1 public class Qs2i {
    Run | Debug
2 public static void main(String[] args) {
3     // Declare a byte value
4     byte byteValue = 42;
5
6     // Convert byte to other primitive types
7     int intValue = byteValue;
8     short shortValue = byteValue;
9     long longValue = byteValue;
10    float floatValue = byteValue;
11    double doubleValue = byteValue;
12    char charValue = (char) byteValue;
13    boolean booleanValue = (byteValue != 0);
14
15    // Print the converted values
16    System.out.println("Byte value: " + byteValue);
17    System.out.println("Converted to int: " + intValue);
18    System.out.println("Converted to short: " + shortValue);
19    System.out.println("Converted to long: " + longValue);
20    System.out.println("Converted to float: " + floatValue);
21    System.out.println("Converted to double: " + doubleValue);
22    System.out.println("Converted to char: " + charValue);
23    System.out.println("Converted to boolean: " + booleanValue);
24
25    // Convert other primitive types to byte
26    byte fromInt = (byte) intValue;
27    byte fromShort = (byte) shortValue;
28    byte fromLong = (byte) longValue;
29    byte fromFloat = (byte) floatValue;
30    byte fromDouble = (byte) doubleValue;
31    byte fromChar = (byte) charValue;
32
33    // Print the converted byte values
34    System.out.println("Converted from int: " + fromInt);
35    System.out.println("Converted from short: " + fromShort);
36    System.out.println("Converted from long: " + fromLong);

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs2i.java

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs2i

Byte value: 42

Converted to int: 42

Converted to short: 42

Converted to long: 42

Converted to float: 42.0

Converted to double: 42.0

Converted to char: *

Converted to boolean: true

Converted from int: 42

Converted from short: 42

3. Working with `java.lang.Short`

- Explore the [Java API documentation for `java.lang.Short`](#) and observe its modifiers and super types.
- Write a program to test how many bytes are used to represent a `short` value using the `BYTES` field. (Hint: Use `Short.BYTES`).

Ans:

```
public class Qs3b {
    public static void main(String args[]){
        int bytesforshort = Short.BYTES;
        System.out.println("Number of bytes used to represent a short value: " +
        bytesforshort);
    }
}
```

```
Qs3b.java > ...
1  public class Qs3b {
    Run | Debug
2      public static void main(String args[]){
3          int bytesforshort = Short.BYTES;
4          System.out.println("Number of bytes used to represent a short value: " + bytesforshort);
5      }
6
7  }
8
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3b
Number of bytes used to represent a short value: 2
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

- Write a program to find the minimum and maximum values of `short` using the `MIN_VALUE` and `MAX_VALUE` fields. (Hint: Use `Short.MIN_VALUE` and `Short.MAX_VALUE`).

Ans:

```
public class Qs3c {
    public static void main(String[] args) {
        short minValue = Short.MIN_VALUE;
        short maxValue = Short.MAX_VALUE;
        System.out.println("Minimum value of short: " + minValue);
        System.out.println("Maximum value of short: " + maxValue);
    }
}
```

```

J Qs3c.java > ...
1  public class Qs3c {
    Run | Debug
2      public static void main(String[] args) {
3
4          short minValue = Short.MIN_VALUE;
5          short maxValue = Short.MAX_VALUE;
6          System.out.println("Minimum value of short: " + minValue);
7          System.out.println("Maximum value of short: " + maxValue);
8      }
9  }
10

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3c
Minimum value of short: -32768
Maximum value of short: 32767
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

d. Declare a method-local variable `number` of type `short` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Short.toString(short)`).

Ans:

```

public class Qs3d {
    public static void main(String[] args) {
        short number = 123;
        String numberAsString = Short.toString(number);
        System.out.println("The short value as a String is: " + numberAsString);
    }
}

```

```

J Qs3d.java > ...
1  public class Qs3d {
    Run | Debug
2      public static void main(String[] args) {
3          short number = 123;
4          String numberAsString = Short.toString(number);
5          System.out.println("The short value as a String is: " + numberAsString);
6      }
7  }
8
9

```



```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3d
The short value as a String is: 123
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to a short value using the `parseShort` method. (Hint: Use `Short.parseShort(String)`).

Ans:

```
public class Qs3e {
    public static void main(String[] args) {
        String strNumber = "12345";
        short number = Short.parseShort(strNumber);
        System.out.println("The String value as a short is: " + number);
    }
}
```

```
J Qs3e.java > ...
1  public class Qs3e {
    Run | Debug
2      public static void main(String[] args) {
3
4          String strNumber = "12345";
5          short number = Short.parseShort(strNumber);
6          System.out.println("The String value as a short is: " + number);
7      }
8  }
9
```

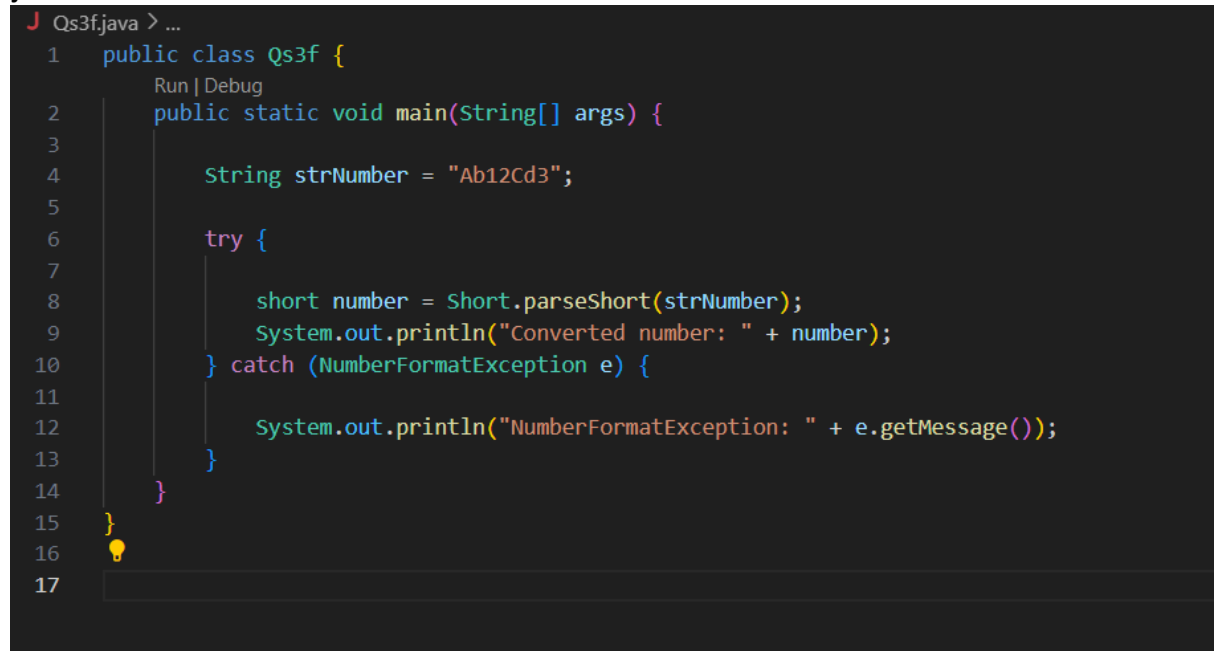
```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3e
The String value as a short is: 12345
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

f. Declare a method-local variable `strNumber` of type `String` with the value "Ab12Cd3" and attempt to convert it to a short value. (Hint: `parseShort` method will throw a `NumberFormatException`).

Ans:

```
public class Qs3f {
    public static void main(String[] args) {
```

```
String strNumber = "Ab12Cd3";
try {
    short number = Short.parseShort(strNumber);
    System.out.println("Converted number: " + number);
} catch (NumberFormatException e) {
    System.out.println("NumberFormatException: " + e.getMessage());
}
}
```



```
Qs3f.java > ...
1  public class Qs3f {
    Run | Debug
2      public static void main(String[] args) {
3
4          String strNumber = "Ab12Cd3";
5
6          try {
7
8              short number = Short.parseShort(strNumber);
9              System.out.println("Converted number: " + number);
10         } catch (NumberFormatException e) {
11
12             System.out.println("NumberFormatException: " + e.getMessage());
13         }
14     }
15 }
16
17
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3f
NumberFormatException: For input string: "Ab12Cd3"
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

g. Declare a method-local variable `number` of type `short` with some value and convert it to the corresponding wrapper class using `Short.valueOf()`. (Hint: Use `Short.valueOf(short)`).

Ans:

```
public class Qs3g {
    public static void main(String[] args) {
        short number = 123;
        Short shortObject = Short.valueOf(number);
        System.out.println("Short object: " + shortObject);
    }
}
```

```

}
J Qs3g.java > Qs3g
1 public class Qs3g {
    Run | Debug
2     public static void main(String[] args) {
3         short number = 123;
4         Short shortObject = Short.valueOf(number);
5         System.out.println("Short object: " + shortObject);
6     }
7 }
8
9

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3g
Short object: 123
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

h. Declare a method-local variable `strNumber` of type `String` with some short value and convert it to the corresponding wrapper class using `Short.valueOf()`. (Hint: Use `Short.valueOf(String)`).

Ans:

```

public class Qs3h {
    public static void main(String[] args) {
        String strNumber = "123";
        Short shortObject = Short.valueOf(strNumber);
        System.out.println("Short object: " + shortObject);
    }
}

```

}

```

J Qs3h.java > ...
1  public class Qs3h {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare the method-local variable
4          String strNumber = "123";
5
6          // Convert the string to its corresponding wrapper class
7          Short shortObject = Short.valueOf(strNumber);
8
9          // Print the Short object
10         System.out.println("Short object: " + shortObject);
11     }
12 }
13

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3h.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3h
Short object: 123
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

i. Experiment with converting a short value into other primitive types or vice versa and observe the results.

Ans:

public class Qs3i{

```

    public static void main(String[] args) {
        short myShort = 100;
        int myInt = myShort;
        long myLong = myShort;
        float myFloat = myShort;
        double myDouble = myShort;
        System.out.println("short to int: " + myInt);
        System.out.println("short to long: " + myLong);
        System.out.println("short to float: " + myFloat);
        System.out.println("short to double: " + myDouble);
        myInt = 100;
        myShort = (short) myInt;
        System.out.println("int to short: " + myShort);
        myLong = 100L;
        myShort = (short) myLong;
        System.out.println("long to short: " + myShort);
    }
}

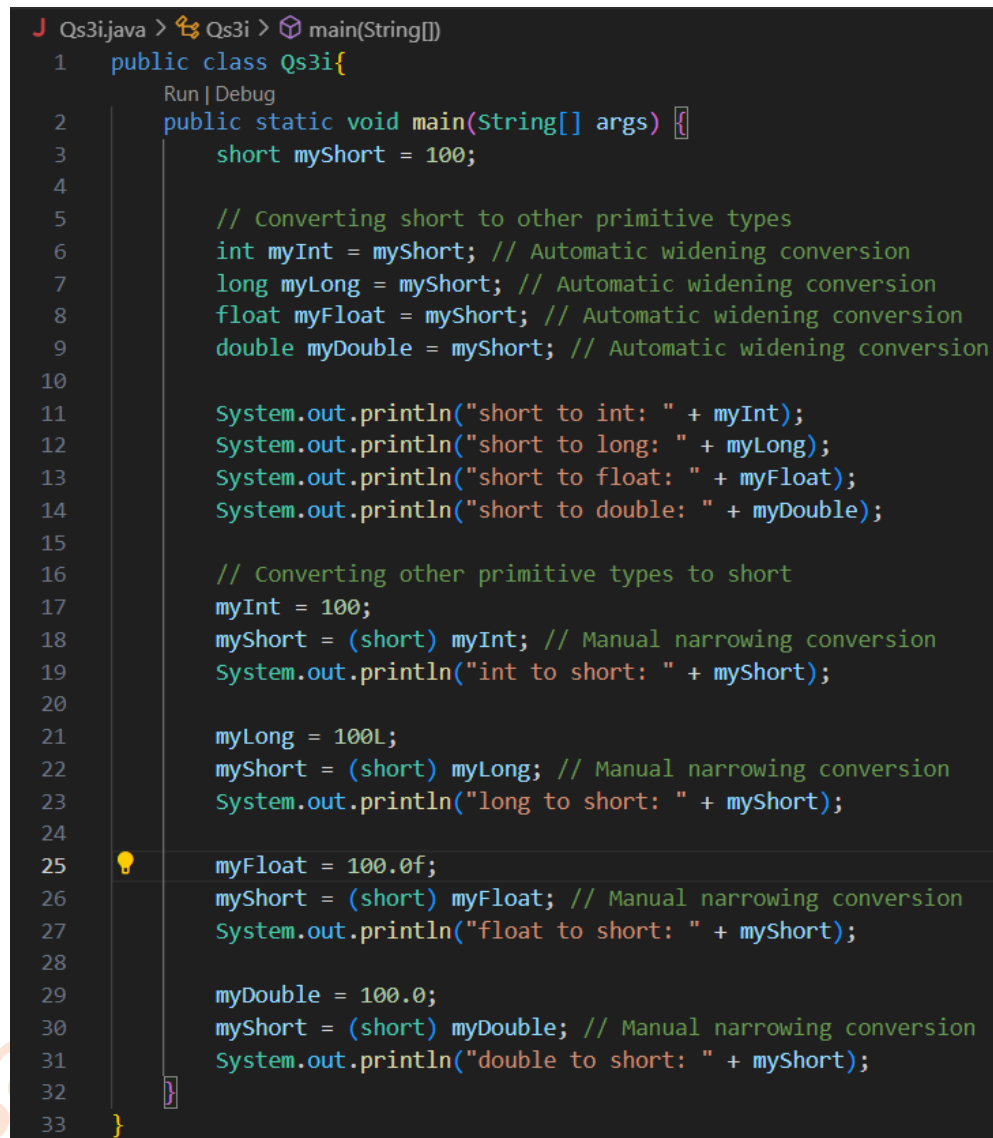
```

ASSIGNMENT NO.2

```

    myFloat = 100.0f;
    myShort = (short) myFloat;
    System.out.println("float to short: " + myShort);
    myDouble = 100.0;
    myShort = (short) myDouble;
    System.out.println("double to short: " + myShort);
}
}

```



```

J Qs3i.java > Qs3i > main(String[])
1  public class Qs3i{
    Run | Debug
2      public static void main(String[] args) {
3          short myShort = 100;
4
5          // Converting short to other primitive types
6          int myInt = myShort; // Automatic widening conversion
7          long myLong = myShort; // Automatic widening conversion
8          float myFloat = myShort; // Automatic widening conversion
9          double myDouble = myShort; // Automatic widening conversion
10
11         System.out.println("short to int: " + myInt);
12         System.out.println("short to long: " + myLong);
13         System.out.println("short to float: " + myFloat);
14         System.out.println("short to double: " + myDouble);
15
16         // Converting other primitive types to short
17         myInt = 100;
18         myShort = (short) myInt; // Manual narrowing conversion
19         System.out.println("int to short: " + myShort);
20
21         myLong = 100L;
22         myShort = (short) myLong; // Manual narrowing conversion
23         System.out.println("long to short: " + myShort);
24
25         myFloat = 100.0f;
26         myShort = (short) myFloat; // Manual narrowing conversion
27         System.out.println("float to short: " + myShort);
28
29         myDouble = 100.0;
30         myShort = (short) myDouble; // Manual narrowing conversion
31         System.out.println("double to short: " + myShort);
32     }
33 }

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs3i.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs3i
short to int: 100
short to long: 100
short to float: 100.0
short to double: 100.0
int to short: 100
long to short: 100
float to short: 100
double to short: 100
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

4. Working with `java.lang.Integer`

a. Explore the [Java API documentation for `java.lang.Integer`](#) and observe its modifiers and super types.

b. Write a program to test how many bytes are used to represent an `int` value using the `BYTES` field. (Hint: Use `Integer.BYTES`).

Ans:

```

public class Qs4b{
    public static void main(String[] args) {
        int bytes = Integer.BYTES;
        System.out.println("Number of bytes used to represent an int: " + bytes);
    }
}

```

```

Qs4b.java > ...
1  public class Qs4b{
   Run | Debug
2      public static void main(String[] args) {
3          int bytes = Integer.BYTES;
4          System.out.println("Number of bytes used to represent an int: " + bytes);
5      }
6  }
7  ⚡
8

```

```

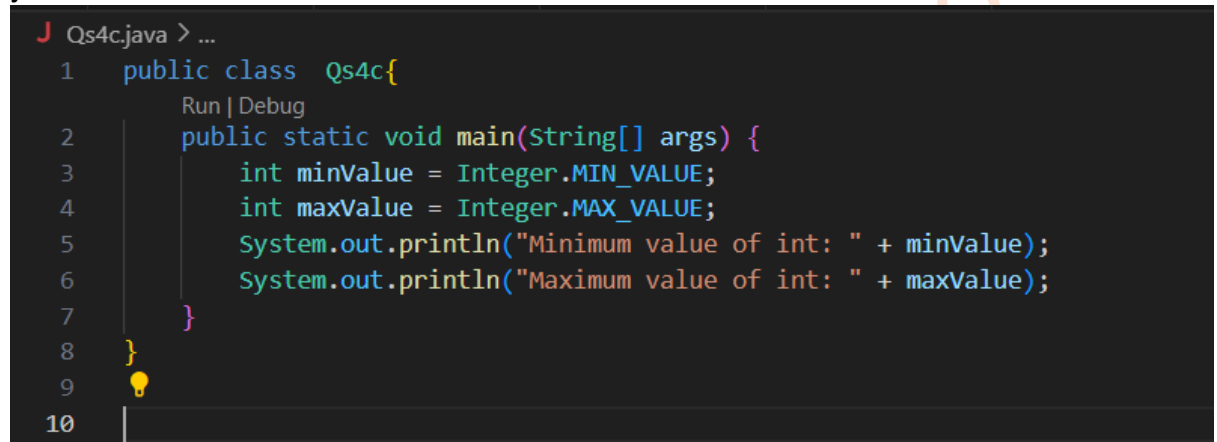
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4b
Number of bytes used to represent an int: 4
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

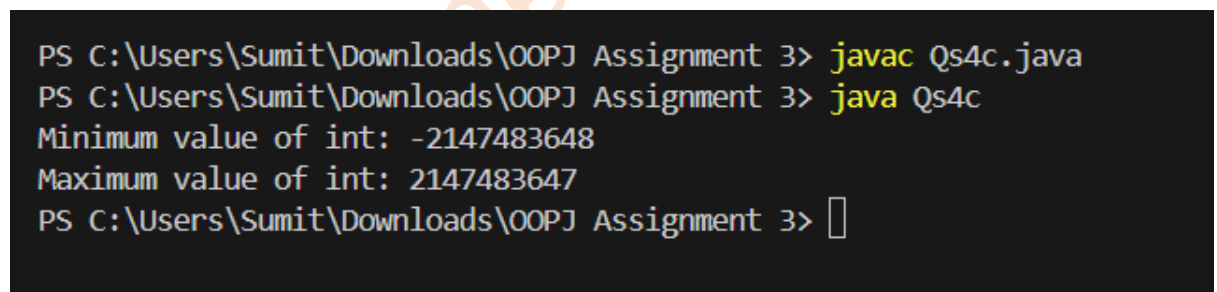
c. Write a program to find the minimum and maximum values of `int` using the `MIN_VALUE` and `MAX_VALUE` fields. (Hint: Use `Integer.MIN_VALUE` and `Integer.MAX_VALUE`).

Ans:

```
public class Qs4c{
    public static void main(String[] args) {
        int minValue = Integer.MIN_VALUE;
        int maxValue = Integer.MAX_VALUE;
        System.out.println("Minimum value of int: " + minValue);
        System.out.println("Maximum value of int: " + maxValue);
    }
}
```



```
Qs4c.java > ...
1  public class Qs4c{
    Run | Debug
2      public static void main(String[] args) {
3          int minValue = Integer.MIN_VALUE;
4          int maxValue = Integer.MAX_VALUE;
5          System.out.println("Minimum value of int: " + minValue);
6          System.out.println("Maximum value of int: " + maxValue);
7      }
8  }
9  |
10 |
```



```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4c
Minimum value of int: -2147483648
Maximum value of int: 2147483647
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

d. Declare a method-local variable `number` of type `int` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Integer.toString(int)`).

Ans:

```
public class Qs4d {
    public static void main(String[] args) {
        int number = 12345;
        String numberAsString = Integer.toString(number);
        System.out.println("The number as a String is: " + numberAsString);
    }
}
```

ASSIGNMENT NO.2

```
}  
J Qs4d.java > ...  
1 public class Qs4d {  
    Run | Debug  
2     public static void main(String[] args) {  
3         int number = 12345;  
4         String numberAsString = Integer.toString(number);  
5         System.out.println("The number as a String is: " + numberAsString);  
6     }  
7 }  
8
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4d.java  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4d  
The number as a String is: 12345  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to an `int` value using the `parseInt` method. (Hint: Use `Integer.parseInt(String)`).

Ans:

```
public class Qs4e {  
    public static void main(String[] args) {  
        String strNumber = "12345";  
        int number = Integer.parseInt(strNumber);  
        System.out.println("The String as an int is: " + number);  
    }  
}
```

```
J Qs4e.java > ...  
1 public class Qs4e {  
    Run | Debug  
2     public static void main(String[] args) {  
3         String strNumber = "12345";  
4         int number = Integer.parseInt(strNumber);  
5         System.out.println("The String as an int is: " + number);  
6     }  
7 }  
8
```

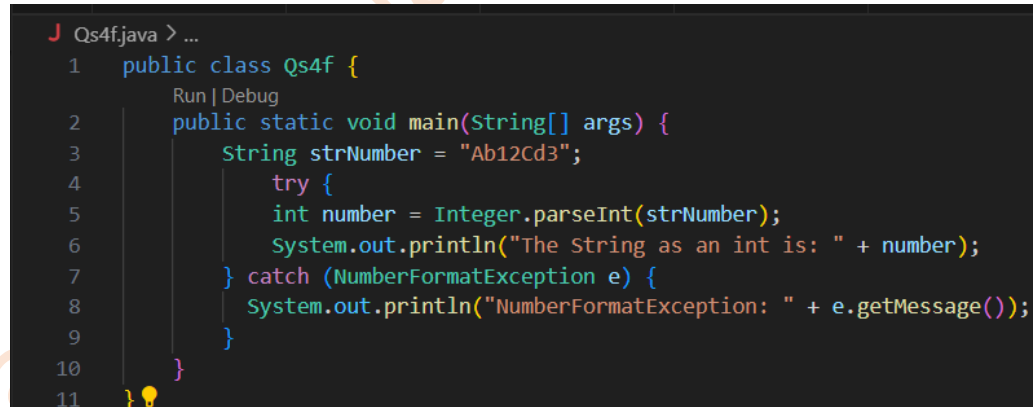


```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4e
The String as an int is: 12345
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

f. Declare a method-local variable `strNumber` of type `String` with the value "Ab12Cd3" and attempt to convert it to an `int` value. (Hint: `parseInt` method will throw a `NumberFormatException`).

Ans:

```
public class Qs4f {
    public static void main(String[] args) {
        String strNumber = "Ab12Cd3";
        try {
            int number = Integer.parseInt(strNumber);
            System.out.println("The String as an int is: " + number);
        } catch (NumberFormatException e) {
            System.out.println("NumberFormatException: " + e.getMessage());
        }
    }
}
```



```
J Qs4f.java > ...
1  public class Qs4f {
    Run | Debug
2      public static void main(String[] args) {
3          String strNumber = "Ab12Cd3";
4          try {
5              int number = Integer.parseInt(strNumber);
6              System.out.println("The String as an int is: " + number);
7          } catch (NumberFormatException e) {
8              System.out.println("NumberFormatException: " + e.getMessage());
9          }
10     }
11 }
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4f
NumberFormatException: For input string: "Ab12Cd3"
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

g. Declare a method-local variable `number` of type `int` with some value and convert it to the corresponding wrapper class using `Integer.valueOf()`. (Hint: Use `Integer.valueOf(int)`).

Ans:

```
public class Qs4g {
    public static void main(String[] args) {
        int number = 12345;
        Integer wrapperNumber = Integer.valueOf(number);
        System.out.println("The int as an Integer object is: " + wrapperNumber);
    }
}
```

```
Qs4g.java > ...
1  public class Qs4g {
   Run | Debug
2      public static void main(String[] args) {
3          int number = 12345;
4          Integer wrapperNumber = Integer.valueOf(number);
5          System.out.println("The int as an Integer object is: " + wrapperNumber);
6      }
7  }
8  ⚡
9
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4g
The int as an Integer object is: 12345
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

h. Declare a method-local variable `strNumber` of type `String` with some integer value and convert it to the corresponding wrapper class using `Integer.valueOf()`. (Hint: Use `Integer.valueOf(String)`).

Ans:

```
public class Qs4h {
    public static void main(String[] args) {
        String strNumber = "123";
        Integer intNumber = Integer.valueOf(strNumber);
        System.out.println("The integer value is: " + intNumber);
    }
}
```

```

}

J Qs4h.java > ...
1 public class Qs4h {
    Run | Debug
2     public static void main(String[] args) {
3         String strNumber = "123";
4         Integer intNumber = Integer.valueOf(strNumber);
5         System.out.println("The integer value is: " + intNumber);
6     }
7 }
8
9

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4h.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4h
The integer value is: 123
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

i. Declare two integer variables with values 10 and 20, and add them using a method from the `Integer` class. (Hint: Use `Integer.sum(int, int)`).

Ans:

```

public class Qs4i {
    public static void main(String[] args) {
        int num1 = 10;
        int num2 = 20;
        int sum = Integer.sum(num1, num2);
        System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
    }
}

```

```

J Qs4i.java > ...
1 public class Qs4i {
    Run | Debug
2     public static void main(String[] args) {
3         int num1 = 10;
4         int num2 = 20;
5         int sum = Integer.sum(num1, num2);
6         System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
7     }
8 }
9

```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4i.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4i
The sum of 10 and 20 is: 30
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

j. Declare two integer variables with values 10 and 20, and find the minimum and maximum values using the `Integer` class. (Hint: Use `Integer.min(int, int)` and `Integer.max(int, int)`).

Ans:

```
public class Qs4j {
    public static void main(String[] args) {
        int num1 = 10;
        int num2 = 20;
        int min = Integer.min(num1, num2);
        int max = Integer.max(num1, num2);
        System.out.println("Minimum value: " + min);
        System.out.println("Maximum value: " + max);
    }
}
```

J Qs4j.java > ...

```
1  public class Qs4j {
    Run | Debug
2      public static void main(String[] args) {
3          int num1 = 10;
4          int num2 = 20;
5          int min = Integer.min(num1, num2);
6          int max = Integer.max(num1, num2);
7          System.out.println("Minimum value: " + min);
8          System.out.println("Maximum value: " + max);
9      }
10 }
11
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4j.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4j
Minimum value: 10
Maximum value: 20
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

k. Declare an integer variable with the value 7. Convert it to binary, octal, and hexadecimal strings using methods from the `Integer` class. (Hint: Use `Integer.toString(int)`, `Integer.toOctalString(int)`, and `Integer.toHexString(int)`).

Ans:

```
public class Qs4k {
    public static void main(String[] args) {
        int number = 7;
        // Convert to binary
        String binaryString = Integer.toBinaryString(number);
        System.out.println("Binary: " + binaryString);
        // Convert to octal
        String octalString = Integer.toOctalString(number);
        System.out.println("Octal: " + octalString);
        // Convert to hexadecimal
        String hexString = Integer.toHexString(number);
        System.out.println("Hexadecimal: " + hexString);
    }
}
```

```
J Qs4k.java > ...
1  public class Qs4k {
    Run | Debug
2      public static void main(String[] args) {
3          int number = 7;
4
5          // Convert to binary
6          String binaryString = Integer.toBinaryString(number);
7          System.out.println("Binary: " + binaryString);
8
9          // Convert to octal
10         String octalString = Integer.toOctalString(number);
11         System.out.println("Octal: " + octalString);
12
13         // Convert to hexadecimal
14         String hexString = Integer.toHexString(number);
15         System.out.println("Hexadecimal: " + hexString);
16     }
17 }
18
19
```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4k.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4k
Binary: 111
Octal: 7
Hexadecimal: 7
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

I. Experiment with converting an `int` value into other primitive types or vice versa and observe the results.

Ans:

```

public class Qs4I {
    public static void main(String[] args) {
        int number = 42;
        // Convert int to other primitive types
        byte byteValue = (byte) number;
        short shortValue = (short) number;
        long longValue = number;
        float floatValue = number;
        double doubleValue = number;
        char charValue = (char) number;
        boolean booleanValue = (number != 0);
        // Print the converted values
        System.out.println("Original int value: " + number);
        System.out.println("Converted to byte: " + byteValue);
        System.out.println("Converted to short: " + shortValue);
        System.out.println("Converted to long: " + longValue);
        System.out.println("Converted to float: " + floatValue);
        System.out.println("Converted to double: " + doubleValue);
        System.out.println("Converted to char: " + charValue);
        System.out.println("Converted to boolean: " + booleanValue);
        // Convert other primitive types back to int
        int fromByte = byteValue;
        int fromShort = shortValue;
        int fromLong = (int) longValue;
        int fromFloat = (int) floatValue;
        int fromDouble = (int) doubleValue;
        int fromChar = charValue;
        // Print the values converted back to int
        System.out.println("Converted back from byte: " + fromByte);
        System.out.println("Converted back from short: " + fromShort);
        System.out.println("Converted back from long: " + fromLong);
        System.out.println("Converted back from float: " + fromFloat);
        System.out.println("Converted back from double: " + fromDouble);
    }
}

```

ASSIGNMENT NO.2

System.out.println("Converted back from char: " + fromChar);

```
}  
}  
J Qs4l.java > ...  
1 public class Qs4l {  
    Run | Debug  
2 public static void main(String[] args) {  
3     int number = 42;  
4  
5     // Convert int to other primitive types  
6     byte byteValue = (byte) number;  
7     short shortValue = (short) number;  
8     long longValue = number;  
9     float floatValue = number;  
10    double doubleValue = number;  
11    char charValue = (char) number;  
12    boolean booleanValue = (number != 0);  
13  
14    // Print the converted values  
15    System.out.println("Original int value: " + number);  
16    System.out.println("Converted to byte: " + byteValue);  
17    System.out.println("Converted to short: " + shortValue);  
18    System.out.println("Converted to long: " + longValue);  
19    System.out.println("Converted to float: " + floatValue);  
20    System.out.println("Converted to double: " + doubleValue);  
21    System.out.println("Converted to char: " + charValue);  
22    System.out.println("Converted to boolean: " + booleanValue);  
23  
24    // Convert other primitive types back to int  
25    int fromByte = byteValue;  
26    int fromShort = shortValue;  
27    int fromLong = (int) longValue;  
28    int fromFloat = (int) floatValue;  
29    int fromDouble = (int) doubleValue;  
30    int fromChar = charValue;  
31  
32    // Print the values converted back to int  
33    System.out.println("Converted back from byte: " + fromByte);  
34    System.out.println("Converted back from short: " + fromShort);  
35    System.out.println("Converted back from long: " + fromLong);  
36    System.out.println("Converted back from float: " + fromFloat);
```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs4l.java

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs4l

Original int value: 42

Converted to byte: 42

Converted to short: 42

Converted to long: 42

Converted to float: 42.0

Converted to double: 42.0

Converted to char: *

Converted to boolean: true

Converted back from byte: 42

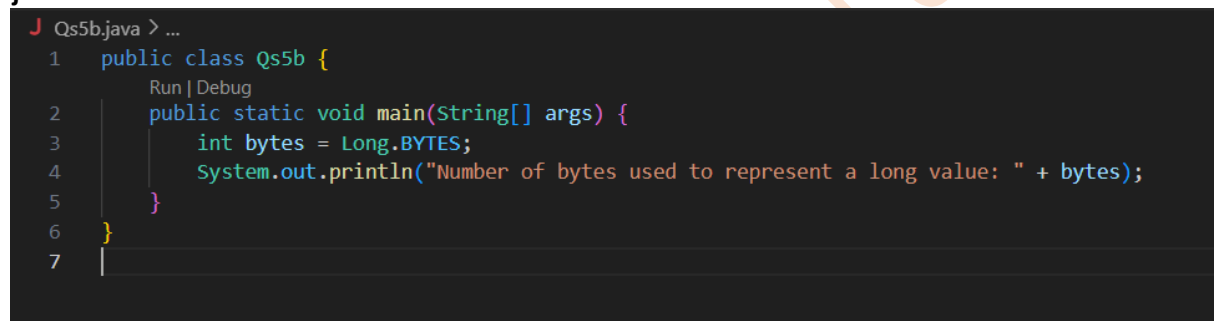
Converted back from short: 42

5. Working with `java.lang.Long`

- a. Explore the [Java API documentation for `java.lang.Long`](#) and observe its modifiers and super types.
- b. Write a program to test how many bytes are used to represent a `long` value using the `BYTES` field. (Hint: Use `Long.BYTES`).

Ans:

```
public class Qs5b {
    public static void main(String[] args) {
        int bytes = Long.BYTES;
        System.out.println("Number of bytes used to represent a long value: " + bytes);
    }
}
```



The screenshot shows an IDE window with the file `Qs5b.java`. The code is as follows:

```
1 public class Qs5b {
2     public static void main(String[] args) {
3         int bytes = Long.BYTES;
4         System.out.println("Number of bytes used to represent a long value: " + bytes);
5     }
6 }
7
```

Below the code editor, the output of the program is displayed:

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5b
Number of bytes used to represent a long value: 8
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

- c. Write a program to find the minimum and maximum values of `long` using the `MIN_VALUE` and `MAX_VALUE` fields. (Hint: Use `Long.MIN_VALUE` and `Long.MAX_VALUE`).

Ans:

```
public class Qs5c {
    public static void main(String[] args) {
        // Get the minimum and maximum values of long
        long minValue = Long.MIN_VALUE;
        long maxValue = Long.MAX_VALUE;
        // Print the minimum and maximum values
        System.out.println("Minimum value of long: " + minValue);
        System.out.println("Maximum value of long: " + maxValue);
    }
}
```


ASSIGNMENT NO.2

```

J Qs5c.java > ...
1  public class Qs5c {
    Run | Debug
2      public static void main(String[] args) {
3          // Get the minimum and maximum values of long
4          long minValue = Long.MIN_VALUE;
5          long maxValue = Long.MAX_VALUE;
6
7          // Print the minimum and maximum values
8          System.out.println("Minimum value of long: " + minValue);
9          System.out.println("Maximum value of long: " + maxValue);
10     }
11 }
12
13

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5c
Minimum value of long: -9223372036854775808
Maximum value of long: 9223372036854775807
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

d. Declare a method-local variable `number` of type `long` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Long.toString(long)`).

Ans:

```

public class Qs5d {
    public static void main(String[] args) {
        long number = 123456789L;
        String numberString = Long.toString(number);
        System.out.println("The string representation of the number is: " +
        numberString);
    }
}

```

```

J Qs5d.java > ...
1  public class Qs5d {
    Run | Debug
2      public static void main(String[] args) {
3          long number = 123456789L;
4          String numberString = Long.toString(number);
5          System.out.println("The string representation of the number is: " + numberString);
6      }
7  }
8

```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5d
The string representation of the number is: 123456789
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to a `long` value using the `parseLong` method. (Hint: Use `Long.parseLong(String)`).

Ans:

```
public class Qs5e {
    public static void main(String[] args) {
        String strNumber = "987654321";
        long number = Long.parseLong(strNumber);
        System.out.println("The long value is: " + number);
    }
}
```

```
J Qs5e.java > ...
1  public class Qs5e {
    Run | Debug
2      public static void main(String[] args) {
3          String strNumber = "987654321";
4          long number = Long.parseLong(strNumber);
5          System.out.println("The long value is: " + number);
6      }
7  }
8
9
```

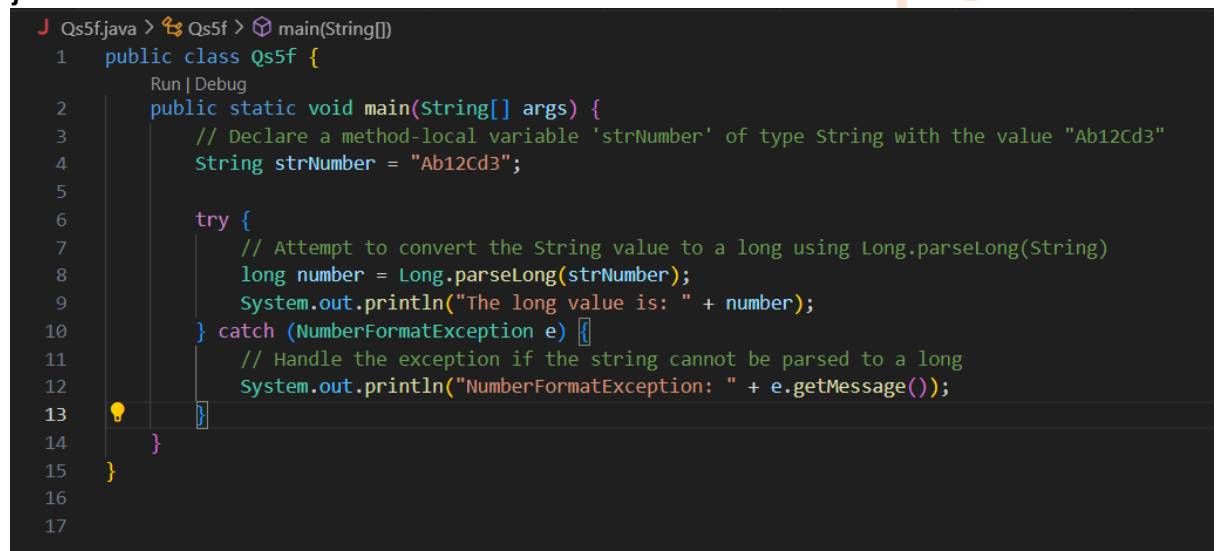
```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5e
The long value is: 987654321
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

f. Declare a method-local variable `strNumber` of type `String` with the value `"Ab12Cd3"` and attempt to convert it to a `long` value. (Hint: `parseLong` method will throw a `NumberFormatException`).

Ans:

```
public class Qs5f {
    public static void main(String[] args)
```

```
// Declare a method-local variable 'strNumber' of type String with the value
"Ab12Cd3"
String strNumber = "Ab12Cd3";
try {
    // Attempt to convert the String value to a long using Long.parseLong(String)
    long number = Long.parseLong(strNumber);
    System.out.println("The long value is: " + number);
} catch (NumberFormatException e) {
    // Handle the exception if the string cannot be parsed to a long
    System.out.println("NumberFormatException: " + e.getMessage());
}
}
```



```
J Qs5f.java > Qs5f > main(String[])
1 public class Qs5f {
    Run | Debug
2     public static void main(String[] args) {
3         // Declare a method-local variable 'strNumber' of type String with the value "Ab12Cd3"
4         String strNumber = "Ab12Cd3";
5
6         try {
7             // Attempt to convert the String value to a long using Long.parseLong(String)
8             long number = Long.parseLong(strNumber);
9             System.out.println("The long value is: " + number);
10        } catch (NumberFormatException e) {
11            // Handle the exception if the string cannot be parsed to a long
12            System.out.println("NumberFormatException: " + e.getMessage());
13        }
14    }
15 }
16
17
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5f
NumberFormatException: For input string: "Ab12Cd3"
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

g. Declare a method-local variable `number` of type `long` with some value and convert it to the corresponding wrapper class using `Long.valueOf()`. (Hint: Use `Long.valueOf(long)`).

Ans:

```
public class Qs5g {
    public static void main(String[] args) {
        long number = 123456789L;
        Long wrapperNumber = Long.valueOf(number);
        System.out.println("The Long wrapper class value is: " + wrapperNumber)
    }
}
```

ASSIGNMENT NO.2

```

}
J Qs5g.java > ...
1  public class Qs5g {
    Run | Debug
2      public static void main(String[] args) {
3          long number = 123456789L;
4          Long wrapperNumber = Long.valueOf(number);
5          System.out.println("The Long wrapper class value is: " + wrapperNumber);
6      }
7  }
8

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5g
The Long wrapper class value is: 123456789
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

h. Declare a method-local variable `strNumber` of type `String` with some long value and convert it to the corresponding wrapper class using `Long.valueOf()`. (Hint: Use `Long.valueOf(String)`).

Ans:

```

public class Qs5h {
    public static void main(String[] args) {
        String strNumber = "123456789";
        Long wrapperNumber = Long.valueOf(strNumber);
        System.out.println("The Long wrapper class value is: " + wrapperNumber);
    }
}

```

```

J Qs5h.java > ...
1  public class Qs5h {
    Run | Debug
2      public static void main(String[] args) {
3          String strNumber = "123456789";
4          Long wrapperNumber = Long.valueOf(strNumber);
5          System.out.println("The Long wrapper class value is: " + wrapperNumber);
6      }
7  }
8

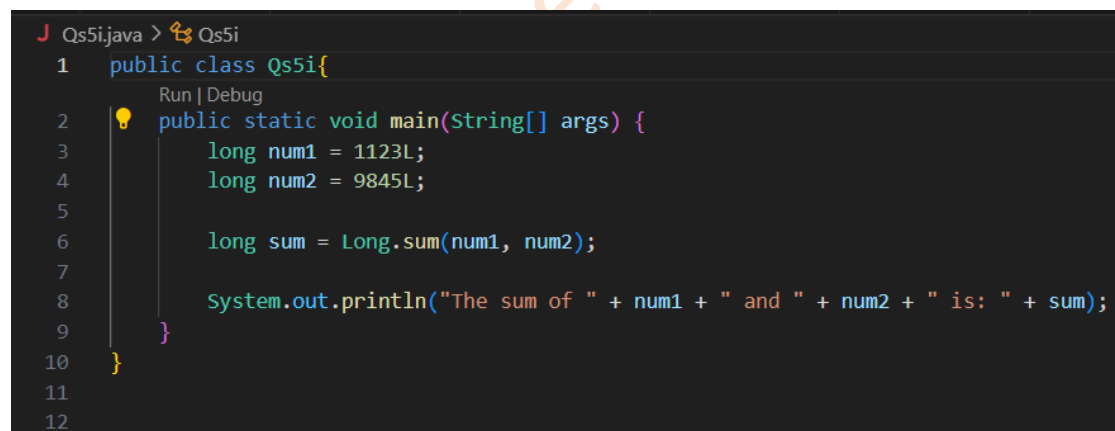
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5h.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5h
The Long wrapper class value is: 123456789
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

i. Declare two long variables with values 1123 and 9845, and add them using a method from the Long class. (Hint: Use Long.sum(long, long)).

Ans:

```
public class Qs5i{
public static void main(String[] args) {
    long num1 = 1123L;
    long num2 = 9845L;
    long sum = Long.sum(num1, num2);
    System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
}
}
```



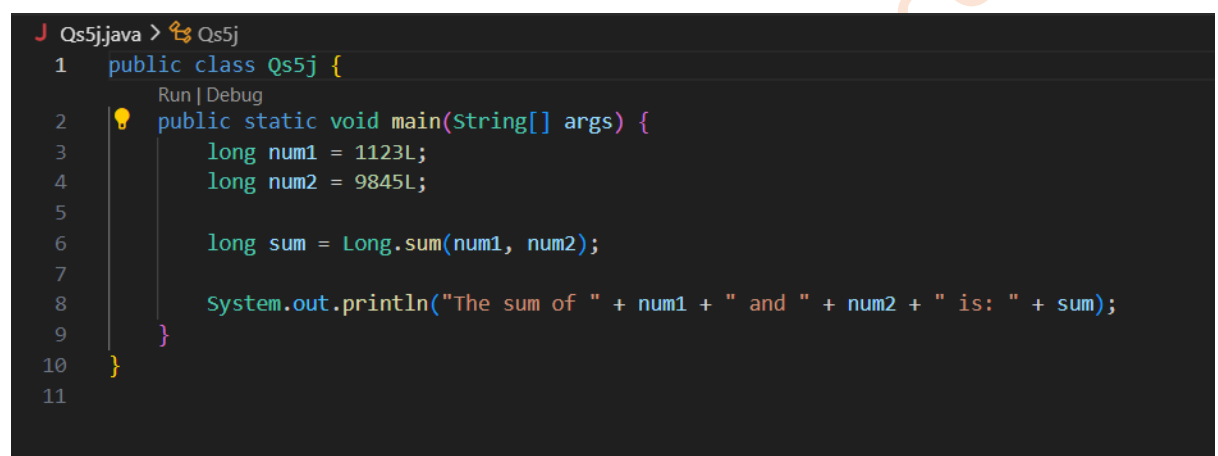
```
J Qs5i.java > Qs5i
1 public class Qs5i{
    Run | Debug
2     public static void main(String[] args) {
3         long num1 = 1123L;
4         long num2 = 9845L;
5
6         long sum = Long.sum(num1, num2);
7
8         System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
9     }
10 }
11
12
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5i.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5i
The sum of 1123 and 9845 is: 10968
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

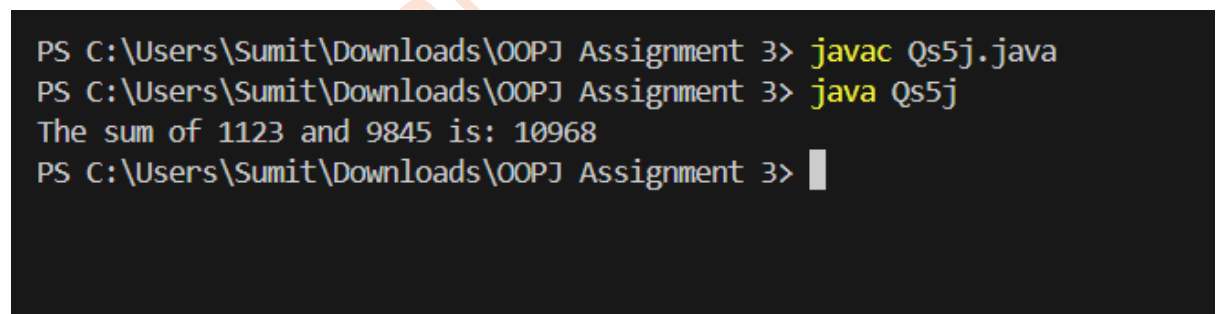
j. Declare two long variables with values 1122 and 5566, and find the minimum and maximum values using the Long class. (Hint: Use Long.min(long, long) and Long.max(long, long)).

Ans:

```
public class Qs5j {
    public static void main(String[] args) {
        long num1 = 1123L;
        long num2 = 9845L;
        long sum = Long.sum(num1, num2);
        System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
    }
}
```



```
J Qs5j.java > Qs5j
1 public class Qs5j {
  Run | Debug
2     public static void main(String[] args) {
3         long num1 = 1123L;
4         long num2 = 9845L;
5
6         long sum = Long.sum(num1, num2);
7
8         System.out.println("The sum of " + num1 + " and " + num2 + " is: " + sum);
9     }
10 }
11
```



```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5j.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5j
The sum of 1123 and 9845 is: 10968
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

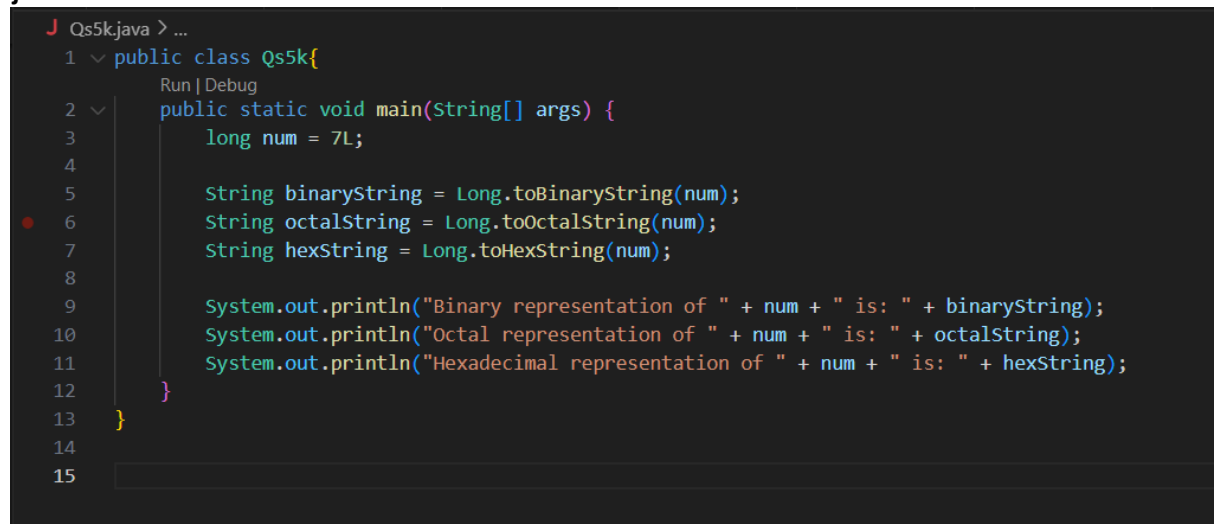
k. Declare a long variable with the value 7. Convert it to binary, octal, and hexadecimal strings using methods from the Long class. (Hint: Use Long.toBinaryString(long), Long.toOctalString(long), and Long.toHexString(long)).

Ans:

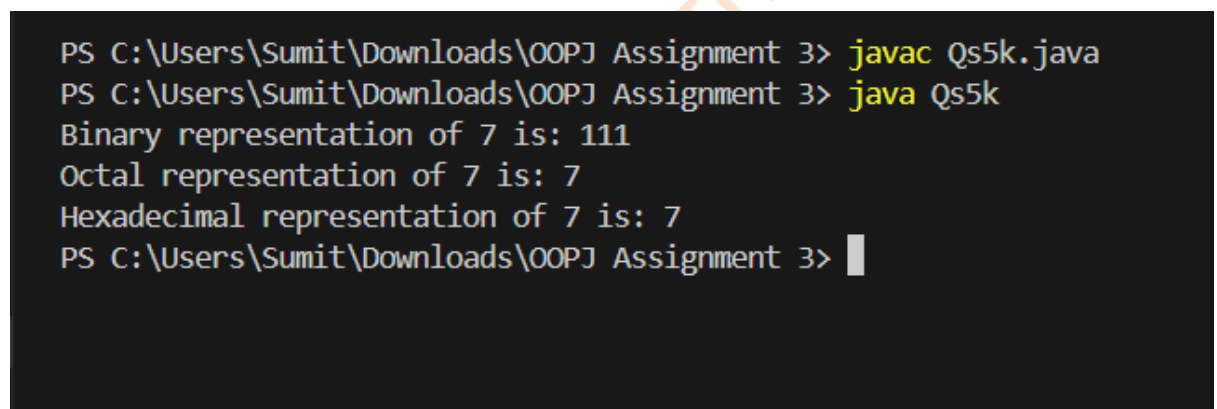
```
public class Qs5k{
    public static void main(String[] args) {
        long num = 7L;
        String binaryString = Long.toBinaryString(num);
        String octalString = Long.toOctalString(num);
        String hexString = Long.toHexString(num);
        System.out.println("Binary representation of " + num + " is: " + binaryString);
    }
}
```

ASSIGNMENT NO.2

```
        System.out.println("Octal representation of " + num + " is: " + octalString);
        System.out.println("Hexadecimal representation of " + num + " is: " + hexString);
    }
}
```



```
J Qs5k.java > ...
1  public class Qs5k{
    Run | Debug
2  public static void main(String[] args) {
3      long num = 7L;
4
5      String binaryString = Long.toBinaryString(num);
6      String octalString = Long.toOctalString(num);
7      String hexString = Long.toHexString(num);
8
9      System.out.println("Binary representation of " + num + " is: " + binaryString);
10     System.out.println("Octal representation of " + num + " is: " + octalString);
11     System.out.println("Hexadecimal representation of " + num + " is: " + hexString);
12 }
13 }
14
15
```



```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5k.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5k
Binary representation of 7 is: 111
Octal representation of 7 is: 7
Hexadecimal representation of 7 is: 7
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

I. Experiment with converting a `long` value into other primitive types or vice versa and observe the results.

Ans:

```
public class Qs5I {
    public static void main(String[] args) {
        long longValue = 123456789L;
        int intValue = (int) longValue;
        short shortValue = (short) longValue;
        byte byteValue = (byte) longValue;
        float floatValue = longValue;
        double doubleValue = longValue;
        int anotherIntValue = 98765;
        long fromInt = (long) anotherIntValue;
```

```
short anotherShortValue = 12345;
long fromShort = (long) anotherShortValue;
byte anotherByteValue = 123;
long fromByte = (long) anotherByteValue;
float anotherFloatValue = 12345.67F;
long fromFloat = (long) anotherFloatValue;
double anotherDoubleValue = 12345.6789;
long fromDouble = (long) anotherDoubleValue;
// Print the results
System.out.println("Original long value: " + longValue);
System.out.println("Converted to int: " + intValue);
System.out.println("Converted to short: " + shortValue);
System.out.println("Converted to byte: " + byteValue);
System.out.println("Converted to float: " + floatValue);
System.out.println("Converted to double: " + doubleValue);
System.out.println("Original int value: " + anotherIntValue);
System.out.println("Converted from int to long: " + fromInt);
System.out.println("Original short value: " + anotherShortValue);
System.out.println("Converted from short to long: " + fromShort);
System.out.println("Original byte value: " + anotherByteValue);
System.out.println("Converted from byte to long: " + fromByte);
System.out.println("Original float value: " + anotherFloatValue);
System.out.println("Converted from float to long: " + fromFloat);
System.out.println("Original double value: " + anotherDoubleValue);
System.out.println("Converted from double to long: " + fromDouble);
}
```


ASSIGNMENT NO.2

```
}
J Qs5l.java > Qs5l > main(String[])
1 public class Qs5l {
    Run | Debug
2 public static void main(String[] args) {
3     long longValue = 123456789L;
4
5
6     int intValue = (int) longValue;
7     short shortValue = (short) longValue;
8     byte byteValue = (byte) longValue;
9     float floatValue = longValue;
10    double doubleValue = longValue;
11
12    int anotherIntValue = 98765;
13    long fromInt = (long) anotherIntValue;
14
15    short anotherShortValue = 12345;
16    long fromShort = (long) anotherShortValue;
17
18    byte anotherByteValue = 123;
19    long fromByte = (long) anotherByteValue;
20
21    float anotherFloatValue = 12345.67F;
22    long fromFloat = (long) anotherFloatValue;
23
24    double anotherDoubleValue = 12345.6789;
25    long fromDouble = (long) anotherDoubleValue;
26
27    // Print the results
28    System.out.println("Original long value: " + longValue);
29    System.out.println("Converted to int: " + intValue);
30    System.out.println("Converted to short: " + shortValue);
31    System.out.println("Converted to byte: " + byteValue);
32    System.out.println("Converted to float: " + floatValue);
33    System.out.println("Converted to double: " + doubleValue);
34
35    System.out.println("Original int value: " + anotherIntValue);
36    System.out.println("Converted from int to long: " + fromInt);
}
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs5l.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs5l
Original long value: 123456789
Converted to int: 123456789
Converted to short: -13035
Converted to byte: 21
Converted to float: 1.23456792E8
Converted to double: 1.23456789E8
Original int value: 98765
Converted from int to long: 98765
Original short value: 12345
Converted from short to long: 12345
```

6. Working with `java.lang.Float`

- Explore the [Java API documentation for `java.lang.Float`](#) and observe its modifiers and super types.
- Write a program to test how many bytes are used to represent a `float` value using the `BYTES` field. (Hint: Use `Float.BYTES`).

Ans:

```
public class Qs6b {
    public static void main(String[] args) {
        System.out.println("Number of bytes used to represent a float value: " +
            Float.BYTES);
    }
}
```

```
Qs6b.java > ...
1 public class Qs6b {
2     Run | Debug
3     public static void main(String[] args) {
4         System.out.println("Number of bytes used to represent a float value: " + Float.BYTES);
5     }
6 }
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6b
Number of bytes used to represent a float value: 4
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 
```

c. Write a program to find the minimum and maximum values of `float` using the `MIN_VALUE` and `MAX_VALUE` fields. (Hint: Use `Float.MIN_VALUE` and `Float.MAX_VALUE`).

Ans:

```
public class FloatMinMax {
    public static void main(String[] args) {
        // Minimum value of a float
        float minVal = Float.MIN_VALUE;
        // Maximum value of a float
        float maxVal = Float.MAX_VALUE;
        System.out.println("Minimum value of a float: " + minVal);
        System.out.println("Maximum value of a float: " + maxVal);
    }
}
```

```

J Qs6c.java > ...
1  public class Qs6c {
    Run | Debug
2      public static void main(String[] args) {
3          // Minimum value of a float
4          float minValue = Float.MIN_VALUE;
5          // Maximum value of a float
6          float maxValue = Float.MAX_VALUE;
7
8          System.out.println("Minimum value of a float: " + minValue);
9          System.out.println("Maximum value of a float: " + maxValue);
10     }
11 }
12
13

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6c
Minimum value of a float: 1.4E-45
Maximum value of a float: 3.4028235E38
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

d. Declare a method-local variable `number` of type `float` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Float.toString(float)`).

Ans:

```

public class Main {
    public static void main(String[] args) {
        // Declare a method-local variable of type float
        float number = 3.14f;
        // Convert the float to a String using Float.toString(float)
        String numberAsString = Float.toString(number);
        // Print the result
        System.out.println("The float value as a String is: " + numberAsString);
    }
}

```

ASSIGNMENT NO.2

```
J Qs6d.java > ...
1  public class Qs6d {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable of type float
4          float number = 3.14f;
5          // Convert the float to a String using Float.toString(float)
6          String numberAsString = Float.toString(number);
7          // Print the result
8          System.out.println("The float value as a String is: " + numberAsString);
9      }
10 }
11
12
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6d
The float value as a String is: 3.14
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to a `float` value using the `parseFloat` method. (Hint: Use `Float.parseFloat(String)`).

Ans:

```
public class Qs6e {
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "123.45";
        // Convert the String to a float using Float.parseFloat(String)
        float floatNumber = Float.parseFloat(strNumber);
        // Print the float value
        System.out.println("The float value is: " + floatNumber);
    }
}
```

```

}
J Qs6e.java > ...
1  public class Qs6e {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable strNumber of type String
4          String strNumber = "123.45";
5
6          // Convert the String to a float using Float.parseFloat(String)
7          float floatNumber = Float.parseFloat(strNumber);
8
9          // Print the float value
10         System.out.println("The float value is: " + floatNumber);
11     }
12 }
13
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6e
The float value is: 123.45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

f. Declare a method-local variable `strNumber` of type `String` with the value `"Ab12Cd3"` and attempt to convert it to a float value. (Hint: `parseFloat` method will throw a `NumberFormatException`).

Ans:

```

public class Qs6f {
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "Ab12Cd3";
        try {
            // Attempt to convert the String to a float using Float.parseFloat(String)
            float floatNumber = Float.parseFloat(strNumber);
            System.out.println("The float value is: " + floatNumber);
        } catch (NumberFormatException e) {
            // Handle the NumberFormatException
            System.out.println("NumberFormatException occurred: " + e.getMessage());
        }
    }
}

```

```

    }
}

J Qs6f.java > ...
1  public class Qs6f {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable strNumber of type String
4          String strNumber = "Ab12Cd3";
5
6          try {
7              // Attempt to convert the String to a float using Float.parseFloat(String)
8              float floatNumber = Float.parseFloat(strNumber);
9              System.out.println("The float value is: " + floatNumber);
10         } catch (NumberFormatException e) {
11             // Handle the NumberFormatException
12             System.out.println("NumberFormatException occurred: " + e.getMessage());
13         }
14     }
15 }
16
17

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6f
NumberFormatException occurred: For input string: "Ab12Cd3"
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

g. Declare a method-local variable `number` of type `float` with some value and convert it to the corresponding wrapper class using `Float.valueOf()`. (Hint: Use `Float.valueOf(float)`).

Ans:

```

public class Main {
    public static void main(String[] args) {
        // Declare a method-local variable number of type float
        float number = 123.45f;
        // Convert the float to the corresponding wrapper class using Float.valueOf(float)
        Float wrapperNumber = Float.valueOf(number);
        // Print the wrapper class value
        System.out.println("The Float wrapper class value is: " + wrapperNumber);
    }
}

```

ASSIGNMENT NO.2

```
J Qs6g.java > Qs6g
1 public class Qs6g {
    Run | Debug
2     public static void main(String[] args) {
3         // Declare a method-local variable number of type float
4         float number = 123.45f;
5
6         // Convert the float to the corresponding wrapper class using Float.valueOf(float)
7         Float wrapperNumber = Float.valueOf(number);
8
9         // Print the wrapper class value
10        System.out.println("The Float wrapper class value is: " + wrapperNumber);
11    }
12 }
13
14
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6g
The Float wrapper class value is: 123.45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

h. Declare a method-local variable `strNumber` of type `String` with some float value and convert it to the corresponding wrapper class using `Float.valueOf()`. (Hint: Use `Float.valueOf(String)`).

Ans:

```
public class Qs6h{
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "123.45";
        // Convert the String to the corresponding wrapper class using
        Float.valueOf(String)
        Float wrapperNumber = Float.valueOf(strNumber);
        // Print the wrapper class value
        System.out.println("The Float wrapper class value is: " + wrapperNumber);
    }
}
```

ASSIGNMENT NO.2

```
}  
J Qs6h.java > ...  
1 public class Qs6h{  
    Run | Debug  
2     public static void main(String[] args) {  
3         // Declare a method-local variable strNumber of type String  
4         String strNumber = "123.45";  
5  
6         // Convert the String to the corresponding wrapper class using Float.valueOf(String)  
7         Float wrapperNumber = Float.valueOf(strNumber);  
8  
9         // Print the wrapper class value  
10        System.out.println("The Float wrapper class value is: " + wrapperNumber);  
11    }  
12 }  
13
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6h.java  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6h  
The Float wrapper class value is: 123.45  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

i. Declare two float variables with values 112.3 and 984.5, and add them using a method from the `Float` class. (Hint: Use `Float.sum(float, float)`).

Ans:

```
public class Qs6i {  
    public static void main(String[] args) {  
        // Declare two float variables  
        float number1 = 112.3f;  
        float number2 = 984.5f;  
        // Add the two float values using Float.sum(float, float)  
        float sum = Float.sum(number1, number2);  
        // Print the sum  
        System.out.println("The sum of " + number1 + " and " + number2 + " is: " + sum);  
    }  
}
```



```

}
J Qs6i.java > ...
1 public class Qs6i {
  Run | Debug
2   public static void main(String[] args) {
3       // Declare two float variables
4       float number1 = 112.3f;
5       float number2 = 984.5f;
6
7       // Add the two float values using Float.sum(float, float)
8       float sum = Float.sum(number1, number2);
9
10      // Print the sum
11      System.out.println("The sum of " + number1 + " and " + number2 + " is: " + sum);
12  }
13 }
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6i.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6i
The sum of 112.3 and 984.5 is: 1096.8
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

j. Declare two float variables with values 112.2 and 556.6, and find the minimum and maximum values using the `Float` class. (Hint: Use `Float.min(float, float)` and `Float.max(float, float)`).

Ans:

```

public class Qs6j {
    public static void main(String[] args) {
        float num1 = 112.2f;
        float num2 = 556.6f;
        float min = Float.min(num1, num2);
        float max = Float.max(num1, num2);
        System.out.println("Minimum value: " + min);
        System.out.println("Maximum value: " + max);
    }
}

```

```

}
J Qs6j.java > ...
1  public class Qs6j {
    Run | Debug
2      public static void main(String[] args) {
3          float num1 = 112.2f;
4          float num2 = 556.6f;
5
6          float min = Float.min(num1, num2);
7          float max = Float.max(num1, num2);
8
9          System.out.println("Minimum value: " + min);
10         System.out.println("Maximum value: " + max);
11     }
12 }
13
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6j.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6j
Minimum value: 112.2
Maximum value: 556.6
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

k. Declare a float variable with the value `-25.0f`. Find the square root of this value. (Hint: Use `Math.sqrt()` method).

Ans:

```

public class Main {
    public static void main(String[] args) {
        float num = -25.0f;
        // Math.sqrt() returns NaN for negative values
        double sqrtValue = Math.sqrt(num);
        System.out.println("Square root of " + num + " is: " + sqrtValue);
    }
}

```

ASSIGNMENT NO.2

```
J Qs6k.java > Qs6k
1 public class Qs6k {
    Run | Debug
2     public static void main(String[] args) {
3         float num = -25.0f;
4
5         // Math.sqrt() returns NaN for negative values
6         double sqrtValue = Math.sqrt(num);
7
8         System.out.println("Square root of " + num + " is: " + sqrtValue);
9     }
10 }
11
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6k.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6k
Square root of -25.0 is: NaN
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```

I. Declare two float variables with the same value, `0.0f`, and divide them. (Hint: Observe the result and any special floating-point behavior).

Ans:

```
public class Qs6I {
    public static void main(String[] args) {
        float num1 = 0.0f;
        float num2 = 0.0f;
        float result = num1 / num2;
        System.out.println("Result of division: " + result);
    }
}
```

}

```

J Qs6l.java > ...
1  public class Qs6l {
    Run | Debug
2      public static void main(String[] args) {
3          float num1 = 0.0f;
4          float num2 = 0.0f;
5
6          float result = num1 / num2;
7
8          System.out.println("Result of division: " + result);
9      }
10 }
11

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6l.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6l
Result of division: NaN
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

m. Experiment with converting a `float` value into other primitive types or vice versa and observe the results.

Ans:

```

public class Qs6m {
    public static void main(String[] args) {
        float floatValue = 123.45f;
        // Convert float to int
        int intValue = (int) floatValue;
        System.out.println("Float to int: " + intValue);
        // Convert float to double
        double doubleValue = floatValue;
        System.out.println("Float to double: " + doubleValue);
        // Convert float to long
        long longValue = (long) floatValue;
        System.out.println("Float to long: " + longValue);
        // Convert int to float
        int anotherIntValue = 100;
        float anotherFloatValue = (float) anotherIntValue;
        System.out.println("Int to float: " + anotherFloatValue);
        // Convert double to float

```

```
double anotherDoubleValue = 456.78;
float yetAnotherFloatValue = (float) anotherDoubleValue;
System.out.println("Double to float: " + yetAnotherFloatValue);
}
}
```

```

J Qs6m.java > ...
1  public class Qs6m {
    Run | Debug
2      public static void main(String[] args) {
3          float floatValue = 123.45f;
4
5          // Convert float to int
6          int intValue = (int) floatValue;
7          System.out.println("Float to int: " + intValue);
8
9          // Convert float to double
10         double doubleValue = floatValue;
11         System.out.println("Float to double: " + doubleValue);
12
13         // Convert float to long
14         long longValue = (long) floatValue;
15         System.out.println("Float to long: " + longValue);
16
17         // Convert int to float
18         int anotherIntValue = 100;
19         float anotherFloatValue = (float) anotherIntValue;
20         System.out.println("Int to float: " + anotherFloatValue);
21
22         // Convert double to float
23         double anotherDoubleValue = 456.78;
24         float yetAnotherFloatValue = (float) anotherDoubleValue;
25         System.out.println("Double to float: " + yetAnotherFloatValue);
26     }
27 }
28

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs6m.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs6m
Float to int: 123
Float to double: 123.44999694824219
Float to long: 123
Int to float: 100.0
Double to float: 456.78
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

7. Working with java.lang.Double

- a. Explore the [Java API documentation for java.lang.Double](#) and observe its modifiers and super types.

b. Write a program to test how many bytes are used to represent a `double` value using the `BYTES` field. (Hint: Use `Double.BYTES`).

Ans:

```
public class Qs7b {
    public static void main(String[] args) {
        System.out.println("Number of bytes used to represent a double value: " +
            Double.BYTES);
    }
}
```

```
Qs7b.java > ...
1  public class Qs7b {
    Run | Debug
2      public static void main(String[] args) {
3          System.out.println("Number of bytes used to represent a double value: " + Double.BYTES);
4      }
5  }
6
7
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs7b.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs7b
Number of bytes used to represent a double value: 8
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>
```

c. Write a program to find the minimum and maximum values of `double` using the `MIN_VALUE` and `MAX_VALUE` fields. (Hint: Use `Double.MIN_VALUE` and `Double.MAX_VALUE`).

Ans:

```
public class Qs7c {
    public static void main(String[] args) {
        System.out.println("Minimum value of double: " + Double.MIN_VALUE);
        System.out.println("Maximum value of double: " + Double.MAX_VALUE);
    }
}
```

```

}
J Qs7c.java > ...
1  public class Qs7c {
    Run | Debug
2      public static void main(String[] args) {
3          System.out.println("Minimum value of double: " + Double.MIN_VALUE);
4          System.out.println("Maximum value of double: " + Double.MAX_VALUE);
5      }
6  }
7
8

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs7c.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs7c
Minimum value of double: 4.9E-324
Maximum value of double: 1.7976931348623157E308
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

d. Declare a method-local variable `number` of type `double` with some value and convert it to a `String` using the `toString` method. (Hint: Use `Double.toString(double)`).

Ans:

```

public class Qs7d {
    public static void main(String[] args) {
        // Declare a method-local variable of type double
        double number = 123.456;
        // Convert the double to a String using Double.toString(double)
        String numberAsString = Double.toString(number);
        // Print the String representation of the double
        System.out.println("The double value as a String is: " + numberAsString);
    }
}

```

```

J Qs7d.java > ...
1  public class Qs7d {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable of type double
4          double number = 123.456;
5
6          // Convert the double to a String using Double.toString(double)
7          String numberAsString = Double.toString(number);
8
9          // Print the String representation of the double
10         System.out.println("The double value as a String is: " + numberAsString);
11     }
12 }
13
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs7d.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs7d
The double value as a String is: 123.456
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

e. Declare a method-local variable `strNumber` of type `String` with some value and convert it to a double value using the `parseDouble` method. (Hint: Use `Double.parseDouble(String)`).

Ans:

```

public class Qs7e {
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "123.45";
        // Convert the String to a double using Double.parseDouble
        double number = Double.parseDouble(strNumber);
        // Print the double value
        System.out.println("The double value is: " + number);
    }
}

```



```

}
J Qs7e.java > ...
1  public class Qs7e {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable strNumber of type String
4          String strNumber = "123.45";
5
6          // Convert the String to a double using Double.parseDouble
7          double number = Double.parseDouble(strNumber);
8
9          // Print the double value
10         System.out.println("The double value is: " + number);
11     }
12 }
13
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs7e.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs7e
The double value is: 123.45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> 

```

f. Declare a method-local variable `strNumber` of type `String` with the value `"Ab12Cd3"` and attempt to convert it to a double value. (Hint: `parseDouble` method will throw a `NumberFormatException`).

Ans:

```

public class Qs7f {
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "Ab12Cd3";
        try {
            // Attempt to convert the String to a double using Double.parseDouble
            double number = Double.parseDouble(strNumber);
            System.out.println("The double value is: " + number);
        } catch (NumberFormatException e) {
            // Handle the exception
            System.out.println("NumberFormatException: " + e.getMessage());
        }
    }
}

```

```

    }
}
}

J Qs7f.java > ...
1  public class Qs7f {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable strNumber of type String
4          String strNumber = "Ab12Cd3";
5
6          try {
7              // Attempt to convert the String to a double using Double.parseDouble
8              double number = Double.parseDouble(strNumber);
9              System.out.println("The double value is: " + number);
10         } catch (NumberFormatException e) {
11             // Handle the exception
12             System.out.println("NumberFormatException: " + e.getMessage());
13         }
14     }
15 }
16
17

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs7f.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs7f
NumberFormatException: For input string: "Ab12Cd3"
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

g. Declare a method-local variable `number` of type `double` with some value and convert it to the corresponding wrapper class using `Double.valueOf()`. (Hint: Use `Double.valueOf(double)`).

Ans:

```

public class Qs8f {
    public static void main(String[] args) {
        // Declare a method-local variable number of type double
        double number = 123.45;
        // Convert the double to the corresponding wrapper class using
        Double.valueOfDouble wrapperNumber = Double.valueOf(number);
        // Print the wrapper class value
        System.out.println("The Double wrapper class value is: " + wrapperNumber);
    }
}

```

```

J Qs8g.java > ...
1  public class Qs8g {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable number of type double
4          double number = 123.45;
5
6          // Convert the double to the corresponding wrapper class using Double.valueOf
7          Double wrapperNumber = Double.valueOf(number);
8
9          // Print the wrapper class value
10         System.out.println("The Double wrapper class value is: " + wrapperNumber);
11     }
12 }
13
14

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8g.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8g
The Double wrapper class value is: 123.45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3>

```

h. Declare a method-local variable `strNumber` of type `String` with some double value and convert it to the corresponding wrapper class using `Double.valueOf()`. (Hint: Use `Double.valueOf(String)`).

Ans:

```

public class Main {
    public static void main(String[] args) {
        // Declare a method-local variable strNumber of type String
        String strNumber = "123.45";
        // Convert the String to the corresponding wrapper class using
        Double.valueOfDouble wrapperNumber = Double.valueOf(strNumber);
        // Print the wrapper class value
        System.out.println("The Double wrapper class value is: " + wrapperNumber);
    }
}

```

ASSIGNMENT NO.2

```
J Qs8h.java > ...
1  public class Qs8h {
    Run | Debug
2      public static void main(String[] args) {
3          // Declare a method-local variable strNumber of type String
4          String strNumber = "123.45";
5
6          // Convert the String to the corresponding wrapper class using Double.valueOf
7          Double wrapperNumber = Double.valueOf(strNumber);
8
9          // Print the wrapper class value
10         System.out.println("The Double wrapper class value is: " + wrapperNumber);
11     }
12 }
13
14
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8h.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8h
The Double wrapper class value is: 123.45
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

i. Declare two double variables with values 112.3 and 984.5, and add them using a method from the `Double` class. (Hint: Use `Double.sum(double, double)`).

Ans:

```
public class Qs8i {
    public static void main(String[] args) {
        double num1 = 112.3;
        double num2 = 984.5;
        double result = Double.sum(num1, num2);
        System.out.println("The sum of " + num1 + " and " + num2 + " is: " + result);
    }
}
```

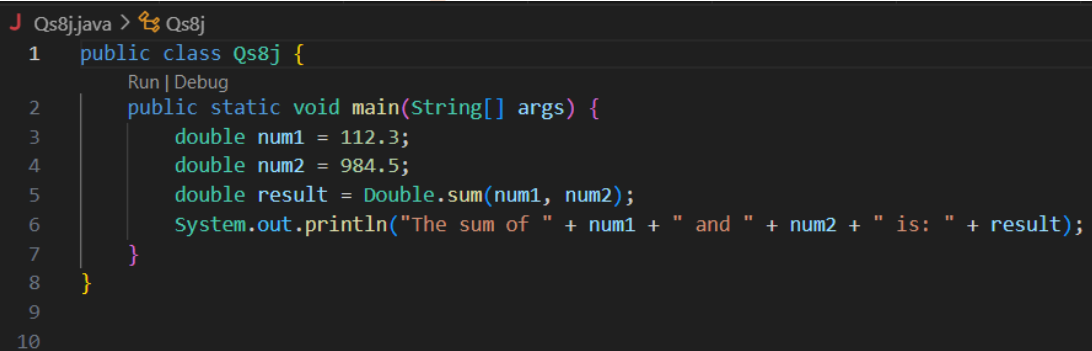
```
J Qs8i.java > ...
1  public class Qs8i {
    Run | Debug
2      public static void main(String[] args) {
3          double num1 = 112.3;
4          double num2 = 984.5;
5          double result = Double.sum(num1, num2);
6          System.out.println("The sum of " + num1 + " and " + num2 + " is: " + result);
7      }
8  }
9
10
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8i.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8i
The sum of 112.3 and 984.5 is: 1096.8
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

j. Declare two double variables with values 112.2 and 556.6, and find the minimum and maximum values using the `Double` class. (Hint: Use `Double.min(double, double)` and `Double.max(double, double)`).

Ans:

```
public class Qs8j {
    public static void main(String[] args) {
        double num1 = 112.3;
        double num2 = 984.5;
        double result = Double.sum(num1, num2);
        System.out.println("The sum of " + num1 + " and " + num2 + " is: " + result);
    }
}
```



```
J Qs8j.java > Qs8j
1 public class Qs8j {
    Run | Debug
2     public static void main(String[] args) {
3         double num1 = 112.3;
4         double num2 = 984.5;
5         double result = Double.sum(num1, num2);
6         System.out.println("The sum of " + num1 + " and " + num2 + " is: " + result);
7     }
8 }
9
10
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8j.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8j
The sum of 112.3 and 984.5 is: 1096.8
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

k. Declare a double variable with the value -25.0. Find the square root of this value. (Hint: Use `Math.sqrt()` method).

Ans:

```
public class Qs8k {
    public static void main(String[] args) {
        double num = -25.0;
        double result = Math.sqrt(num);
        System.out.println("The square root of " + num + " is: " + result);
    }
}
```

```
J Qs8k.java > ...
1  public class Qs8k {
    Run | Debug
2      public static void main(String[] args) {
3          double num = -25.0;
4          double result = Math.sqrt(num);
5          System.out.println("The square root of " + num + " is: " + result);
6      }
7  }
8
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8k.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8k
The square root of -25.0 is: NaN
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

I. Declare two double variables with the same value, 0.0, and divide them. (Hint: Observe the result and any special floating-point behavior).

Ans:

```
public class Qs8l {
    public static void main(String[] args) {
        double num1 = 0.0;
        double num2 = 0.0;
        double result = num1 / num2;
        System.out.println("The result of dividing " + num1 + " by " + num2 + " is: " +
        result);
    }
}
```

ASSIGNMENT NO.2

```
Qs8l.java > Qs8l
1 public class Qs8l {
    Run | Debug
2     public static void main(String[] args) {
3         double num1 = 0.0;
4         double num2 = 0.0;
5         double result = num1 / num2;
6         System.out.println("The result of dividing " + num1 + " by " + num2 + " is: " + result);
7     }
8 }
9
10
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8l.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8l
The result of dividing 0.0 by 0.0 is: NaN
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █
```

m. Experiment with converting a double value into other primitive types or vice versa and observe the results.

Ans:

```
public class Qs8m {
    public static void main(String[] args) {
        double doubleValue = 123.45;
        // Convert double to int
        int intValue = (int) doubleValue;
        System.out.println("Double to int: " + intValue);
        // Convert double to float
        float floatValue = (float) doubleValue;
        System.out.println("Double to float: " + floatValue);
        // Convert double to long
        long longValue = (long) doubleValue;
        System.out.println("Double to long: " + longValue);
        // Convert double to byte
        byte byteValue = (byte) doubleValue;
        System.out.println("Double to byte: " + byteValue);
        // Convert int to double
        int anotherIntValue = 100;
        double anotherDoubleValue = (double) anotherIntValue;
        System.out.println("Int to double: " + anotherDoubleValue);
    }
}
```

```

    // Convert float to double
    float anotherFloatValue = 50.5f;
    double anotherDoubleFromFloat = (double) anotherFloatValue;
    System.out.println("Float to double: " + anotherDoubleFromFloat);
}
}

```

```

J Qs8m.java > ...
1  public class Qs8m {
    Run | Debug
2  public static void main(String[] args) {
3      double doubleValue = 123.45;
4
5      // Convert double to int
6      int intValue = (int) doubleValue;
7      System.out.println("Double to int: " + intValue);
8
9      // Convert double to float
10     float floatValue = (float) doubleValue;
11     System.out.println("Double to float: " + floatValue);
12
13     // Convert double to long
14     long longValue = (long) doubleValue;
15     System.out.println("Double to long: " + longValue);
16
17     // Convert double to byte
18     byte byteValue = (byte) doubleValue;
19     System.out.println("Double to byte: " + byteValue);
20
21     // Convert int to double
22     int anotherIntValue = 100;
23     double anotherDoubleValue = (double) anotherIntValue;
24     System.out.println("Int to double: " + anotherDoubleValue);
25
26     // Convert float to double
27     float anotherFloatValue = 50.5f;
28     double anotherDoubleFromFloat = (double) anotherFloatValue;
29     System.out.println("Float to double: " + anotherDoubleFromFloat);
30 }
31 }
32

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8m.java

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8m

Double to int: 123

Double to float: 123.45

Double to long: 123

Double to byte: 123

Int to double: 100.0

Float to double: 50.5

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> █

8. Conversion between Primitive Types and Strings

Initialize a variable of each primitive type with a user-defined value and convert it into String:

- First, use the `toString` method of the corresponding wrapper class. (e.g., `Integer.toString()`).
- Then, use the `valueOf` method of the `String` class. (e.g., `String.valueOf()`).

Ans:

```
public class Qs8 {
    public static void main(String[] args) {
        // Initialize variables of each primitive type
        byte byteValue = 10;
        short shortValue = 20;
        int intValue = 30;
        long longValue = 40L;
        float floatValue = 50.5f;
        double doubleValue = 60.6;
        char charValue = 'A';
        boolean booleanValue = true;
        // Convert using toString method of wrapper class
        String byteStr1 = Byte.toString(byteValue);
        String shortStr1 = Short.toString(shortValue);
        String intStr1 = Integer.toString(intValue);
        String longStr1 = Long.toString(longValue);
        String floatStr1 = Float.toString(floatValue);
        String doubleStr1 = Double.toString(doubleValue);
        String charStr1 = Character.toString(charValue);
        String booleanStr1 = Boolean.toString(booleanValue);
        // Convert using valueOf method of String class
        String byteStr2 = String.valueOf(byteValue);
        String shortStr2 = String.valueOf(shortValue);
        String intStr2 = String.valueOf(intValue);
        String longStr2 = String.valueOf(longValue);
        String floatStr2 = String.valueOf(floatValue);
        String doubleStr2 = String.valueOf(doubleValue);
        String charStr2 = String.valueOf(charValue);
        String booleanStr2 = String.valueOf(booleanValue);
        // Print results
        System.out.println("Using toString method:");
        System.out.println("Byte: " + byteStr1);
        System.out.println("Short: " + shortStr1);
        System.out.println("Int: " + intStr1);
        System.out.println("Long: " + longStr1);
        System.out.println("Float: " + floatStr1);
        System.out.println("Double: " + doubleStr1);
```

```
System.out.println("Char: " + charStr1);
System.out.println("Boolean: " + booleanStr1);
```

```
System.out.println("\nUsing valueOf method:");
System.out.println("Byte: " + byteStr2);
System.out.println("Short: " + shortStr2);
System.out.println("Int: " + intStr2);
System.out.println("Long: " + longStr2);
System.out.println("Float: " + floatStr2);
System.out.println("Double: " + doubleStr2);
System.out.println("Char: " + charStr2);
System.out.println("Boolean: " + booleanStr2);
}
}
```

```
J Qs8.java > Qs8 > main(String[])
1 public class Qs8 {
    Run | Debug
2 public static void main(String[] args) {
3     // Initialize variables of each primitive type
4     byte byteValue = 10;
5     short shortValue = 20;
6     int intValue = 30;
7     long longValue = 40L;
8     float floatValue = 50.5f;
9     double doubleValue = 60.6;
10    char charValue = 'A';
11    boolean booleanValue = true;
12
13    // Convert using toString method of wrapper class
14    String byteStr1 = Byte.toString(byteValue);
15    String shortStr1 = Short.toString(shortValue);
16    String intStr1 = Integer.toString(intValue);
17    String longStr1 = Long.toString(longValue);
18    String floatStr1 = Float.toString(floatValue);
19    String doubleStr1 = Double.toString(doubleValue);
20    String charStr1 = Character.toString(charValue);
21    String booleanStr1 = Boolean.toString(booleanValue);
22
23    // Convert using valueOf method of String class
24    String byteStr2 = String.valueOf(byteValue);
25    String shortStr2 = String.valueOf(shortValue);
26    String intStr2 = String.valueOf(intValue);
27    String longStr2 = String.valueOf(longValue);
28    String floatStr2 = String.valueOf(floatValue);
29    String doubleStr2 = String.valueOf(doubleValue);
30    String charStr2 = String.valueOf(charValue);
31    String booleanStr2 = String.valueOf(booleanValue);
32
33    // Print results
34    System.out.println(x:"Using toString method:");
35    System.out.println("Byte: " + byteStr1);
36    System.out.println("Short: " + shortStr1);
```

```

System.out.println(x:"Using toString method:");
System.out.println("Byte: " + byteStr1);
System.out.println("Short: " + shortStr1);
System.out.println("Int: " + intStr1);
System.out.println("Long: " + longStr1);
System.out.println("Float: " + floatStr1);
System.out.println("Double: " + doubleStr1);
System.out.println("Char: " + charStr1);
System.out.println("Boolean: " + booleanStr1);

System.out.println(x:"\nUsing valueOf method:");
System.out.println("Byte: " + byteStr2);
System.out.println("Short: " + shortStr2);
System.out.println("Int: " + intStr2);
System.out.println("Long: " + longStr2);
System.out.println("Float: " + floatStr2);
System.out.println("Double: " + doubleStr2);
System.out.println("Char: " + charStr2);
System.out.println("Boolean: " + booleanStr2);
}

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs8.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs8
Using toString method:
Byte: 10
Short: 20
Int: 30
Long: 40
Float: 50.5
Double: 60.6
Char: A
Boolean: true

```

9. Default Values of Primitive Types

Declare variables of each primitive type as fields of a class and check their default values. (Note: Default values depend on whether the variables are instance variables or static variables).

Ans:

```

public class Qs9 {
// Instance variables
byte instanceByte;
short instanceShort;

```

```
int instanceInt;
long instanceLong;
float instanceFloat;
double instanceDouble;
char instanceChar;
boolean instanceBoolean;
// Static variables
static byte staticByte;
static short staticShort;
static int staticInt;
static long staticLong;
static float staticFloat;
static double staticDouble;
static char staticChar;
static boolean staticBoolean;
public static void main(String[] args) {
    Qs9 obj = new Qs9();
    // Display instance variable default values
    System.out.println("Instance Variables:");
    System.out.println("byte: " + obj.instanceByte);
    System.out.println("short: " + obj.instanceShort);
    System.out.println("int: " + obj.instanceInt);
    System.out.println("long: " + obj.instanceLong);
    System.out.println("float: " + obj.instanceFloat);
    System.out.println("double: " + obj.instanceDouble);
    System.out.println("char: [" + obj.instanceChar + "]");
    System.out.println("boolean: " + obj.instanceBoolean);
    // Display static variable default values
    System.out.println("\nStatic Variables:");
    System.out.println("byte: " + staticByte);
    System.out.println("short: " + staticShort);
    System.out.println("int: " + staticInt);
    System.out.println("float: " + staticFloat);
    System.out.println("double: " + staticDouble);
    System.out.println("char: [" + staticChar + "]");
    System.out.println("boolean: " + staticBoolean);
}
```

ASSIGNMENT NO.2

```

}
J Qs9.java > ...
1  public class Qs9 {
2      // Instance variables
3      byte instanceByte;
4      short instanceShort;
5      int instanceInt;
6      long instanceLong;
7      float instanceFloat;
8      double instanceDouble;
9      char instanceChar;
10     boolean instanceBoolean;
11
12     // Static variables
13     static byte staticByte;
14     static short staticShort;
15     static int staticInt;
16     static long staticLong;
17     static float staticFloat;
18     static double staticDouble;
19     static char staticChar;
20     static boolean staticBoolean;
21
22     Run | Debug
23     public static void main(String[] args) {
24         Qs9 obj = new Qs9();
25
26         // Display instance variable default values
27         System.out.println(x:"Instance Variables:");
28         System.out.println("byte: " + obj.instanceByte);
29         System.out.println("short: " + obj.instanceShort);
30         System.out.println("int: " + obj.instanceInt);
31         System.out.println("long: " + obj.instanceLong);
32         System.out.println("float: " + obj.instanceFloat);
33         System.out.println("double: " + obj.instanceDouble);
34         System.out.println("char: [" + obj.instanceChar + "]");
35         System.out.println("boolean: " + obj.instanceBoolean);
36
37         // Display static variable default values

```

```

PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs9.java
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs9
Instance Variables:
byte: 0
short: 0
int: 0
long: 0
float: 0.0
double: 0.0
char: []
boolean: false

```

10. Arithmetic Operations with Command Line Input

Write a program that accepts two integers and an arithmetic operator (+, -, *, /) from the command line. Perform the specified arithmetic operation based on the operator provided. (Hint: Use `switch-case` for operations).

Ans:

```
public class Qs10 {
    public static void main(String[] args) {
        if (args.length != 3) {
            System.out.println("Usage: java ArithmeticOperations <num1> <operator> <num2>");
            return;
        }
        try {
            int num1 = Integer.parseInt(args[0]);
            String operator = args[1];
            int num2 = Integer.parseInt(args[2]);
            int result = 0;
            boolean validOperation = true;
            switch (operator) {
                case "+":
                    result = num1 + num2;
                    break;
                case "-":
                    result = num1 - num2;
                    break;
                case "*":
                    result = num1 * num2;
                    break;
                case "/":
                    if (num2 != 0) {
                        result = num1 / num2;
                    } else {
                        System.out.println("Error: Division by zero is not allowed.");
                        validOperation = false;
                    }
                    break;
                default:
                    System.out.println("Error: Invalid operator. Use +, -, *, or /.");
                    validOperation = false;
            }
            if (validOperation) {
                System.out.println("Result: " + result);
            }
        } catch (NumberFormatException e) {
```

ASSIGNMENT NO.2

System.out.println("Error: Please enter valid integers.");

```
}  
}  
}
```

```
J Qs10.java > ...  
1 public class Qs10 {  
2     Run | Debug  
3     public static void main(String[] args) {  
4         if (args.length != 3) {  
5             System.out.println(x:"Usage: java ArithmeticOperations <num1> <operator> <num2>");  
6             return;  
7         }  
8  
9         try {  
10            int num1 = Integer.parseInt(args[0]);  
11            String operator = args[1];  
12            int num2 = Integer.parseInt(args[2]);  
13  
14            int result = 0;  
15            boolean validOperation = true;  
16  
17            switch (operator) {  
18                case "+":  
19                    result = num1 + num2;  
20                    break;  
21                case "-":  
22                    result = num1 - num2;  
23                    break;  
24                case "*":  
25                    result = num1 * num2;  
26                    break;  
27                case "/":  
28                    if (num2 != 0) {  
29                        result = num1 / num2;  
30                    } else {  
31                        System.out.println(x:"Error: Division by zero is not allowed.");  
32                        validOperation = false;  
33                    }  
34                    break;  
35                default:  
36                    System.out.println(x:"Error: Invalid operator. Use +, -, *, or /.");  
37                    validOperation = false;  
38            }  
39            if (validOperation) {  
40                System.out.println("Result: " + result);  
41            }  
42        } catch (NumberFormatException e) {  
43            System.out.println("Error: Please enter valid integers.");  
44        }  
45    }  
46 }
```

```
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> javac Qs10.java  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> java Qs10  
Usage: java ArithmeticOperations <num1> <operator> <num2>  
PS C:\Users\Sumit\Downloads\OOPJ Assignment 3> |
```