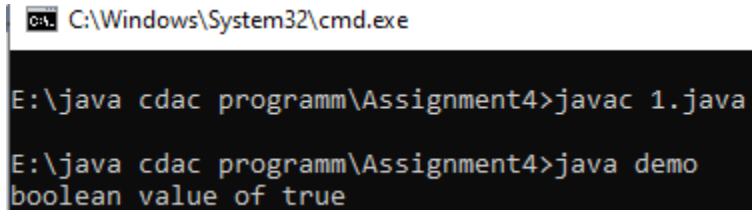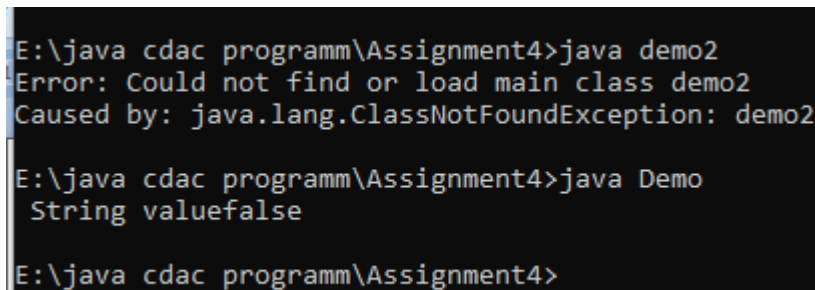Q.1 Working with java.lang.Boolean

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)).

```
C:\Windows\System32\cmd.exe

E:\java cdac programm\Assignment4>javac 1.java

E:\java cdac programm\Assignment4>java demo
boolean value of true
```

c. 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").

```
E:\java cdac programm\Assignment4>java demo2
Error: Could not find or load main class demo2
Caused by: java.lang.ClassNotFoundException: demo2

E:\java cdac programm\Assignment4>java Demo
 String valuefalse

E:\java cdac programm\Assignment4>
```

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)).

```
E:\java cdac programm\Assignment4>javac 1.java

E:\java cdac programm\Assignment4>java Demo
 Boolean value : true

E:\java cdac programm\Assignment4>
```

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)).

```
E:\java cdac programm\Assignment4>javac 1.java

E:\java cdac programm\Assignment4>java Demo
 Boolean value : true

E:\java cdac programm\Assignment4>_
```

2. Working with **java.lang.Byte**

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

```java
class Demo{

  public static void main(String[] args) {

    byte b = byte.BYTES;

    System.out.println("bytes value :" + b);

  }
```

}

```
E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
bytes value :1

E:\java cdac programm\java core>java Demo
bytes value :1

E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
bytes value :4
```

Q.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).

```java
class Demo{

   public static void main(String[] args) {

      byte b = Byte.MIN_VALUE;

     byte c = Byte.MAX_VALUE;

      System.out.println(" bytes min value :" + b);

        System.out.println(" bytes max value :" + c);

        }}
```

```
E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
 bytes min value :-128
 bytes max value :127
```

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)).

class Demo{

   public static void main(String[] args) {

      byte number = 6;

         String str = Byte.toString(number);

      System.out.println(" String value :" +str);

    }}

```
E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
 String value :6
```

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)).

```
class Demo{

    public static void main(String[] args) {

        String s = "100";

            byte b = Byte.parseByte(s);

        System.out.println(" String value :" +b);

        }}
```
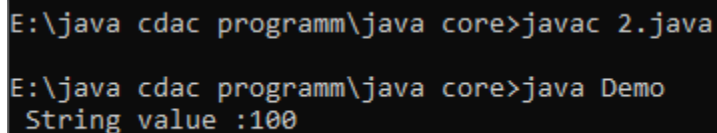
```
E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
 String value :100
```

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).

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)).

```java
class Demo{

    public static void main(String[] args) {

        byte Number = 100;

                byte b = Byte.valueOf(Number);

        System.out.println(" String value :" +b);

        }}
```
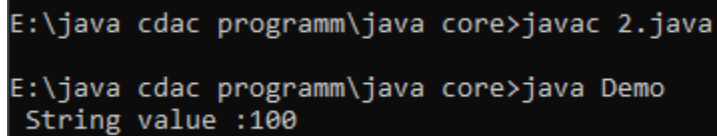
```
E:\java cdac programm\java core>javac 2.java

E:\java cdac programm\java core>java Demo
 String value :100
```

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)).

```java
class Demo{

    public static void main(String[] args) {

        String strNumber = "10";

                byte b = Byte.valueOf(strNumber);

        System.out.println(" String value :" +b);

        }}
```

```
E:\java cdac programm\java core>java Demo
 String value :10

E:\java cdac programm\java core>
```

3. Working with **java.lang.Short**

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

class Demo{

  public static void main(String[] args) {

        byte b = Short.BYTES;

      System.out.println(" String value :" +b);

}]

```
E:\java cdac programm\Assignment4>java Demo
 Bytes value :2

E:\java cdac programm\Assignment4>
```

c. 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).

class Demo{

  public static void main(String[] args) {

```
        Short b = Short.MIN_VALUE;

        Short c = Short.MAX_VALUE;

    System.out.println(" Short Min value :" +b);

        System.out.println(" Short Max value :" +c);

    }}
```
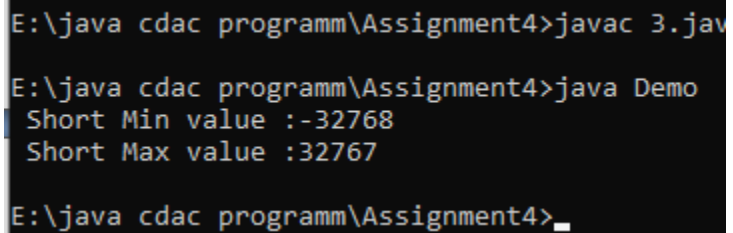
```
E:\java cdac programm\Assignment4>javac 3.jav
E:\java cdac programm\Assignment4>java Demo
Short Min value :-32768
Short Max value :32767

E:\java cdac programm\Assignment4>_
```

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)).

```
class Demo{

  public static void main(String[] args) {

        Short b = 2;

        String str = Short.toString(b);

    System.out.println(" String value :" +str);
```

}}

```
E:\java cdac programm\Assignment4>javac 3.java

E:\java cdac programm\Assignment4>java Demo
 String value :2

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

        public static void main(String[] args) {

        String str = "50";

        Short s = Short.parseShort(str);

    System.out.println(" Short  value :" +s);

}

}
```

```
E:\java cdac programm\Assignment4>javac 3.java

E:\java cdac programm\Assignment4>java Demo
 Short value :50
```

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).

```java
class Demo{

    public static void main(String[] args) {

            String str = "Ab12Cd3";

            Short s = Short.parseShort(str);

        System.out.println(" Short value :" +s);

}

}
```

```
  location: class String
1 error

E:\java cdac programm\Assignment4>javac 3.java

E:\java cdac programm\Assignment4>java Demo
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.Short.parseShort(Short.java:137)
        at java.base/java.lang.Short.parseShort(Short.java:163)
        at Demo.main(3.java:31)

E:\java cdac programm\Assignment4>_
```

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)).

```java
class Demo{

    public static void main(String[] args) {

            Short s= 55;

            Short s1 = Short.valueOf(s);

        System.out.println(" Short value :" +s1);

}

}
```
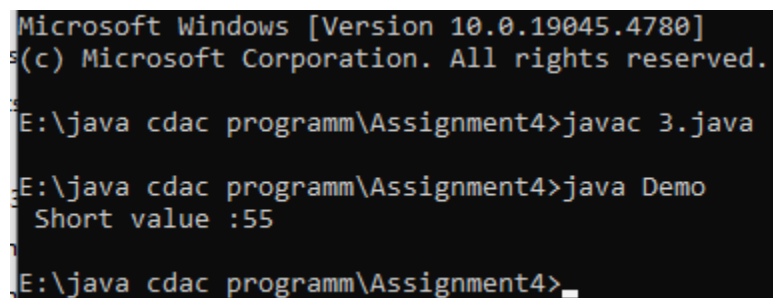
```
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

E:\java cdac programm\Assignment4>javac 3.java

E:\java cdac programm\Assignment4>java Demo
 Short value :55

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

    public static void main(String[] args) {

            String strNumber = "40";

            Short s1 = Short.valueOf(strNumber);
```

System.out.println(" Short value :" +s1);

}}

```
E:\java cdac programm\Assignment4>javac 3.java

E:\java cdac programm\Assignment4>java Demo
 Short value :40

E:\java cdac programm\Assignment4>javac 3.java
```

4. Working with **java.lang.Integer**

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

class Demo{

   public static void main(String[] args) {

              byte b = Integer.BYTES;

      System.out.println(" Integer value :" +b);

}}

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 String value :4

E:\java cdac programm\Assignment4>
```

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).

```java
class Demo{

    public static void main(String[] args) {

            int b = Integer.MIN_VALUE;

            int C = Integer.MAX_VALUE;

        System.out.println(" Integer value :" +b);

            System.out.println(" Integer value :" +C);

}}
```
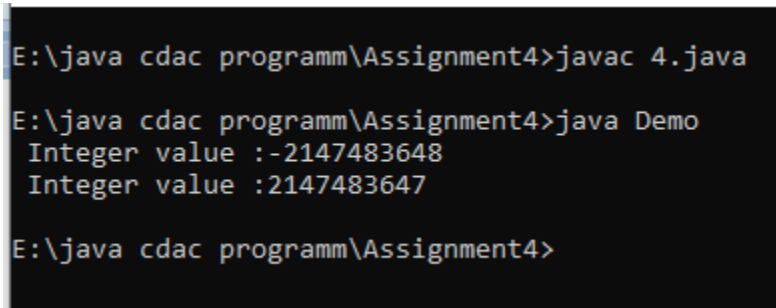
```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :-2147483648
 Integer value :2147483647

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

    public static void main(String[] args) {
```
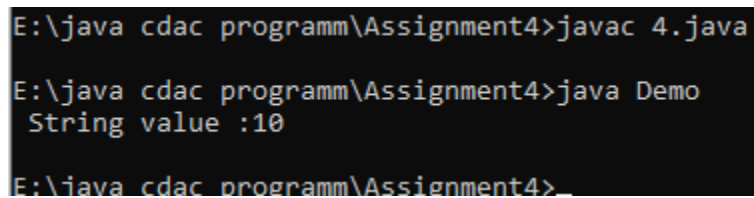
```
        int b = 10;

        String str = Integer.toString(b);

    System.out.println(" String value :" +str);


}}
```

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 String value :10

E:\java cdac programm\Assignment4>_
```

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)).

```
class Demo{

    public static void main(String[] args) {

            String strNumber = "12345";

            int b = Integer.parseInt(strNumber);

        System.out.println(" Integer value :" +b);

}}
```

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :12345

E:\java cdac programm\Assignment4>_
```

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).

class Demo{

   public static void main(String[] args) {

         String strNumber = "12345";

         int b = Integer.parseInt(strNumber);

    System.out.println(" Integer value :" +b);

}}

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :12345

E:\java cdac programm\Assignment4>_
```

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)).

```java
class Demo{

    public static void main(String[] args) {

        int Number = 12345;

        int b = Integer.valueOf(+Number);

        System.out.println(" Integer value :" +b);

}}
```
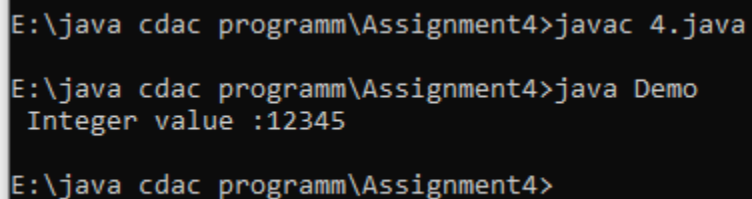
```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :12345

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

    public static void main(String[] args) {

        String  strNumber = "12345";

        int b = Integer.valueOf(strNumber);

    System.out.println(" Integer value :" +b);
```

}}

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :12345

E:\java cdac programm\Assignment4>_
```

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)).

```java
 class Demo{

   public static void main(String[] args) {

            int a =10;

            int b =20;

            int result = Integer.sum(10,20);

     System.out.println(" Integer value :" +result);

}}
```

```
E:\java cdac programm\Assignment4>javac 4.java

E:\java cdac programm\Assignment4>java Demo
 Integer value :30

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

    public static void main(String[] args) {

            int a =10;

            int b =20;

            int Min = Integer.min(10,20);

            int Max = Integer.max(10,20);

        System.out.println(" Integer  MINIMUM value :" +Min);

            System.out.println(" Integer  MAXMIUM value :" +Max);

}}
```
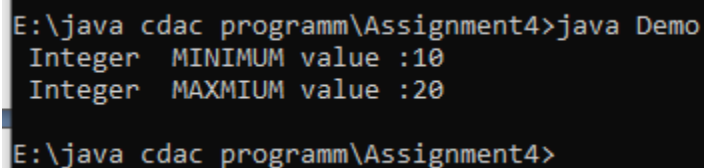
```
E:\java cdac programm\Assignment4>java Demo
 Integer  MINIMUM value :10
 Integer  MAXMIUM value :20

E:\java cdac programm\Assignment4>
```

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)).

```java
class Demo{

    public static void main(String[] args) {

            int number =7;

            String binary = Integer.toBinaryString(number);

            String octal = Integer.toOctalString(number);

            String hexa = Integer.toHexString(number);

        System.out.println(" Integer  BINARY value :" +binary);

            System.out.println(" Integer  OCTAL value :" +octal);

            System.out.println(" Integer  HEXADECIMAL value :" +hexa);

}}
```
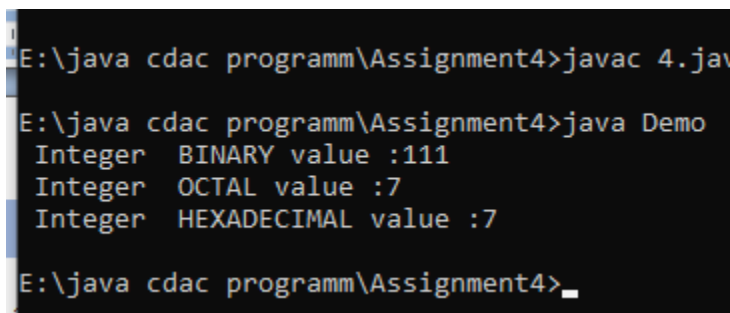
```
E:\java cdac programm\Assignment4>javac 4.jav

E:\java cdac programm\Assignment4>java Demo
 Integer  BINARY value :111
 Integer  OCTAL value :7
 Integer  HEXADECIMAL value :7

E:\java cdac programm\Assignment4>_
```

5. Working with java.lang.Long

b. Write a program to test how many bytes are used to represent a long value using the BYTES field. (Hint: Use Long.BYTES).
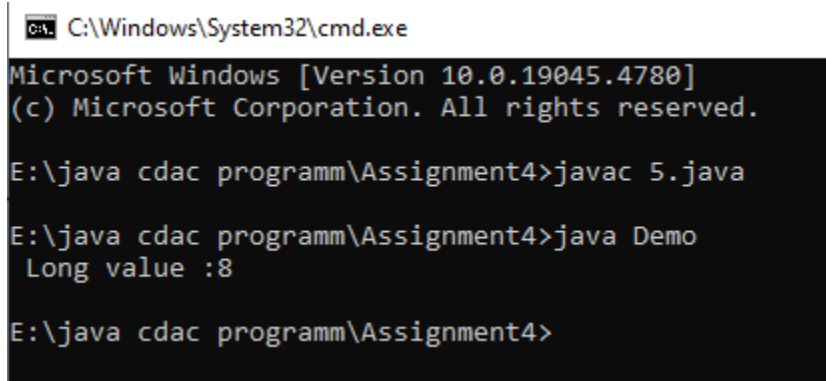
```java
class Demo{

    public static void main(String[] args) {

            byte b = Long.BYTES;

        System.out.println(" Long value :" +b);

}}
```



```
C:\Windows\System32\cmd.exe

Microsoft Windows [Version 10.0.19045.4780]
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E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
 Long value :8

E:\java cdac programm\Assignment4>
```

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).

```java
class Demo{

    public static void main(String[] args) {

            long b = Long.MIN_VALUE;

            long c = Long.MAX_VALUE;

        System.out.println(" Long Min value :" +b);
```
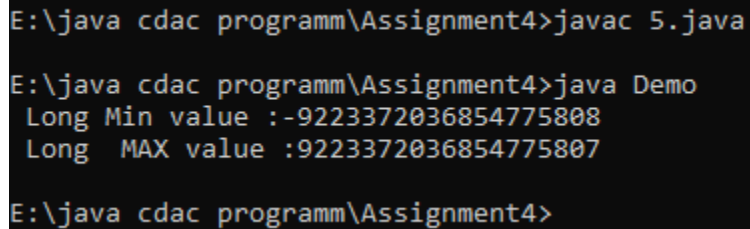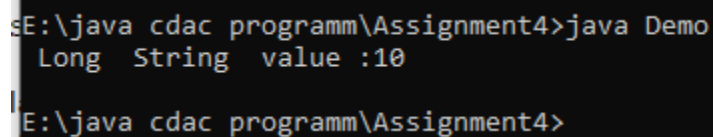
```
            System.out.println(" Long  MAX value :" +c);


    }}
```

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
 Long Min value :-9223372036854775808
 Long  MAX value :9223372036854775807

E:\java cdac programm\Assignment4>
```

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)).

class Demo{

   public static void main(String[] args) {

            long b = 10;

            String str = Long.toString(b);

            System.out.println(" Long String value :" +str);

}}

```
sE:\java cdac programm\Assignment4>java Demo
 Long  String  value :10

E:\java cdac programm\Assignment4>
```

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)).

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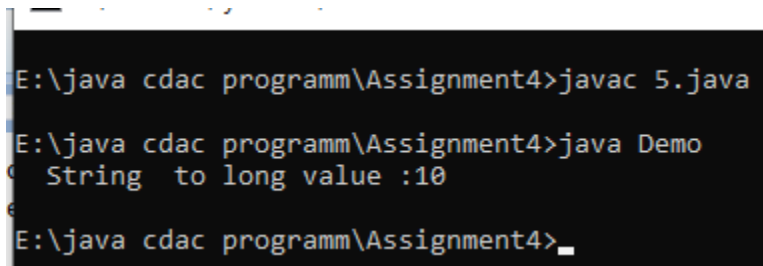
   public static void main(String[] args) {

        String str = "10";

        long b = Long.parseLong(str);

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

}}

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
  String  to long value :10

E:\java cdac programm\Assignment4>_
```

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).

class Demo{

   public static void main(String[] args) {

        String str = "Ab12Cd3";

```
long b = Long.parseLong(str);

System.out.println(" String  to long value :" +b);
```

}}

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
        at java.base/java.lang.NumberFormatException.forInputString(NumberFormatException.java
        at java.base/java.lang.Long.parseLong(Long.java:711)
        at java.base/java.lang.Long.parseLong(Long.java:836)
        at Demo.main(5.java:22)

E:\java cdac programm\Assignment4>
```

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)).

class Demo{

   public static void main(String[] args) {

        long b = 100;

        long b1 = Long.valueOf(b);

        System.out.println(" wrapper class value :" +b1);

}}

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
  wrapper class value :100

E:\java cdac programm\Assignment4>
```

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)).

class Demo{

    public static void main(String[] args) {

            String strNumber = "1000";

            long b1 = Long.valueOf(strNumber);

            System.out.println(" wrapper class value :" +b1);

}}

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
  wrapper class value :1000

E:\java cdac programm\Assignment4>_
```

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)).

```
class Demo{

    public static void main(String[] args) {

            long b   = 1123;

            long b1 = 9845;

            long result = Long.sum(1123,9845);

            System.out.println("  long class sum  :" +result);

}}
```
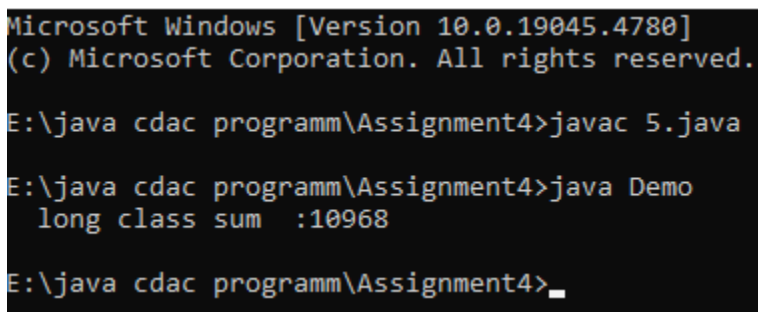
```
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
  long class sum   :10968

E:\java cdac programm\Assignment4>_
```

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)).

```
class Demo{

    public static void main(String[] args) {

            long b   = 1122;

            long b1 = 5566;
```

```java
        long MIN = Long.min(1122,5566);

        long Max = Long.max(1122,5566);

        System.out.println(" long min value :" +MIN);

System.out.println(" long max value :" +Max);

}}

class Demo{

    public static void main(String[] args) {

        long number   = 7;

        String binary = Long.toBinaryString(number);

        String octal = Long.toOctalString(number);

        String  hexadecimal = Long.toHexString(number);

        System.out.println(" long Binary value :" +binary);

System.out.println(" long Octal value :" +octal);

System.out.println(" long Hexadecimal value :" +hexadecimal);

}}
```

```
E:\java cdac programm\Assignment4>javac 5.java

E:\java cdac programm\Assignment4>java Demo
  long min value :1122
  long max value :5566
```

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)).

class Demo{

   public static void main(String[] args) {

          long number   = 7;

          String binary = Long.toBinaryString(number);

          String octal = Long.toOctalString(number);

          String hexadecimal = Long.toHexString(number);

          System.out.println(" long Binary value :" +binary);

System.out.println(" long Octal value :" +octal);

System.out.println(" long Hexadecimal value :" +hexadecimal);

}}

```
E:\java cdac programm\Assignment4>java Demo
  long Binary value :111
  long Octal value :7
  long Hexadecimal value :7

E:\java cdac programm\Assignment4>_
```

6. Working with **java.lang.Float**

b. Write a program to test how many bytes are used to represent a float value using the BYTES field. (Hint: Use Float.BYTES).
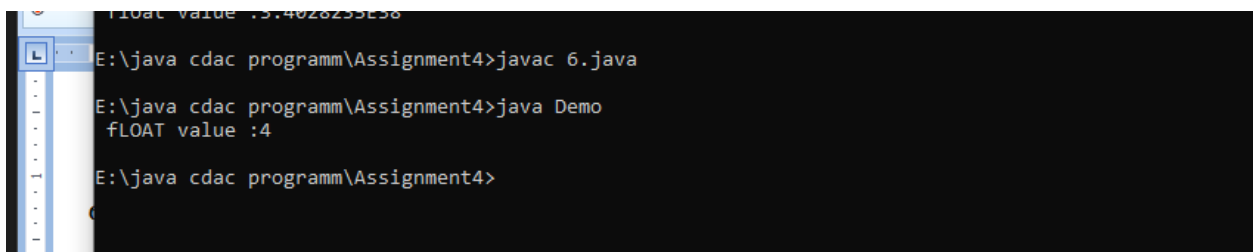
```
class Demo{

   public static void main(String[] args) {

            byte b = Float.BYTES;

      System.out.println(" Long value :" +b);

}}
```

```
Tloat value :3.4028235E38

E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 fLOAT value :4

E:\java cdac programm\Assignment4>
```

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).

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 float Min value :1.4E-45
 float Max value :3.4028235E38

E:\java cdac programm\Assignment4>
```

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)).

class Demo{

   public static void main(String[] args) {

         float b = 12.6f;

         String str = Float.toString(b);

         System.out.println(" float to string value :" +str);

}}

```
float max value :3.4028235E38

E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 float to string value :12.6

E:\java cdac programm\Assignment4>_
```

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)).

```java
class Demo{

    public static void main(String[] args) {

            String str = "12345";

            float b = Float.parseFloat(str);

        //System.out.println(" float Min value :" +b);

            System.out.println(" string  to float value :" +b);

}}
```
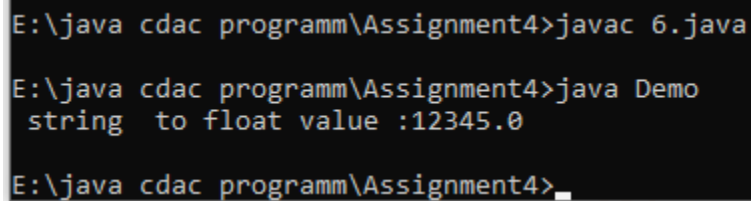

f. Declare a method-local variable strNumber of type String with the value "Ab12Cd3" and attempt to convert it to a float value. (Hint: parseFloat method will throw a NumberFormatException).

```java
class Demo{

    public static void main(String[] args) {

            String str = "Ab12Cd3";
```

```
float b = Float.parseFloat(str);

//System.out.println(" float Min value :" +b);

System.out.println(" string  to float value :" +b);

}}
```

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
        at java.base/jdk.internal.math.FloatingDecimal.readJavaFormatString(FloatingDecimal.java:2054)
        at java.base/jdk.internal.math.FloatingDecimal.parseFloat(FloatingDecimal.java:122)
        at java.base/java.lang.Float.parseFloat(Float.java:476)
        at Demo.main(6.java:30)
```

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)).

```
class Demo{

    public static void main(String[] args) {

            float b = 100f;

            float b1 = Float.valueOf(b);

            System.out.println(" float to float value :" +b1);

}}
```

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 float to float value :100.0
```

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)).

class Demo{

   public static void main(String[] args) {

        String strNumber = "100";

        float b1 = Float.valueOf(strNumber);

        System.out.println(" String to float value :" +b1);

}}

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 String to float value :100.0
```

   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)).

class Demo{

   public static void main(String[] args) {

        float b = 112.3f;
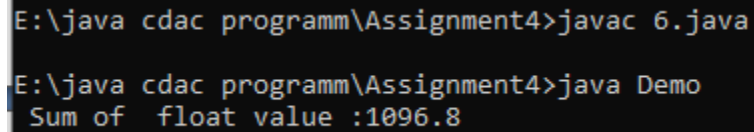
```java
        float b1 = 984.5f;

        float result = Float.sum(b, b1);

        System.out.println(" Sum of  float value :" +result);

}}
```

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 Sum of  float value :1096.8
```

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)).

```java
class Demo{

   public static void main(String[] args) {

            float b = 112.2f;

            float b1 = 556.6f;

            float Min = Float.min(112.2f,556.6f);

            float Max = Float.max(112.2f,556.6f);

            System.out.println(" Min float value :" +Min);

            System.out.println(" Max float value :" +Max);

}}
```

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 Min float value :112.2
 Max float value :556.6
```

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

class Demo{

   public static void main(String[] args) {

          float b = -25.0f;

          double squre = Math.sqrt(25.0);

          System.out.println(" Max float value :" +squre);

}}

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 Max float value :5.0
```

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

class Demo{

   public static void main(String[] args) {

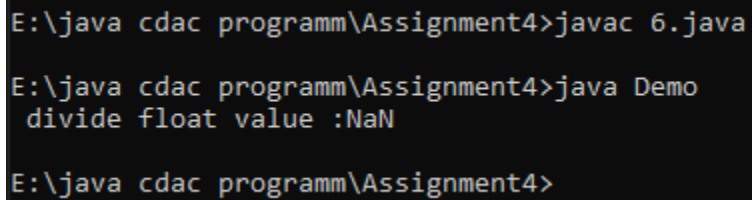float b = 0.0f;

float b1 = 0.0f;

float div = b/b1;

System.out.println(" divide float value :" +div);

}}

```
E:\java cdac programm\Assignment4>javac 6.java

E:\java cdac programm\Assignment4>java Demo
 divide float value :NaN

E:\java cdac programm\Assignment4>
```

7. Working with java.lang.Double

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

```java
public class DoubleBytesTest {

    public static void main(String[] args) {

        int bytes = Double.BYTES;

        System.out.println("Number of bytes used to represent a double value: " + bytes);

    }
```

}

```
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

E:\java cdac programm\Assignment4>javac 7.java

nE:\java cdac programm\Assignment4>java DoubleBytesTest
dNumber of bytes used to represent a double value: 8
u
 E:\java cdac programm\Assignment4>_
```

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).

```java
public class DoubleRangeTest {

    public static void main(String[] args) {

        double minValue = Double.MIN_VALUE;

        double maxValue = Double.MAX_VALUE;

        System.out.println("Minimum value of a double: " + minValue);

        System.out.println("Maximum value of a double: " + maxValue);

    }
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java DoubleRangeTest
Minimum value of a double: 4.9E-324
Maximum value of a double: 1.7976931348623157E308

E:\java cdac programm\Assignment4>
```
}

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)).

```java
class DoubleToStringExample {

    public static void main(String[] args) {

        double number = 123.456;

        String numberAsString = Double.toString(number);

        System.out.println("The double value as a String: " + numberAsString);

    }

}
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java DoubleToStringExample
The double value as a String: 123.456

E:\java cdac programm\Assignment4>
```
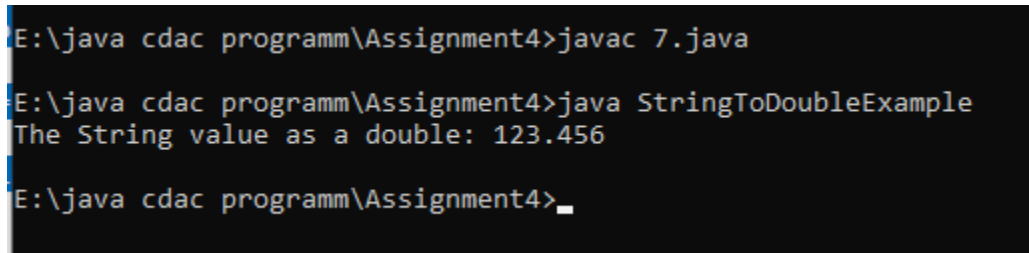
e. Declare a method-local variable strNumber of type String with some value and convert it to a double value using the parseDouble method. (Hint: Use Double.parseDouble(String)).

```java
public class StringToDoubleExample {

    public static void main(String[] args) {

        String strNumber = "123.456";

        double number = Double.parseDouble(strNumber);

        System.out.println("The String value as a double: " + number);

    }

}
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java StringToDoubleExample
The String value as a double: 123.456

E:\java cdac programm\Assignment4>_
```

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).**

```java
class StringToDouble{
```

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

        String str = "Ab12Cd3";

                double b = Double.parseDouble(str);

System.out.println(" string  to Double value :" +b);

    }


}
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java StringToDouble
Exception in thread "main" java.lang.NumberFormatException: For input string: "Ab12Cd3"
        at java.base/jdk.internal.math.FloatingDecimal.readJavaFormatString(FloatingDecimal.java:2054)
        at java.base/jdk.internal.math.FloatingDecimal.parseDouble(FloatingDecimal.java:110)
        at java.base/java.lang.Double.parseDouble(Double.java:651)
        at StringToDouble.main(7.java:39)

E:\java cdac programm\Assignment4>
```

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)).

```java
class DoubleWrapperExample {

    public static void main(String[] args) {

        double number = 123.456;

        Double numberWrapper = Double.valueOf(number);
System.out.println("The double value as a Double object: " +
numberWrapper);
```
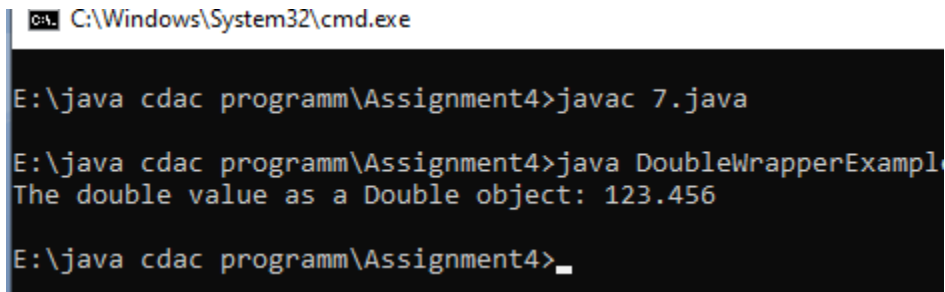
```
    }

}
```



```
C:\Windows\System32\cmd.exe

E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java DoubleWrapperExampl
The double value as a Double object: 123.456

E:\java cdac programm\Assignment4>_
```

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)).

```java
class StringToDoubleWrapperExample {

    public static void main(String[] args) {

        String strNumber = "123.456";

        Double numberWrapper = Double.valueOf(strNumber);

        System.out.println("The String value as a Double object: " +
numberWrapper);

    }

}
```

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)).

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

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)).

```java
class  nu {

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

```
        double num1 = 112.2;

        double num2 = 556.6;

        double minValue = Double.min(num1, num2);

double maxValue = Double.max(num1, num2);

        System.out.println("The minimum value is: " + minValue);

        System.out.println("The maximum value is: " + maxValue);

    }

}
```
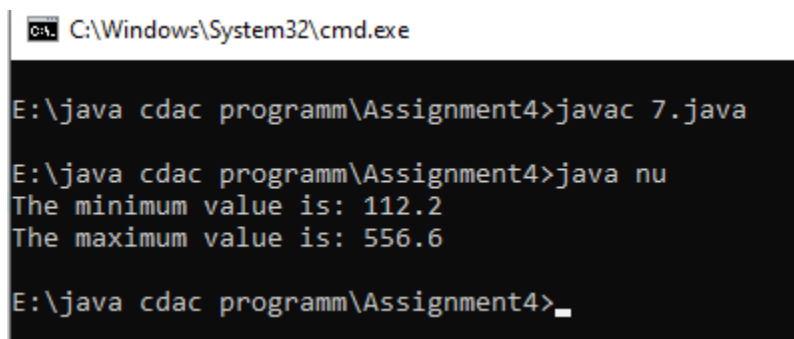
```
C:\Windows\System32\cmd.exe

E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java nu
The minimum value is: 112.2
The maximum value is: 556.6

E:\java cdac programm\Assignment4>_
```

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

```
class square {

    public static void main(String[] args) {

        double num = -25.0;
```
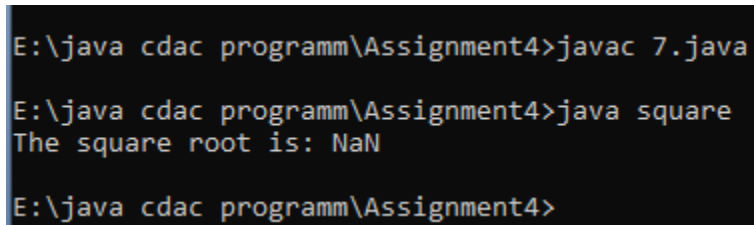
```java
        double sqrtValue = Math.sqrt(num);

        System.out.println("The square root is: " + sqrtValue);

    }

}
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java square
The square root is: NaN

E:\java cdac programm\Assignment4>
```

I. Declare two double variables with the same value, 0.0, and divide them.

(Hint: Observe the result and any special floating-point behavior).

```java
class div {

    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 0.0 by 0.0 is: " + result);

    }

}
```

```
E:\java cdac programm\Assignment4>javac 7.java

E:\java cdac programm\Assignment4>java div
The result of dividing 0.0 by 0.0 is: NaN

E:\java cdac programm\Assignment4>
```

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()).

```java
class PrimitiveToStringConversion {

    public static void main(String[] args) {

        boolean boolVal = true;

        char charVal = 'A';

        byte byteVal = 10;

        short shortVal = 100;

        int intVal = 1000;

        long longVal = 10000L;
```

```java
float floatVal = 10.5f;

double doubleVal = 100.123;

System.out.println("Using Wrapper Class toString Methods:");

System.out.println("boolean: " + Boolean.toString(boolVal));

System.out.println("char: " + Character.toString(charVal));

System.out.println("byte: " + Byte.toString(byteVal));

System.out.println("short: " + Short.toString(shortVal));

System.out.println("int: " + Integer.toString(intVal));

System.out.println("long: " + Long.toString(longVal));

System.out.println("float: " + Float.toString(floatVal));

System.out.println("double: " + Double.toString(doubleVal));

System.out.println("\nUsing String valueOf Methods:");

System.out.println("boolean: " + String.valueOf(boolVal));

System.out.println("char: " + String.valueOf(charVal));

System.out.println("byte: " + String.valueOf(byteVal));

System.out.println("short: " + String.valueOf(shortVal));
```

```java
        System.out.println("int: " + String.valueOf(intVal));

        System.out.println("long: " + String.valueOf(longVal));

        System.out.println("float: " + String.valueOf(floatVal));

        System.out.println("double: " + String.valueOf(doubleVal));

    }

}
```

```
Microsoft Windows [Version 10.0.19045.4780]
(c) Microsoft Corporation. All rights reserved.

E:\java cdac programm\Assignment4>javac 8.java

E:\java cdac programm\Assignment4>java PrimitiveToStringConversion
Using Wrapper Class toString Methods:
boolean: true
char: A
byte: 10
short: 100
int: 1000
long: 10000
float: 10.5
double: 100.123

Using String valueOf Methods:
boolean: true
char: A
byte: 10
short: 100
int: 1000
long: 10000
float: 10.5
double: 100.123

E:\java cdac programm\Assignment4>_
```

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).

```
class PrimitiveDefaultValues {

    boolean instanceBool;

    char instanceChar;

    byte instanceByte;

    short instanceShort;

    int instanceInt;

    long instanceLong;

    float instanceFloat;

    double instanceDouble;

    static boolean staticBool;

    static char staticChar;

    static byte staticByte;

    static short staticShort;
```

```java
static int staticInt;

static long staticLong;

static float staticFloat;

static double staticDouble;

public static void main(String[] args) {

    PrimitiveDefaultValues obj = new PrimitiveDefaultValues();


    System.out.println("Instance Variables:");

    System.out.println("boolean: " + obj.instanceBool);

    System.out.println("char: " + (int) obj.instanceChar); // char defaults to
'\u0000', which is 0

    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);
```

```java
        System.out.println("\nStatic Variables:");

        System.out.println("boolean: " + staticBool);

        System.out.println("char: " + (int) staticChar); // char defaults to
'\u0000', which is 0

        System.out.println("byte: " + staticByte);

        System.out.println("short: " + staticShort);

        System.out.println("int: " + staticInt);

        System.out.println("long: " + staticLong);

        System.out.println("float: " + staticFloat);

        System.out.println("double: " + staticDouble);

    }

}
```

```
nin E:\java cdac programm\Assignment4>javac 9 .java
error: invalid flag: 9
Usage: javac <options> <source files>
use --help for a list of possible options

E:\java cdac programm\Assignment4>javac 9.java

E:\java cdac programm\Assignment4>java PrimitiveDefaultValues
Instance Variables:
boolean: false
char: 0
byte: 0
short: 0
int: 0
long: 0
float: 0.0
double: 0.0

Static Variables:
boolean: false
char: 0
byte: 0
short: 0
int: 0
long: 0
float: 0.0
double: 0.0
```

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).

import java.util.Scanner;

public class ArithmeticOperation {

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the first integer: ");

        int num1 = scanner.nextInt();

```java
System.out.print("Enter the second integer: ");

int num2 = scanner.nextInt();

System.out.print("Enter an arithmetic operator (+, -, *, /): ");

char operator = scanner.next().charAt(0);

double result = 0;

boolean validOperation = true;

switch (operator) {

    case '+':

        result = num1 + num2;

        break;

    case '-':

        result = num1 - num2;

        break;

    case '*':

        result = num1 * num2;

        break;
```

```java
        case '/':

            if (num2 == 0) {

                System.out.println("Error: Division by zero is not allowed.");

                validOperation = false;

            } else {

                result = (double) num1 / num2;

            }

            break;

        default:

            System.out.println("Error: Invalid operator. Use +, -, *, or /.");

            validOperation = false;

            break;

    }

    if (validOperation) {

        System.out.printf("Result: %.2f%n", result);

    }
```
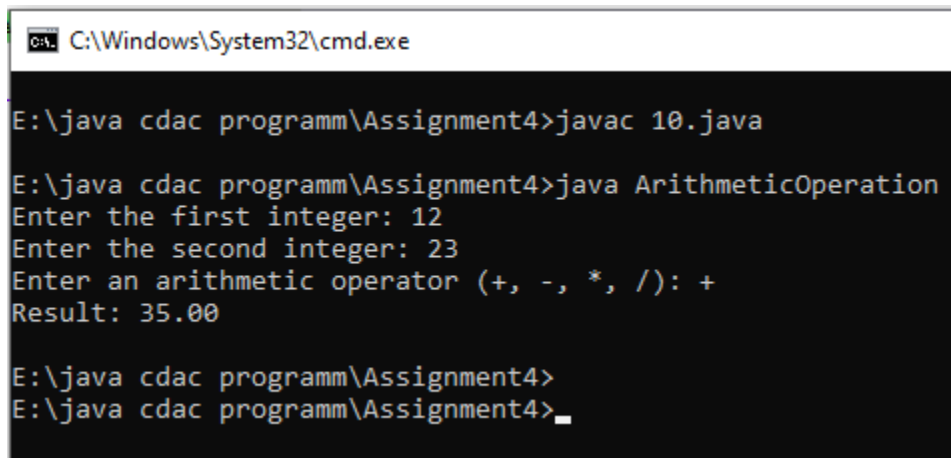
```
            scanner.close();


    }


}
```



```
C:\Windows\System32\cmd.exe

E:\java cdac programm\Assignment4>javac 10.java

E:\java cdac programm\Assignment4>java ArithmeticOperation
Enter the first integer: 12
Enter the second integer: 23
Enter an arithmetic operator (+, -, *, /): +
Result: 35.00

E:\java cdac programm\Assignment4>
E:\java cdac programm\Assignment4>_
```