

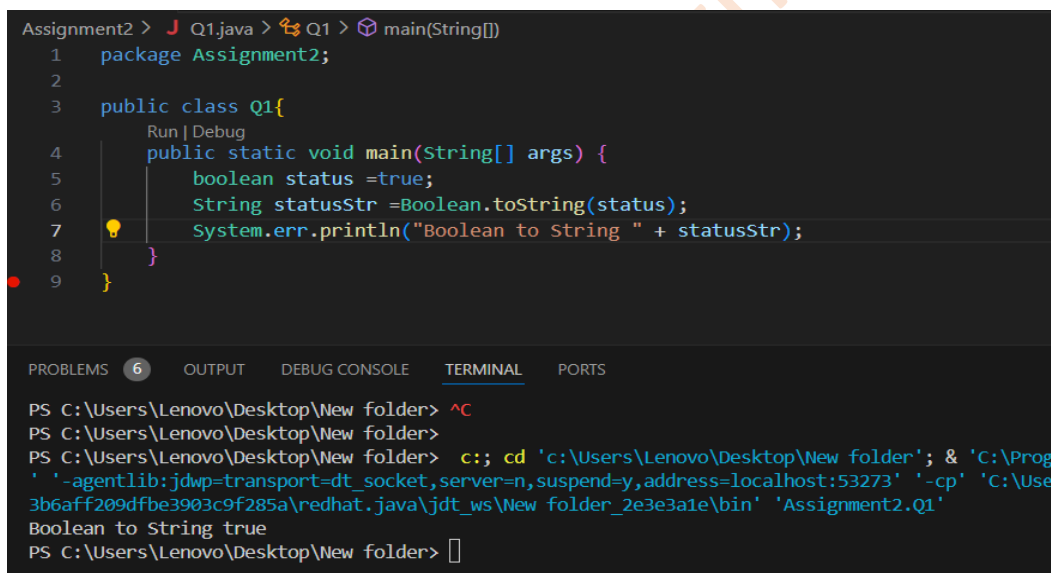
**Note:** Consider the following before starting the assignment:

- 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)`).



```

Assignment2 > J Q1.java > Q1 > main(String[])
1  package Assignment2;
2
3  public class Q1{
4      Run | Debug
      public static void main(String[] args) {
5          boolean status =true;
6          String statusStr =Boolean.toString(status);
7          System.err.println("Boolean to String " + statusStr);
8      }
9  }

```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53273' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q1'
Boolean to String true
PS C:\Users\Lenovo\Desktop\New folder>

```

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)`).

## ASSIGNMENT NO.2

```

assignment2 > J Q1.java > Q1
1  package Assignment2;
2
3  public class Q1{
4      Run | Debug
      public static void main(String[] args) {
5
6          String strStatus="true";
7          boolean status =Boolean.parseBoolean(strStatus);
8
9          System.out.println("String to Boolean " + status);
10     }
11 }

```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\Desktop\New folder> clear^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53484' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q1'
String to Boolean true
PS C:\Users\Lenovo\Desktop\New folder>

```

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"`).

```

J Q1.java x
assignment2 > J Q1.java > Q1 > main(String[])
1  package Assignment2;
2
3  public class Q1{
4      Run | Debug
      public static void main(String[] args) {
5
6          String strStatus="1";
7          boolean status =Boolean.parseBoolean(strStatus);
8
9          System.out.println("String '1' to Boolean " + status);
10     }
11 }

```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:
gram Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' -agentlib:jdwp=transport=
ocket,server=n,suspend=y,address=localhost:53511' '-cp' 'C:\Users\Lenovo\AppData\Roaming\C
User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3
bin' 'Assignment2.Q1'
String '1' to Boolean false
PS C:\Users\Lenovo\Desktop\New folder>

```

## ASSIGNMENT NO.2

- 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)`).

```
Q1.java
assignment2 > J Q1.java > Q1
3 public class Q1{
4     public static void main(String[] args) {
5
6
7         boolean status =true;
8         Boolean Wrapper = Boolean.valueOf(status);
9
10        System.out.println("Primitive boolean to boolean object : " + Wrapper);
11    }
12 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53532' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q1'
Primitive boolean to boolean object : true
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

```
assignment2 > J Q1.java > Q1
1 package Assignment2;
2
3 public class Q1{
4     Run | Debug
5     public static void main(String[] args) {
6
7
8         String strStatus ="true";
9         Boolean Wrapper = Boolean.valueOf(strStatus);
10
11        System.out.println("String to boolean object : " + Wrapper);
12    }
13 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53549' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q1'
String to boolean object : true
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

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

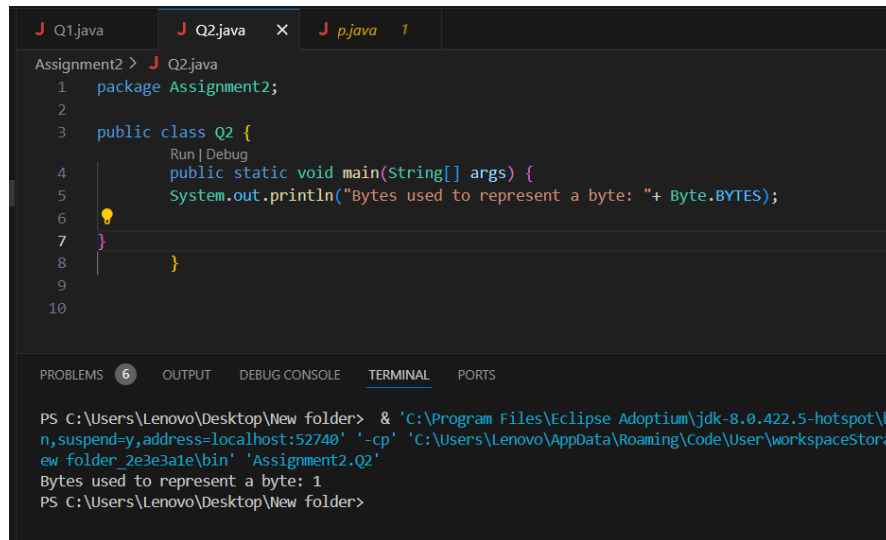
```
assignment2 > J Q1.java > {} Assignment2
1 package Assignment2;
2 public class Q1{
   Run | Debug
3     public static void main(String[] args) {
4         boolean status =true;
5
6         String strStatus =Boolean.toString(status);
7         System.out.println("boolean to string "+ strStatus);
8
9         int intStatus= status ? 1:0;
10        System.out.println("boolean to int "+ intStatus);
11
12        int intvalue= 0;
13        boolean bool= (intvalue !=0);
14        System.out.println("int to boolean " + bool);
15    }
16 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53610' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q1'
boolean to string true
boolean to int 1
int to boolean false
```

## 2. Working with java.lang.Byte

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



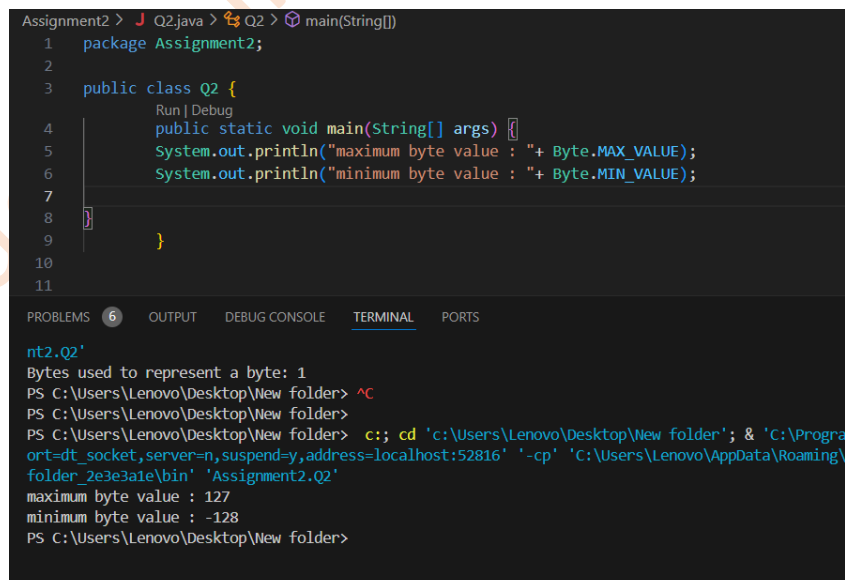
```

J Q1.java  J Q2.java  X  J p.java  1
Assignment2 > J Q2.java
1  package Assignment2;
2
3  public class Q2 {
4      Run | Debug
      public static void main(String[] args) {
5          System.out.println("Bytes used to represent a byte: "+ Byte.BYTES);
6      }
7  }
8
9
10

PROBLEMS 6  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\2\workspace\New folder_2e3e3a1e\bin' 'Assignment2.Q2'
Bytes used to represent a byte: 1
PS C:\Users\Lenovo\Desktop\New folder>
    
```

- 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).



```

Assignment2 > J Q2.java > Q2 > main(String[])
1  package Assignment2;
2
3  public class Q2 {
4      Run | Debug
      public static void main(String[] args) {
5          System.out.println("maximum byte value : "+ Byte.MAX_VALUE);
6          System.out.println("minimum byte value : "+ Byte.MIN_VALUE);
7      }
8  }
9
10
11

PROBLEMS 6  OUTPUT  DEBUG CONSOLE  TERMINAL  PORTS

nt2.Q2'
Bytes used to represent a byte: 1
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\2\workspace\New folder_2e3e3a1e\bin' 'Assignment2.Q2'
maximum byte value : 127
minimum byte value : -128
PS C:\Users\Lenovo\Desktop\New folder>
    
```

## ASSIGNMENT NO.2

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)`).

```
Assignment2 > J Q2.java > Q2 > main(String[])
1 package Assignment2;
2
3 public class Q2 {
4     public static void main(String[] args) {
5         byte no = 77;
6         String nostr = Byte.toString(no);
7         System.out.println("byte to String: " + nostr);
8     }
9 }
10
11
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
ort=dt_socket,server=n,suspend=y,address=localhost:52880' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\wo
folder_2e3e3a1e\bin' 'Assignment2.Q2'
byte to String: 77
PS C:\Users\Lenovo\Desktop\New folder>
```

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)`).

```
Assignment2 > J Q2.java > Q2 > main(String[])
1 package Assignment2;
2
3 public class Q2 {
4     public static void main(String[] args) {
5         String strNumber = "96";
6
7
8         byte number = Byte.parseByte(strNumber);
9         System.out.println("String to Byte: " + number);
10
11 }
12
13
14
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:52908' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q2'
String to Byte: 96
PS C:\Users\Lenovo\Desktop\New folder>
```

## ASSIGNMENT NO.2

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`).

```
Assignment2 > J Q2.java > Q2 > main(String[])
1 package Assignment2;
2
3 public class Q2 {
4     public static void main(String[] args) {
5         String strNumber = "Ab12Cd3";
6         byte number = Byte.parseByte(strNumber);
7         System.out.println("String to Byte: " + number);
8     }
9 }
10
11
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Software\plugins\org.eclipse.jdt.core.win32\bin\java.exe' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspace\2e3e3a1e\bin' 'Assignment2.Q2'
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
    at java.lang.NumberFormatException.forInputString(NumberFormatException.java:65)
    at java.lang.Integer.parseInt(Integer.java:580)
    at java.lang.Byte.parseByte(Byte.java:149)
    at java.lang.Byte.parseByte(Byte.java:175)
    at Assignment2.Q2.main(Q2.java:6)
PS C:\Users\Lenovo\Desktop\New folder>
```

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)`).

```
Assignment2 > J Q2.java > Q2
1 package Assignment2;
2
3 public class Q2 {
4     public static void main(String[] args) {
5         byte number = 88;
6         Byte wrapper = Byte.valueOf(number);
7         System.out.println("Primitive byte to Byte object:" + wrapper);
8     }
9 }
10
11
12
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Software\plugins\org.eclipse.jdt.core.win32\bin\java.exe' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspace\2e3e3a1e\bin' 'Assignment2.Q2'
Primitive byte to Byte object:88
PS C:\Users\Lenovo\Desktop\New folder>
```

## ASSIGNMENT NO.2

- 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)`).

```
Assignment2 > J Q2.java > Q2 > main(String[])

3 public class Q2 {
4     public static void main(String[] args) {
5         String number = "88";
6         Byte wrapper = Byte.valueOf(number);
7         System.out.println("string to Byte : " + wrapper);
8     }
9 }

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53068' -cp 'C:\Users\Lenovo\AppData\Roaming\Microsoft\Windows\CurrentVersion\Shell\New folder_2e3e3a1e\bin' 'Assignment2.Q2'
string to Byte :88
PS C:\Users\Lenovo\Desktop\New folder> 
```

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

```
Assignment2 > J Q2.java > Q2 > main(String[])

2
3 public class Q2 {
4     public static void main(String[] args) {
5         byte byteValue = 70;
6         float floatValue = byteValue;
7         System.out.println("byte to float : " + floatValue);
8
9         float f = 23.45f;
10        byte fb = (byte) f;
11        System.out.println("float to byte: " + fb);
12    }
13 }
14 }
15
16

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53314' -cp 'C:\Users\Lenovo\AppData\Roaming\Microsoft\Windows\CurrentVersion\Shell\New folder_2e3e3a1e\bin' 'Assignment2.Q2'
byte to float : 70.0
float to byte: 23
PS C:\Users\Lenovo\Desktop\New folder> 
```



## 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).

```

Assignment2 > J Q3.java > Q3 > main(String[])
1 package Assignment2;
2
3 public class Q3 {
4     public static void main(String[] args) {
5         System.out.println("a short value using the Bytes field : " + Short.BYTES);
6     }
7 }
8
9
10
PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53375' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
a short value using the Bytes field : 2
PS C:\Users\Lenovo\Desktop\New folder>

```

- 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).

```

Assignment2 > J Q3.java > Q3 > main(String[])
2
3 public class Q3 {
4     public static void main(String[] args) {
5         System.out.println("Maxi short value : " + Short.MAX_VALUE);
6         System.out.println("Mini short value : " + Short.MIN_VALUE);
7     }
8
9
10
11 }
12
PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53397' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
Maxi short value : 32767
Mini short value : -32768
PS C:\Users\Lenovo\Desktop\New folder>

```

## ASSIGNMENT NO.2

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)`).

```
Assignment2 > J Q3.java > Q3 > main(String[])
1  package Assignment2;
2
3  public class Q3 {
4      public static void main(String[] args) {
5          short num = 500;
6          String numstr = Short.toString(num);
7          System.out.println("Short to String: " + numstr);
8
9
10     }
11
12 }
13
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53429' -cp 'C:\Users\Leno
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
Short to String: 500
PS C:\Users\Lenovo\Desktop\New folder> |
```

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)`).

```
Assignment2 > J Q3.java > Q3 > main(String[])
3  public class Q3 {
4      public static void main(String[] args) {
5
6          String numstr = "450";
7          short num=Short.parseShort(numstr);
8          System.out.println("String to short: " + num);
9
10     }
11
12 }
13
14
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53448' -cp 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
String to short: 450
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

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`).

```
Assignment2 > J Q3.java > Q3 > main(String[])
2
3 public class Q3 {
4     Run | Debug
5     public static void main(String[] args) {
6         String numstr = "Ab12Cd3";
7         short num=Short.parseShort(numstr);
8         System.out.println("String to short: "+ num);
9     }
10
11 }
12
13 }
14

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53458' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
    at java.lang.NumberFormatException.forInputString(NumberFormatException.java:65)
    at java.lang.Integer.parseInt(Integer.java:580)
    at java.lang.Short.parseShort(Short.java:118)
    at java.lang.Short.parseShort(Short.java:144)
    at Assignment2.Q3.main(Q3.java:7)
PS C:\Users\Lenovo\Desktop\New folder> |
```

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)`).

```
Assignment2 > J Q3.java > Q3 > main(String[])
1 package Assignment2;
2
3 public class Q3 {
4     Run | Debug
5     public static void main(String[] args) {
6         short number = 655;
7         Short wrapper = Short.valueOf(number);
8         System.out.println("short no to Short object: "+ wrapper);
9     }
10
11 }
12
13 }

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Ad
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:53464' '-cp' 'C:\Users\Lenovo\AppData\Rc
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q3'
short no to Short object: 655
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

- 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)`).

```
Assignment2 > Assignment2 > J Q3.java > Q3 > main(String[])
1 package Assignment2.Assignment2;
2
3 public class Q3 {
4
5     Run | Debug
6     public static void main(String[] args) {
7         String strNumber = "75";
8         Short shortNumber = Short.valueOf(strNumber);
9         System.out.println("The short value is: " + shortNumber);
10    }
11 }
12
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin,suspend=y,address=localhost:63985' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\ew folder_2e3e3a1e\bin' 'Assignment2.Assignment2.Q3'
The short value is: 75
PS C:\Users\Lenovo\Desktop\New folder>
```

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

```
Assignment2 > J Q3.java > Q3 > main(String[])
1 package Assignment2;
2
3 public class Q3 {
4
5     Run | Debug
6     public static void main(String[] args) {
7         short byteValue = 70;
8         float floatValue = byteValue;
9         System.out.println("byte to float : " + floatValue);
10
11         float f = 23.45f;
12         byte fb = (byte) f;
13         System.out.println("float to byte: " + fb);
14    }
15 }
16
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin,suspend=y,address=localhost:53920' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\ew folder_2e3e3a1e\bin' 'Assignment2.Q3'
byte to float : 70.0
float to byte: 23
PS C:\Users\Lenovo\Desktop\New folder>
```

## 4. Working with `java.lang.Integer`

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

```

Assignment2 > J Q4.java > Q4 > main(String[])
1 package Assignment2;
2
3 public class Q4 {
4     Run | Debug
    public static void main(String[] args) {
5         System.out.println("bytes used to represent an int: " + Integer.BYTES);
6     }
7 }
8
9

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.
n,suspend=y,address=localhost:53975' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094f
ew folder_2e3e3a1e\bin' 'Assignment2.Q4'
bytes used to represent an int: 4
PS C:\Users\Lenovo\Desktop\New folder>

```

- 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`).

```

Assignment2 > J Q4.java > ...
1 package Assignment2;
2
3 public class Q4 {
4     Run | Debug
    public static void main(String[] args) {
5         System.out.println("Minimum int value: " + Integer.MIN_VALUE);
6         System.out.println("Maximum int value: " + Integer.MAX_VALUE);
7     }
8 }
9
10

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adop
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54013' '-cp' 'C:\Users\Lenovo\AppData\Roam
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Minimum int value: -2147483648
Maximum int value: 2147483647
PS C:\Users\Lenovo\Desktop\New folder>

```

- 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)`).

## ASSIGNMENT NO.2

```
Assignment2 > J Q4.java > Q4 > main(String[])
1 package Assignment2;
2
3 public class Q4 {
4     Run | Debug
5     public static void main(String[] args) {
6         String strNu = "123";
7         int number = Integer.parseInt(strNu);
8         System.out.println("String to Int: " + number);
9     }
10 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54114' '-cp' 'C:\Users\Lenovo\AppData\Roaming\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Int to String: 483
PS C:\Users\Lenovo\Desktop\New folder> |
```

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)`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
1 package Assignment2;
2
3 public class Q4 {
4     Run | Debug
5     public static void main(String[] args) {
6         int number = 483;
7         String numberStr = Integer.toString(number);
8         System.out.println("Int to String: " + numberStr);
9     }
10 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Addo
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54114' '-cp' 'C:\Users\Lenovo\AppData\Roaming\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Int to String: 483
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

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`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
3 public class Q4 {
4     public static void main(String[] args) {
5
6
7         String strNu = "Ab12Cd3";
8         int number = Integer.parseInt(strNu);
9
10        System.out.println(number);
11
12    }
13
14
15
PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Fil
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54202' '-cp' 'C:\Users\Leno
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
    at java.lang.NumberFormatException.forInputString(NumberFormatException.java:65)
    at java.lang.Integer.parseInt(Integer.java:580)
    at java.lang.Integer.parseInt(Integer.java:615)
    at Assignment2.Q4.main(Q4.java:8)
PS C:\Users\Lenovo\Desktop\New folder> |
```

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)`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
1 package Assignment2;
2
3 public class Q4 {
4     Run | Debug
5     public static void main(String[] args) {
6         int number = 897;
7         Integer Wrapper = Integer.valueOf(number);
8         System.out.println("Primitive int to Integer object: " + Wrapper);
9     }
10
11
12
PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Progr
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:54155' '-cp' 'C:\User
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Primitive int to Integer object: 897
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
1  package Assignment2;
2
3  public class Q4 {
4      public static void main(String[] args) {
5
6          String strnumber = "514";
7          Integer Wrapper = Integer.valueOf(strnumber);
8          System.out.println("String to Integer object: " + Wrapper);
9      }
10 }
11
12
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:49973' -cp 'C:\Users\Lenovo\Desktop\New folder\Assignment2.Q4'
String to Integer object: 514
PS C:\Users\Lenovo\Desktop\New folder>
```

- 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)`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
3  public class Q4 {
4      public static void main(String[] args) {
5
6          int num1 = 10;
7          int num2 = 20;
8          int sum = Integer.sum(num1, num2);
9          System.out.println("Sum is : " + sum);
10 }
11
12
13
14
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.10\bin\java.exe' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:49987' -cp 'C:\Users\Lenovo\Desktop\New folder\Assignment2.Q4'
Sum is :30
PS C:\Users\Lenovo\Desktop\New folder>
```



## ASSIGNMENT NO.2

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)`).

```
Assignment2 > J Q4.java > Q4 > main(String[])
3 public class Q4 {
4     public static void main(String[] args) {
5
6         int num1 = 10;
7         int num2 = 20;
8         int min = Integer.min(num1, num2);
9         int max = Integer.max(num1, num2);
10        System.out.println("Min is : " + min + " Max is : " + max);
11    }
12 }
13
14
15
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c::; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Fi
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50098' '-cp' 'C:\Users\Len
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Min is :10 Max is :20
PS C:\Users\Lenovo\Desktop\New folder> |
```

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.toBinaryString(int)`, `Integer.toOctalString(int)`, and `Integer.toHexString(int)`).

## ASSIGNMENT NO.2

```
Assignment2 > J Q4.java > Q4 > main(String[])
2
3 public class Q4 {
4     public static void main(String[] args) {
5
6         int number = 7;
7         System.out.println("Binary: " + Integer.toBinaryString(number));
8         System.out.println("Octal: " + Integer.toOctalString(number));
9         System.out.println("Hexadecimal:" + Integer.toHexString(number));
10    }
11 }
12
13
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adopt
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50124' '-cp' 'C:\Users\Lenovo\AppData\Roam
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Binary: 111
Octal: 7
Hexadecimal:7
PS C:\Users\Lenovo\Desktop\New folder>
```

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

```
Assignment2 > J Q4.java > Q4 > main(String[])
1 package Assignment2;
2
3 public class Q4 {
4     public static void main(String[] args) {
5
6         int number = 253;
7         double doubleValue = (double) number;
8         System.out.println("Int to double: " + doubleValue);
9         double anotherDouble = 123.45;
10        int doubleToInt = (int) anotherDouble;
11        System.out.println("Double to int:" + doubleToInt);
12    }
13 }
14
15
16
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50162' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q4'
Int to double: 253.0
Double to int:123
PS C:\Users\Lenovo\Desktop\New folder>
```

## 5. Working with `java.lang.Long`

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

## ASSIGNMENT NO.2

```
Assignment2 > J Q5.java > Q5 > main(String[])
3 public class Q5 {
4
5
6
7 Run | Debug
8 public static void main(String[] args) {
9     System.out.println("Bytes used to represent a long: " + Long.BYTES);
10 }
11 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Ad
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50234' '-cp' 'C:\Users\Lenovo\AppData\Ro
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q5'
Bytes used to represent a long: 8
PS C:\Users\Lenovo\Desktop\New folder> 
```

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).

```
Assignment2 > J Q5.java > Q5
1 package Assignment2;
2
3 public class Q5 {
4
5 public static void main(String[] args) {
6
7 Run | Debug
8     System.out.println("Minimum long value: " + Long.MIN_VALUE);
9     System.out.println("Maximum long value: " + Long.MAX_VALUE);
10 }
11 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Ad
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50253' '-cp' 'C:\Users\Lenovo\AppData\Ro
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q5'
Minimum long value: -9223372036854775808
Maximum long value: 9223372036854775807
PS C:\Users\Lenovo\Desktop\New folder> 
```

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)).

## ASSIGNMENT NO.2

```
Assignment2 > J Q5.java > Q5 > main(String[])
1 package Assignment2;
2
3 public class Q5 {
4
5     Run | Debug
6     public static void main(String[] args) {
7         long number = 1239L;
8         String numberstr = Long.toString(number);
9
10        System.out.println("Long to String :" + numberstr);
11    }
12 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'C:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50291' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q5'
Long to String :1239
PS C:\Users\Lenovo\Desktop\New folder> []
```

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)`).

```
Assignment2 > J Q5.java > Q5 > main(String[])
3 public class Q5 {
4
5     Run | Debug
6     public static void main(String[] args) {
7
8         String strNumber = "5679";
9         long number = Long.parseLong(strNumber);
10        System.out.println("String to long: " + number);
11
12    }
13 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'C:\Users\Lenovo\Desktop\New folder'; & 'C:\Program
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50305' '-cp' 'C:\Users\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q5'
String to long: 5679
PS C:\Users\Lenovo\Desktop\New folder> []
```

## ASSIGNMENT NO.2

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`).

```
Assignment2 > J Q5.java > Q5 > main(String[])
1 package Assignment2;
2
3 public class Q5 {
4
5     Run | Debug
6     public static void main(String[] args) {
7         try {
8             String strNumber = "Ab12Cd3";
9             long number = Long.parseLong(strNumber);
10        } catch (NumberFormatException e) {
11            System.out.println("Error:" + e.getMessage());
12        }
13    }
14 }
15 }
```

PROBLEMS 7 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-9.0.4\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50324' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q5'
Error:For input string: "Ab12Cd3"
PS C:\Users\Lenovo\Desktop\New folder> 
```

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)`).

```
Assignment2 > J Q5.java > Q5
1 package Assignment2;
2
3 public class Q5 {
4
5     Run | Debug
6     public static void main(String[] args) {
7         long number = 123456789L;
8         Long Wrapper = Long.valueOf(number);
9         System.out.println("Primitive long to Long object: " + Wrapper);
10    }
11 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-9.0.4\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50344' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q5'
Primitive long to Long object: 123456789
PS C:\Users\Lenovo\Desktop\New folder> 
```

## ASSIGNMENT NO.2

- 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)`).

```
Assignment2 > J Q5.java > Q5 > main(String[])
3 public class Q5 {
4
5 Run | Debug
5 public static void main(String[] args) {
6
7     String strNumber = "123456789";
8
9     Long Wrapper = Long.valueOf(strNumber);
10    System.out.println("String to Long object: " + Wrapper);
11 }
12 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program F
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50374' -cp 'C:\Users\Le
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New_folder_2e3e3a1e\bin' 'Assignment2.Q5'
String to Long object: 123456789
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

```
Assignment2 > J Q5.java > Q5 > main(String[])
1 package Assignment2;
2
3 public class Q5 {
4
5 Run | Debug
5 public static void main(String[] args) {
6
7     long num1 = 1123L;
7     long num2 = 9845L;
8
9     long result = Long.sum(num1, num2);
10
11    System.out.println("The sum is: " + result);
12 }
13 }
14 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-
calhost:61774' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b
The sum is: 10968
PS C:\Users\Lenovo\Desktop\New folder>
```

## ASSIGNMENT NO.2

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)).

```
Assignment2 > J Q5.java > ...
3 public class Q5 {
4
5 Run | Debug
6 public static void main(String[] args) {
7
8     long num1 = 1122L;
9     long num2 = 5566L;
10
11     long minValue = Long.min(num1, num2);
12     long maxValue = Long.max(num1, num2);
13
14     System.out.println("The minimum value is: " + minValue);
15     System.out.println("The maximum value is: " + maxValue);
16 }
17
18 PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

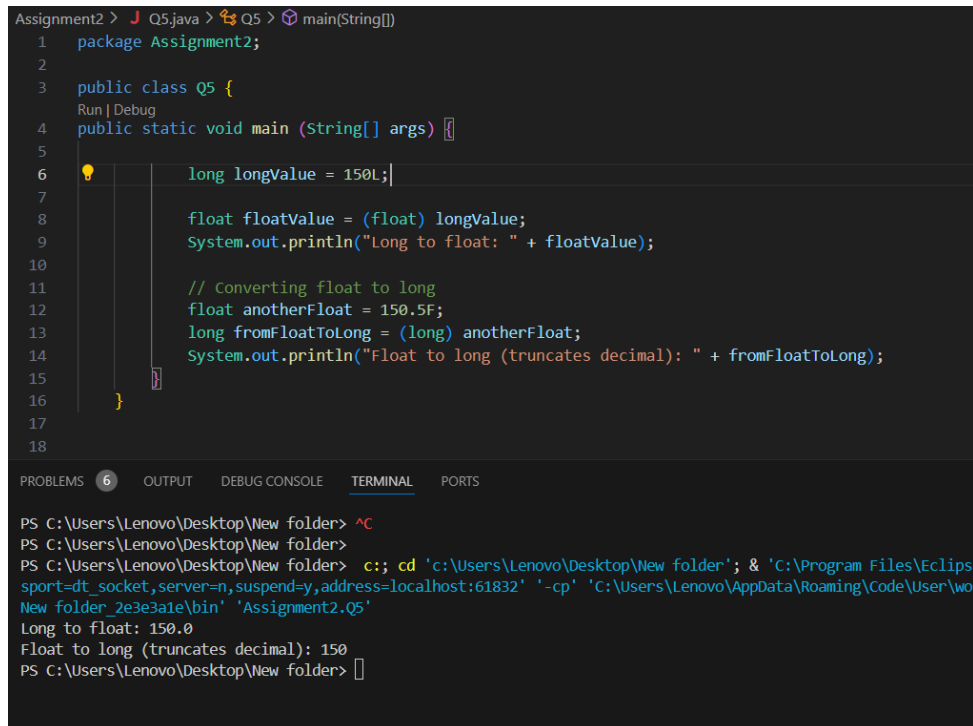
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
New folder_2e3e3a1e\bin' 'Assignment2.Q5'
The minimum value is: 1122
The maximum value is: 5566
PS C:\Users\Lenovo\Desktop\New folder> |
```

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.toString(long), Long.toOctalString(long), and Long.toHexString(long)).

```
Assignment2 > J Q5.java > Q5 > main(String[])
1 package Assignment2;
2
3 public class Q5 {
4 Run | Debug
5 public static void main(String[] args) {
6
7     long num = 778L;
8
9     String binaryString = Long.toString(num);
10    String octalString = Long.toOctalString(num);
11    String hexString = Long.toHexString(num);
12
13    System.out.println("Binary : " + binaryString);
14    System.out.println("Octal : " + octalString);
15    System.out.println("Hexadecimal : " + hexString);
16 }
17
18 PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.4
New folder_2e3e3a1e\bin' 'Assignment2.Q5'
Binary : 1100001010
Octal : 1412
Hexadecimal : 30a
PS C:\Users\Lenovo\Desktop\New folder> |
```

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



```

Assignment2 > J Q5.java > Q5 > main(String[])
1 package Assignment2;
2
3 public class Q5 {
4     public static void main (String[] args) {
5
6         long longValue = 150L;
7
8         float floatValue = (float) longValue;
9         System.out.println("Long to float: " + floatValue);
10
11         // Converting float to long
12         float anotherFloat = 150.5F;
13         long fromFloatToLong = (long) anotherFloat;
14         System.out.println("Float to long (truncates decimal): " + fromFloatToLong);
15     }
16 }
17
18
PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
sport=dt_socket,server=n,suspend=y,address=localhost:61832' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\wo
New folder_2e3e3a1e\bin' 'Assignment2.Q5'
Long to float: 150.0
Float to long (truncates decimal): 150
PS C:\Users\Lenovo\Desktop\New folder>

```

## 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`).



## ASSIGNMENT NO.2

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     Run | Debug
5     public static void main(String[] args) {
6         System.out.println("Bytes used to represent a float: " + Float.BYTES);
7     }
8 }
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:
n,suspend=y,address=localhost:62616' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe
ew folder_2e3e3a1e\bin' 'Assignment2.Q6'
Bytes used to represent a float:4
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jd
' '-agentlib:jwp=transport=dt_socket,server=n,suspend=y,address=localhost:62621' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Bytes used to represent a float: 4
PS C:\Users\Lenovo\Desktop\New folder>
```

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).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
2
3 public class Q6 {
4     Run | Debug
5     public static void main(String[] args) {
6         System.out.println("Maximum float value: " + Float.MAX_VALUE);
7         System.out.println("Minimum float value : " + Float.MIN_VALUE);
8     }
9
10 }
11
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
' '-agentlib:jwp=transport=dt_socket,server=n,suspend=y,address=localhost:62670' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Maximum float value: 3.4028235E38
Minimum float value : 1.4E-45
PS C:\Users\Lenovo\Desktop\New folder>
```

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)).

## ASSIGNMENT NO.2

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
2
3 public class Q6 {
4     public static void main(String[] args) {
5
6         float number = 58.5f;
7         String numberstr = Float.toString(number);
8         System.out.println("Float to String: " + numberstr);
9
10    }
11
12    }
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adopt
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62670' '-cp' 'C:\Users\Lenovo\AppData\Roam
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Maximum float value: 3.4028235E38
Minimum float value : 1.4E-45
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adopt
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62697' '-cp' 'C:\Users\Lenovo\AppData\Roam
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Float to String: 58.5
PS C:\Users\Lenovo\Desktop\New folder> |
```

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)`).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     public static void main(String[] args) {
5
6         String strNumber = "82.5";
7
8         float number = Float.parseFloat(strNumber);
9         System.out.println("String to float : " + number);
10
11    }
12
13    }
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adopt
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62723' '-cp' 'C:\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
String to float :82.5
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

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`).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     public static void main(String[] args) {
5         try
6         {
7             String strNumber = "Ab12Cd3";
8             float number = Float.parseFloat(strNumber);
9         } catch (NumberFormatException e) {
10
11             System.out.println("Error: " + e.getMessage());
12
13         }
14     }
15 }
16
```

PROBLEMS 12 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptiu
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62737' -cp 'C:\Users\Lenovo\AppData\Roaming
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Error: For input string: "Ab12Cd3"
PS C:\Users\Lenovo\Desktop\New folder>
```

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)`).

```
Assignment2 > Assignment2 > J Q6.java > ...
1 package Assignment2;
2
3 public class Q6 {
4     public static void main(String[] args) {
5         float num = 87.5f;
6         Float Wrapper = Float.valueOf(num);
7         System.out.println("float to Float object: " + Wrapper);
8     }
9
10
11 }
12
13
14
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Pr
' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62745' -cp 'C:\U
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
float to Float object: 87.5
PS C:\Users\Lenovo\Desktop\New folder>
```

## ASSIGNMENT NO.2

- 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)`).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     Run | Debug
     public static void main(String[] args) {
5         String strNum= "82.5";
6         Float Wrapper = Float.valueOf(strNum);
7         System.out.println("String to Float object: " + Wrapper);
8     }
9
10
11 }
12
13
14
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62764' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q6.jar' 'Assignment2.Q6'
String to Float object: 82.5
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     Run | Debug
     public static void main(String[] args) {
5         float num1 = 112.3f;
6
7         float num2 = 984.5f;
8         float sum = Float.sum (num1, num2);
9         System.out.println("Sum is : "+ sum);
10     }
11
12
13 }
14
15
16
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Java\jdk-11.0.2\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62783' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q6.jar' 'Assignment2.Q6'
Sum is : 1096.8
PS C:\Users\Lenovo\Desktop\New folder> |
```

## ASSIGNMENT NO.2

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)`).

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     Run | Debug
5     public static void main(String[] args) {
6         float num1 = 112.2f;
7         float num2 = 556.6f;
8         float min = Float.min(num1, num2);
9         float max = Float.max(num1, num2);
10        System.out.println("Max is : " + max);
11        System.out.println("Min is : " + min );
12    }
13
14 }
15
16
17
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
n\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62838' '-cp' 'C:\Users\Lenovo\Ap
paceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Max is : 556.6
Min is : 112.2
PS C:\Users\Lenovo\Desktop\New folder> 
```

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

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1 package Assignment2;
2
3 public class Q6 {
4     Run | Debug
5     public static void main(String[] args) {
6         float number = -25.0f;
7
8         double sqrt = Math.sqrt(number);
9         System.out.println("Square root of -25.0: " + sqrt);
10    }
11
12 }
13
14
15
```

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adopt
n\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62887' '-cp' 'C:\Users\Lenovo\Ap
paceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q6'
Square root of -25.0: NaN
PS C:\Users\Lenovo\Desktop\New folder> 
```

## ASSIGNMENT NO.2

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

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1  package Assignment2;
2
3  public class Q6 {
4      Run | Debug
      public static void main(String[] args) {
5          float num1 = 0.0f;
6          float num2 = 0.0f;
7          float result = num1 / num2;
8          System.out.println("Result is " + result);
9
10
11      }
12  }
13
14
15

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Software\ eclipse\ eclipse.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62896' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q6.jar'
Result is NaN
PS C:\Users\Lenovo\Desktop\New folder> |
```

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

```
Assignment2 > Assignment2 > J Q6.java > Q6 > main(String[])
1  package Assignment2;
2
3  public class Q6 {
4      Run | Debug
      public static void main(String[] args) {
5          float value = 9.7f;
6          int intValue = (int) value;
7          System.out.println("float to int : " + intValue);
8
9          int v=84;
10         float fv=(float) v;
11         System.out.println("int to float : " + fv);
12
13     }
14 }
15
16
17

PROBLEMS 11 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Software\ eclipse\ eclipse.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:62957' '-cp' 'C:\Users\Lenovo\Desktop\New folder\Assignment2\Q6.jar'
float to int :9
int to float :84.0
PS C:\Users\Lenovo\Desktop\New folder> |
```

## 7. Working with java.lang.Double

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

```

Assignment2 > J Q7.java > Q7 > main(String[])
1  package Assignment2;
2
3
4  public class Q7{
5      Run | Debug
      public static void main(String[] args) {
6
7      System.out.println("Bytes used to represent a double : " + Double.BYTES);
8
9      }
10 }

```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\j
et,server=n,suspend=y,address=localhost:63060' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspac
redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Bytes used to represent a double :8
PS C:\Users\Lenovo\Desktop\New folder>

```

- 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).

```

Assignment2 > J Q7.java > Q7 > main(String[])
1  package Assignment2;
2
3
4  public class Q7{
5      Run | Debug
      public static void main(String[] args) {
6          System.out.println("Minimum double value: " + Double.MIN_VALUE);
7          System.out.println("Maximum double value: " + Double.MAX_VALUE);
8
9      }
10 }

```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclip
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63072' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Minimum double value: 4.9E-324
Maximum double value: 1.7976931348623157E308
PS C:\Users\Lenovo\Desktop\New folder>

```

## ASSIGNMENT NO.2

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)`).

```
Assignment2 > J Q7.java > Q7 > main(String[])
1  package Assignment2;
2
3
4  public class Q7{
5      Run | Debug
6      public static void main(String[] args) {
7          double num= 13.8;
8          String numStr = Double.toString(num);
9          System.out.println("Double to String: " + numStr);
10     }
11 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Double to String: 13.8
PS C:\Users\Lenovo\Desktop\New folder>
```

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)`).

```
Assignment2 > J Q7.java > Q7 > main(String[])
2
3
4  public class Q7{
5      Run | Debug
6      public static void main(String[] args) {
7          String strNumber = "69.6";
8          double number = Double.parseDouble(strNumber);
9
10         System.out.println("String to double: " + number);
11     }
12 }
13 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' -agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63211' -cp 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
String to double: 69.6
PS C:\Users\Lenovo\Desktop\New folder>
```



## ASSIGNMENT NO.2

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`).

```
Assignment2 > J Q7.java > {} Assignment2
1 package Assignment2;
2 public class Q7{
    Run | Debug
3     public static void main(String[] args) {
4         try {
5             String strNumber = "Ab12Cd3";
6
7             double number = Double.parseDouble(strNumber);
8         } catch (NumberFormatException e) {
9
10            System.out.println("Error:" + e.getMessage());
11        }
12    }
13 }
14 }
```

PROBLEMS 7 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
n\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63226' '-cp' 'C:\Users\Le
paceStorage\8094b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Error:For input string: "Ab12Cd3"
PS C:\Users\Lenovo\Desktop\New folder> []
```

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)`).

```
Assignment2 > J Q7.java > Q7 > main(String[])
1 package Assignment2;
2 public class Q7{
    Run | Debug
3     public static void main(String[] args) {}
4     double number = 125.9;
5     Double wrapper = Double.valueOf(number);
6     System.out.println("Primitive double to Double object: " + wrapper);
7
8
9
10 }
11 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Ad
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63272' '-cp' 'C:\Users\Lenovo\AppData\Ro
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Primitive double to Double object: 125.9
PS C:\Users\Lenovo\Desktop\New folder> []
```

## ASSIGNMENT NO.2

- 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)`).

```
Assignment2 > J Q7.java > Q7 > main(String[])
1 package Assignment2;
2 public class Q7{
    Run | Debug
3     public static void main(String[] args) {
4         String strNumber = "125.9";
5         Double Wrapper = Double.valueOf(strNumber);
6         System.out.println("String to Double object: "+ Wrapper);
7     }
8
9
10 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63329' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
String to Double object: 125.9
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

```
Assignment2 > J Q7.java > Q7 > main(String[])
1 package Assignment2;
2 public class Q7{
    Run | Debug
3     public static void main(String[] args) {
4         double num1 = 112.3;
5         double num2 = 984.5;
6         double sum = Double.sum (num1, num2);
7         System.out.println("Sum is: "+ sum);
8     }
9 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:: cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8
'-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63375' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Sum is: 1096.8
PS C:\Users\Lenovo\Desktop\New folder> |
```

- 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)`).

## ASSIGNMENT NO.2

```
Assignment2 > J Q7.java > ...
1  package Assignment2;
2  public class Q7{
    Run | Debug
3      public static void main(String[] args) {
4          double num1 = 112.2;
5          double num2 = 556.6;
6          double min = Double.min(num1, num2);
7          double max = Double.max(num1, num2);
8          System.out.println("Max is : " + max);
9          System.out.println("Min is : " + min );
10     }
11 }
12
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program File
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63398' '-cp' 'C:\Users\Lenovo\
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Max is :556.6
Min is :112.2
PS C:\Users\Lenovo\Desktop\New folder> █
```

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

```
Assignment2 > J Q7.java > Q7 > main(String[])
1  package Assignment2;
2  public class Q7{
    Run | Debug
3      public static void main(String[] args) {
4          double number = -25.0;
5
6          double sqrt = Math.sqrt(number);
7          System.out.println("Square root of -25.0 : " + sqrt);
8      }
9  }
10
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63445' '-cp' 'C:\Users\Lenovo\Appt
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Square root of -25.0 :NaN
PS C:\Users\Lenovo\Desktop\New folder> █
```

## ASSIGNMENT NO.2

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

```
Assignment2 > J Q7.java > Q7 > main(String[])
1 package Assignment2;
2 public class Q7{
3     Run | Debug
4     public static void main(String[] args) {
5         double num1 = 0.0;
6         double num2 = 0.0;
7         double result = num1 / num2;
8         System.out.println("Result is : "+ result);
9     }
10 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63468' '-cp' 'C:\Users\Lenovo\AppData
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
Result is : NaN
PS C:\Users\Lenovo\Desktop\New folder> █
```

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

```
Assignment2 > J Q7.java > Q7 > main(String[])
1 package Assignment2;
2 public class Q7{
3     Run | Debug
4     public static void main(String[] args) {
5
6         int myInt = 123;
7         double Val = (double) myInt;
8         System.out.println("int to double: " + Val);
9
10
11     }
12 }
13
14 }
```

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
PS C:\Users\Lenovo\Desktop\New folder> ^C
PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c;; cd 'c:\Users\Lenovo\Desktop\New folder'; & '
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63746' '-cp'
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q7'
int to double: 123.0
PS C:\Users\Lenovo\Desktop\New folder> █
```

## 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()`).

```
Assignment2 > J Q8.java > Q8
1 package Assignment2;
2 public class Q8{
    Run | Debug
3     public static void main(String[] args) {
4         int nu = 76;
5         double dou = 76.82;
6         float g = 76.05f;
7         long k = 72045L;
8         boolean rt = true;
9         byte by = 12;
10        short sv = 432;
11        char ch = 'S';
12
13        System.out.println("integer to String : " + Integer.toString(nu));
14        System.out.println("Double to String : " + Double.toString(dou));
15        System.out.println("float to String : " + Float.toString(g));
16        System.out.println("Long to String : " + Long.toString(k));
17        System.out.println("Boolean to String : " + Boolean.toString(rt));
18        System.out.println("Byte to String : " + Byte.toString(by));
19        System.out.println("Short to String : " + Short.toString(sv));
20        System.out.println("Char to String : " + Character.toString(ch));
21    }
}

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS

PS C:\Users\Lenovo\Desktop\New folder> c::; cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Ecl
' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:63802' '-cp' 'C:\Users\Lenovo\Appl
3b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Q8'

integer to String : 76
Double to String : 76.82
float to String : 76.05
Long to String : 72045
Boolean to String : true
Byte to String : 12
Short to String : 432
Char to String : S
```

- Then, use the `valueOf` method of the `String` class. (e.g., `String.valueOf()`).

```

Assignment2 > J ad.java > ad > main(String[])
1 package Assignment2;
2 public class ad{
    Run | Debug
3     public static void main(String[] args) {
4         int nu = 76;
5         double dou = 76.82;
6         float g = 76.05f;
7         long k = 72045L;
8         boolean rt = true;
9         byte by = 12;
10        short sv = 432;
11        char ch = 's';
12
13        System.out.println("Integer to String : " + String.valueOf(nu));
14        System.out.println("Double to String : " + String.valueOf(dou));
15        System.out.println("Float to string : " + String.valueOf(g));
16        System.out.println("Long to String : " + String.valueOf(k));
17        System.out.println("Boolean to String : " + String.valueOf(rt));
18        System.out.println("Byte to String : " + String.valueOf(by));
19        System.out.println("Short to String : " + String.valueOf(sv));
20        System.out.println("Char to String : " + String.valueOf(ch));
21    }
}

PROBLEMS 6 OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe'
et,server=n,suspend=y,address=localhost:63860' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage
redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.ad'
Integer to String : 76
Double to String : 76.82
Float to string : 76.05
Long to String : 72045
Boolean to String : true
Byte to String : 12
Short to String : 432
Char to String : s
PS C:\Users\Lenovo\Desktop\New folder>

```

## 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).

## ASSIGNMENT NO.2

```
package Assignment2.Assignment2;

public class Q9 {
    byte By;
    short Sh;
    int in;
    long ng;
    float Fl;
    double le;
    char ar;
    boolean an;

    Run | Debug
    public static void main(String[] args) {

        Q9 obj = new Q9();

        System.out.println(x:"      Default values      :");
        System.out.println(x:"      :");
        System.out.println("byte:      " + obj.By);
        System.out.println("short:     " + obj.Sh);
        System.out.println("int:       " + obj.in);
        System.out.println("long:      " + obj.ng);
        System.out.println("float:     " + obj.Fl);
        System.out.println("double:    " + obj.le);
        System.out.println("char:      " + obj.ar );
        System.out.println("boolean:   " + obj.an);

    }
}
```

```
PS C:\Users\Lenovo\Desktop\New folder> & 'C:\Program Files\Eclipse Ad
er=n,suspend=y,address=localhost:64041' '-cp' 'C:\Users\Lenovo\AppData
t_ws\New folder_2e3e3a1e\bin' 'Assignment2.Assignment2.Q9'
      Default values      :
      :
byte:      0
short:     0
int:       0
long:      0
float:     0.0
double:    0.0
char:
boolean:   false
PS C:\Users\Lenovo\Desktop\New folder>
```

## 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).

```

Assignment2 > Assignment2 > J Q10.java > Q10 > main(String[])
1  package Assignment2.Assignment2;
2  import java.util.Scanner;
3
4  public class Q10 {
5      Run | Debug
6      public static void main(String[] args) {
7          Scanner sc = new Scanner(System.in);
8          System.out.print(s:"Enter the first integer: ");
9          int num1 = sc.nextInt();
10
11         System.out.print(s:"Enter the second integer: ");
12         int num2 = sc.nextInt();
13
14         System.out.print(s:"select opertor  ");
15         System.out.print(s:"1. + ");
16         System.out.print(s:"2. - ");
17         System.out.print(s:"3. * ");
18         System.out.print(s:"4. / ");
19
20         int op = sc.nextInt();
21
22         double result;
23
24         switch (op) {
25             case 1:
26                 result = num1 + num2;
27                 System.out.println(num1 + " + " + num2 + " = " + result);
28                 break;
29             case 2 :
30                 result = num1 - num2;
31                 System.out.println( num1 + " - " + num2 + " = " + result);
32                 break;
33             case 3 :
34                 result = num1 * num2;
35                 System.out.println( num1 + " * " + num2 + " = " + result);
36                 break;

```

```

37         case 4 :
38             if (num2 != 0) { // Check for division by zero
39                 result = (double) num1 / num2;
40                 System.out.println( num1 + " / " + num2 + " = " + result);
41             } else {
42                 System.out.println(x:"Error: Division by zero is undefined.");
43             }
44             break;
45         default:
46             System.out.println(x:"Error: Invalid operator. Please use +, -, *, or /.");
47     }
48 }

```

BLEMS 7 OUTPUT DEBUG CONSOLE TERMINAL

TERMINAL

```

PS C:\Users\Lenovo\Desktop\New folder>
PS C:\Users\Lenovo\Desktop\New folder> c:\cd 'c:\Users\Lenovo\Desktop\New folder'; & 'C:\Program Files\Eclipse Adoptium\jdk-8.0.422.5-hotspot\bin\java.exe' '-agentlib:jdwp=transport=dt_socket,server=n,suspend=y,address=localhost:50886' '-cp' 'C:\Users\Lenovo\AppData\Roaming\Code\User\workspaceStorage\94b1733b6aff209dfbe3903c9f285a\redhat.java\jdt_ws\New folder_2e3e3a1e\bin' 'Assignment2.Assignment2.Q10'
Enter the first integer: 10
Enter the second integer: 52
select opertor 1. + 2. - 3. * 4. / 1
10 + 52 = 62.0
PS C:\Users\Lenovo\Desktop\New folder>

```