**Assignment2**

**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. 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)).**

**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").**

**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)).**

**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)).**

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

**Program:**

**package Assignment;**

**public class Booleans {**

**private static boolean *True*;**

**static String *s1*;**

**static String *s2*="True";**

**static String *s3*="1";**

**static String *s4*="0";**

**static void Display()**

**{**

***s1* = Boolean.*toString*( true );**

**System.*out*.println("string:"+*s1*);**

**}**

**static void Display1()**

**{**

***True* = Boolean.*parseBoolean*(*s2*);**

**System.*out*.println("Boolean:" +*True*);**

**}**

**static void Display2()**

**{**

**Boolean boolean1 = Boolean.*parseBoolean*("s3");**

**boolean boolean2 = Boolean.*parseBoolean*("s4");**

**System.*out*.println("Boolean:" +boolean1);**

**System.*out*.println("Boolean:" +boolean2);**

**}**

**static void Display3()**

**{**

**boolean True1 =Boolean.*valueOf*("True");**

**System.*out*.println("Boolean:" +True1);**

**}**

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

**Booleans obj = new Booleans();**

**obj.*Display*();**

**obj.*Display1*();**

**obj.*Display2*();**

**obj.*Display3*();**

**}**

**}**

**Output:** **string:true**

**Boolean:true**

**Boolean:false**

**Boolean:false**

**Boolean:true**

**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).**

**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).**

**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)).**

**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)).**

**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)).**

**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)).**

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

**Program code:**

**package Assignment;**

**class Byte1 {**

**void Display()**

**{**

**System.*out*.println("Byte\t" + Byte.*SIZE* + "\t"**

**+ Byte.*MIN\_VALUE* + "\t"**

**+ Byte.*MAX\_VALUE*);**

**}**

**void Display1()**

**{**

**byte n=10;**

**String output = Byte.*toString*(n);**

**System.*out*.println("string is "+output);**

**}**

**void Display2()**

**{**

**String str="8";**

**int val=Byte.*parseByte*(str);**

**System.*out*.println(val);**

**}**

**void Display4()**

**{**

**byte a = 17;**

**Byte b = new Byte(a);**

**byte output = b.byteValue();**

**System.*out*.println("Byte value of "**

**+ a + " is : " + output);**

**}**

**public static void main(String[] args)**

**{**

**Byte1 obj = new Byte1();**

**obj.Display();**

**obj.Display1();**

**obj.Display2();**

**obj.Display4();**

**}**

**}**

**Output:**

**Byte 8 -128 127**

**string is 10**

**8**

**Byte value of 17 is : 17**

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

**a. Explore the** [**Java API documentation for java.lang.Short**](https://docs.oracle.com/javase/8/docs/api/java/lang/Short.html) **and observe its modifiers and super types.**

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

**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).**

**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)).**

**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)).**

**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).**

**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)).**

**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)).**

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

**Program code:**

**package Assignment;**

**public class Short1{**

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

**System.*out*.println("Bytes used by short: " + Short.*BYTES*);**

**System.*out*.println("Minimum value of short: " + Short.*MIN\_VALUE*);**

**System.*out*.println("Maximum value of short: " + Short.*MAX\_VALUE*);**

**short number = 123;**

**String numberStr = Short.*toString*(number);**

**System.*out*.println("Short as String: " + numberStr);**

**String strNumber = "200";**

**short number1 = Short.*parseShort*(strNumber);**

**System.*out*.println("Parsed short: " + number1);**

**String strNumber1 = "Ab12Cd3";**

**try {**

**short numbe1r = Short.*parseShort*(strNumber1);**

**System.*out*.println("Parsed short: " + number1);**

**} catch (NumberFormatException e) {**

**System.*out*.println("Invalid number format: " + e.getMessage());**

**}**

**short number2 = 150;**

**Short wrapperShort = Short.*valueOf*(number2);**

**System.*out*.println("Wrapper Short: " + wrapperShort);**

**String strNumber2 = "300";**

**Short wrapperShort1 = Short.*valueOf*(strNumber2);**

**System.*out*.println("Wrapper Short from String: " + wrapperShort1);**

**short shortNumber3 = 100;**

**int intNumber = shortNumber3;**

**System.*out*.println("short to int: " + intNumber);**

**long longNumber = shortNumber3;**

**System.*out*.println("short to long: " + longNumber);**

**double doubleNumber = shortNumber3;**

**System.*out*.println("short to double: " + doubleNumber);**

**int anotherInt = 250;**

**short anotherShort = (short) anotherInt;**

**System.*out*.println("int to short: " + anotherShort);**

**}**

**}**

**Output:**

**Bytes used by short: 2**

**Minimum value of short: -32768**

**Maximum value of short: 32767**

**Short as String: 123**

**Parsed short: 200**

**Invalid number format: For input string: "Ab12Cd3"**

**Wrapper Short: 150**

**Wrapper Short from String: 300**

**short to int: 100**

**short to long: 100**

**short to double: 100.0**

**int to short: 250**

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

**a. Explore the** [**Java API documentation for java.lang.Integer**](https://docs.oracle.com/javase/8/docs/api/java/lang/Integer.html) **and observe its modifiers and super types.**

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

**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).**

**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)).**

**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)).**

**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).**

**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)).**

**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)).**

**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)).**

**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)).**

**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)).**

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

**Program code:**

**package Assignment;**

**public class Integerr {**

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

**System.*out*.println("Bytes used by int: " + Integer.*BYTES*);**

**System.*out*.println("Minimum value of int: " + Integer.*MIN\_VALUE*);**

**System.*out*.println("Maximum value of int: " + Integer.*MAX\_VALUE*);**

**int number = 123;**

**String numberStr = Integer.*toString*(number);**

**System.*out*.println("Integer as String: " + numberStr);**

**String strNumber = "200";**

**int number1 = Integer.*parseInt*(strNumber);**

**System.*out*.println("Parsed int: " + number1);**

**String strNumber1 = "Ab12Cd3";**

**try {**

**int number2 = Integer.*parseInt*(strNumber1);**

**System.*out*.println("Parsed int: " + number2);**

**} catch (NumberFormatException e) {**

**System.*out*.println("Invalid number format: " + e.getMessage());**

**}**

**String strNumber2 = "300";**

**Integer wrapperInt2 = Integer.*valueOf*(strNumber2);**

**System.*out*.println("Wrapper Integer from String: " + wrapperInt2);**

**int num1 = 10;**

**int num2 = 20;**

**int sum = Integer.*sum*(num1, num2);**

**System.*out*.println("Sum: " + sum);**

**int num = 10;**

**int num3 = 20;**

**int min = Integer.*min*(num, num3);**

**int max = Integer.*max*(num, num3);**

**System.*out*.println("Minimum: " + min);**

**System.*out*.println("Maximum: " + max);**

**int number4 = 7;**

**String binary = Integer.*toBinaryString*(number4);**

**String octal = Integer.*toOctalString*(number4);**

**String hex = Integer.*toHexString*(number4);**

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

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

**System.*out*.println("Hexadecimal: " + hex);**

**int intNumber = 100;**

**long longNumber = intNumber;**

**System.*out*.println("int to long: " + longNumber);**

**double doubleNumber = intNumber;**

**System.*out*.println("int to double: " + doubleNumber);**

**short shortNumber = (short) intNumber;**

**System.*out*.println("int to short: " + shortNumber);**

**}**

**}**

**Output:**

**Bytes used by int: 4**

**Minimum value of int: -2147483648**

**Maximum value of int: 2147483647**

**Integer as String: 123**

**Parsed int: 200**

**Invalid number format: For input string: "Ab12Cd3"**

**Wrapper Integer from String: 300**

**Sum: 30**

**Minimum: 10**

**Maximum: 20**

**Binary: 111**

**Octal: 7**

**Hexadecimal: 7**

**int to long: 100**

**int to double: 100.0**

**int to short: 100**

**5. Working with java.lang.Long**

**a. Explore the** [**Java API documentation for java.lang.Long**](https://docs.oracle.com/javase/8/docs/api/java/lang/Long.html) **and observe its modifiers and super types.**

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

**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).**

**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)).**

**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)).**

**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).**

**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)).**

**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)).**

**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)).**

**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)).**

**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)).**

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

**Program code:**

**package Assignment;**

**public class LongAssignment{**

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

**System.*out*.println("Bytes used by long: " + Long.*BYTES*);**

**System.*out*.println("Minimum value of long: " + Long.*MIN\_VALUE*);**

**System.*out*.println("Maximum value of long: " + Long.*MAX\_VALUE*);**

**long number = 123456789L;**

**String numberStr = Long.*toString*(number);**

**System.*out*.println("Long as String: " + numberStr);**

**String strNumber = "987654321";**

**long number1 = Long.*parseLong*(strNumber);**

**System.*out*.println("Parsed long: " + number1);**

**String strNumber1 = "Ab12Cd3";**

**try {**

**long number2 = Long.*parseLong*(strNumber1);**

**System.*out*.println("Parsed long: " + number2);**

**} catch (NumberFormatException e) {**

**System.*out*.println("Invalid number format: " + e.getMessage());**

**}**

**long number3 = 123456L;**

**Long wrapperLong = Long.*valueOf*(number3);**

**System.*out*.println("Wrapper Long: " + wrapperLong);**

**String strNumber2 = "654321";**

**Long wrapperLong1 = Long.*valueOf*(strNumber2);**

**System.*out*.println("Wrapper Long from String: " + wrapperLong1);**

**long num1 = 1123L;**

**long num2 = 9845L;**

**long sum = Long.*sum*(num1, num2);**

**System.*out*.println("Sum: " + sum);**

**long num3 = 1122L;**

**long num4 = 5566L;**

**long min = Long.*min*(num3, num4);**

**long max = Long.*max*(num3, num4);**

**System.*out*.println("Minimum: " + min);**

**System.*out*.println("Maximum: " + max);**

**long number4 = 7L;**

**String binary = Long.*toBinaryString*(number4);**

**String octal = Long.*toOctalString*(number4);**

**String hex = Long.*toHexString*(number4);**

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

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

**System.*out*.println("Hexadecimal: " + hex);**

**long longNumber = 1000L;**

**int intNumber = (int) longNumber;**

**System.*out*.println("long to int: " + intNumber);**

**double doubleNumber = longNumber;**

**System.*out*.println("long to double: " + doubleNumber);**

**float floatNumber = longNumber;**

**System.*out*.println("long to float: " + floatNumber);**

**}**

**}**

**Output:**

**Bytes used by long: 8**

**Minimum value of long: -9223372036854775808**

**Maximum value of long: 9223372036854775807**

**Long as String: 123456789**

**Parsed long: 987654321**

**Invalid number format: For input string: "Ab12Cd3"**

**Wrapper Long: 123456**

**Wrapper Long from String: 654321**

**Sum: 10968**

**Minimum: 1122**

**Maximum: 5566**

**Binary: 111**

**Octal: 7**

**Hexadecimal: 7**

**long to int: 1000**

**long to double: 1000.0**

**long to float: 1000.0**

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

**a. Explore the** [**Java API documentation for java.lang.Float**](https://docs.oracle.com/javase/8/docs/api/java/lang/Float.html) **and observe its modifiers and super types.**

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

**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).**

**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)).**

**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)).**

**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).**

**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)).**

**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)).**

**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)).**

**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)).**

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

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

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

**Program code:**

**package Assignment;**

**public class Floatt {**

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

**System.*out*.println("Bytes used by float: " + Float.*BYTES*);**

**System.*out*.println("Minimum value of float: " + Float.*MIN\_VALUE*);**

**System.*out*.println("Maximum value of float: " + Float.*MAX\_VALUE*);**

**float number = 123.45f;**

**String numberStr = Float.*toString*(number);**

**System.*out*.println("Float as String: " + numberStr);**

**String strNumber1 = "987.654";**

**float number1 = Float.*parseFloat*(strNumber1);**

**System.*out*.println("Parsed float: " + number1);**

**String strNumber2 = "Ab12Cd3";**

**try {**

**float number2 = Float.*parseFloat*(strNumber2);**

**System.*out*.println("Parsed float: " + number2);**

**} catch (NumberFormatException e) {**

**System.*out*.println("Invalid number format: " + e.getMessage());**

**}**

**float number3 = 123.45f;**

**Float wrapperFloat = Float.*valueOf*(number3);**

**System.*out*.println("Wrapper Float: " + wrapperFloat);**

**String strNumber11 = "654.321";**

**Float wrapperFloat1 = Float.*valueOf*(strNumber11);**

**System.*out*.println("Wrapper Float from String: " + wrapperFloat1);**

**float num3 = 112.3f;**

**float num4 = 984.5f;**

**float sum = Float.*sum*(num3, num4);**

**System.*out*.println("Sum: " + sum);**

**float num1 = 112.2f;**

**float num2 = 556.6f;**

**float min = Float.*min*(num1, num2);**

**float max = Float.*max*(num1, num2);**

**System.*out*.println("Minimum: " + min);**

**System.*out*.println("Maximum: " + max);**

**float numbe = -25.0f;**

**double sqrt = Math.*sqrt*(numbe);**

**System.*out*.println("Square root: " + sqrt);**

**float num5 = 0.0f;**

**float num6 = 0.0f;**

**float result = num5 / num6;**

**System.*out*.println("Result of 0.0f / 0.0f: " + result);**

**float floatNumber = 123.45f;**

**int intNumber = (int) floatNumber;**

**System.*out*.println("float to int: " + intNumber);**

**double doubleNumber = floatNumber;**

**System.*out*.println("float to double: " + doubleNumber);**

**long longNumber = (long) floatNumber;**

**System.*out*.println("float to long: " + longNumber);**

**}**

**}**

**Output:**

**Bytes used by float: 4**

**Minimum value of float: 1.4E-45**

**Maximum value of float: 3.4028235E38**

**Float as String: 123.45**

**Parsed float: 987.654**

**Invalid number format: For input string: "Ab12Cd3"**

**Wrapper Float: 123.45**

**Wrapper Float from String: 654.321**

**Sum: 1096.8**

**Minimum: 112.2**

**Maximum: 556.6**

**Square root: NaN**

**Result of 0.0f / 0.0f: NaN**

**float to int: 123**

**float to double: 123.44999694824219**

**float to long: 123**

**and observe the results.**

**7. Working with java.lang.Double**

**a. Explore the** [**Java API documentation for java.lang.Double**](https://docs.oracle.com/javase/8/docs/api/java/lang/Double.html) **and observe its modifiers and super types.**

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

**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).**

**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)).**

**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)).**

**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).**

**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)).**

**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)).**

**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)).**

**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)).**

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

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

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

**program code:**

**package Assignment;**

**public class Doublee {**

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

**System.*out*.println("Bytes used by double: " + Double.*BYTES*);**

**System.*out*.println("Minimum value of double: " + Double.*MIN\_VALUE*);**

**System.*out*.println("Maximum value of double: " + Double.*MAX\_VALUE*);**

**double number = 123.456;**

**String numberStr = Double.*toString*(number);**

**System.*out*.println("Double as String: " + numberStr);**

**String strNumber = "987.654";**

**double number1 = Double.*parseDouble*(strNumber);**

**System.*out*.println("Parsed double: " + number1);**

**String strNumber1 = "Ab12Cd3";**

**try {**

**double number2 = Double.*parseDouble*(strNumber1);**

**System.*out*.println("Parsed double: " + number2);**

**} catch (NumberFormatException e) {**

**System.*out*.println("Invalid number format: " + e.getMessage());**

**}**

**double number3 = 123.456;**

**Double wrapperDouble = Double.*valueOf*(number3);**

**System.*out*.println("Wrapper Double: " + wrapperDouble);**

**String strNumber2 = "654.321";**

**Double wrapperDouble1 = Double.*valueOf*(strNumber2);**

**System.*out*.println("Wrapper Double from String: " + wrapperDouble1);**

**double num1 = 112.3;**

**double num2 = 984.5;**

**double sum = Double.*sum*(num1, num2);**

**System.*out*.println("Sum: " + sum);**

**double num3 = 112.2;**

**double num4 = 556.6;**

**double min = Double.*min*(num3, num4);**

**double max = Double.*max*(num3, num4);**

**System.*out*.println("Minimum: " + min);**

**System.*out*.println("Maximum: " + max);**

**double number5 = -25.0;**

**double sqrt = Math.*sqrt*(number5);**

**System.*out*.println("Square root: " + sqrt);**

**double num5 = 0.0;**

**double num6 = 0.0;**

**double result = num5 / num6;**

**System.*out*.println("Result of 0.0 / 0.0: " + result);**

**double doubleNumber = 123.456;**

**int intNumber = (int) doubleNumber;**

**System.*out*.println("double to int: " + intNumber);**

**float floatNumber = (float) doubleNumber;**

**System.*out*.println("double to float: " + floatNumber);**

**long longNumber = (long) doubleNumber;**

**System.*out*.println("double to long: " + longNumber);**

**}**

**}**

**Output:**

**Bytes used by double: 8**

**Minimum value of double: 4.9E-324**

**Maximum value of double: 1.7976931348623157E308**

**Double as String: 123.456**

**Parsed double: 987.654**

**Invalid number format: For input string: "Ab12Cd3"**

**Wrapper Double: 123.456**

**Wrapper Double from String: 654.321**

**Sum: 1096.8**

**Minimum: 112.2**

**Maximum: 556.6**

**Square root: NaN**

**Result of 0.0 / 0.0: NaN**

**double to int: 123**

**double to float: 123.456**

**double to long: 123**

**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()).**

**package Assignment;**

**import java.util.Scanner;**

**public class Primitivee {**

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

**Scanner sc = new Scanner(System.*in*);**

**System.*out*.print("Enter an int value: ");**

**int intValue = sc.nextInt();**

**System.*out*.print("Enter a float value: ");**

**float floatValue = sc.nextFloat();**

**System.*out*.print("Enter a double value: ");**

**double doubleValue = sc.nextDouble();**

**System.*out*.print("Enter a long value: ");**

**long longValue = sc.nextLong();**

**System.*out*.print("Enter a short value: ");**

**short shortValue = sc.nextShort();**

**System.*out*.print("Enter a byte value: ");**

**byte byteValue = sc.nextByte();**

**System.*out*.print("Enter a boolean value (true/false): ");**

**boolean booleanValue = sc.nextBoolean();**

**System.*out*.print("Enter a char value: ");**

**char charValue = sc.next().charAt(0);**

**System.*out*.println("\nUsing toString() method:");**

**System.*out*.println("int to String: " + Integer.*toString*(intValue));**

**System.*out*.println("float to String: " + Float.*toString*(floatValue));**

**System.*out*.println("double to String: " + Double.*toString*(doubleValue));**

**System.*out*.println("long to String: " + Long.*toString*(longValue));**

**System.*out*.println("short to String: " + Short.*toString*(shortValue));**

**System.*out*.println("byte to String: " + Byte.*toString*(byteValue));**

**System.*out*.println("boolean to String: " + Boolean.*toString*(booleanValue));**

**System.*out*.println("char to String: " + Character.*toString*(charValue));**

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

**System.*out*.println("int to String: " + String.*valueOf*(intValue));**

**System.*out*.println("float to String: " + String.*valueOf*(floatValue));**

**System.*out*.println("double to String: " + String.*valueOf*(doubleValue));**

**System.*out*.println("long to String: " + String.*valueOf*(longValue));**

**System.*out*.println("short to String: " + String.*valueOf*(shortValue));**

**System.*out*.println("byte to String: " + String.*valueOf*(byteValue));**

**System.*out*.println("boolean to String: " + String.*valueOf*(booleanValue));**

**System.*out*.println("char to String: " + String.*valueOf*(charValue));**

**sc.close();**

**}**

**}**

**Output:**

**Enter an int value: 42**

**Enter a float value: 12.34**

**Enter a double value: 54.23**

**Enter a long value: 1234567**

**Enter a short value: 25**

**Enter a byte value: 8**

**Enter a boolean value (true/false): true**

**Enter a char value: A**

**Using toString() method:**

**int to String: 42**

**float to String: 12.34**

**double to String: 54.23**

**long to String: 1234567**

**short to String: 25**

**byte to String: 8**

**boolean to String: true**

**char to String: A**

**Using String.valueOf() method:**

**int to String: 42**

**float to String: 12.34**

**double to String: 54.23**

**long to String: 1234567**

**short to String: 25**

**byte to String: 8**

**boolean to String: true**

**char to String: A**

**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).**

**Program code:**

**package Assignment;**

**public class DefaultPrimitiveValues {**

**int intValue;**

**float floatValue;**

**double doubleValue;**

**long longValue;**

**short shortValue;**

**byte byteValue;**

**boolean booleanValue;**

**char charValue;**

**static int *staticIntValue*;**

**static float *staticFloatValue*;**

**static double *staticDoubleValue*;**

**static long *staticLongValue*;**

**static short *staticShortValue*;**

**static byte *staticByteValue*;**

**static boolean *staticBooleanValue*;**

**static char *staticCharValue*;**

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

**DefaultPrimitiveValues obj = new DefaultPrimitiveValues();**

**System.*out*.println("Instance Variables (Default Values):");**

**System.*out*.println("int: " + obj.intValue);**

**System.*out*.println("float: " + obj.floatValue);**

**System.*out*.println("double: " + obj.doubleValue);**

**System.*out*.println("long: " + obj.longValue);**

**System.*out*.println("short: " + obj.shortValue);**

**System.*out*.println("byte: " + obj.byteValue);**

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

**System.*out*.println("char: [" + obj.charValue + "]");**

**System.*out*.println("\nStatic Variables (Default Values):");**

**System.*out*.println("int: " + *staticIntValue*);**

**System.*out*.println("float: " + *staticFloatValue*);**

**System.*out*.println("double: " + *staticDoubleValue*);**

**System.*out*.println("long: " + *staticLongValue*);**

**System.*out*.println("short: " + *staticShortValue*);**

**System.*out*.println("byte: " + *staticByteValue*);**

**System.*out*.println("boolean: " + *staticBooleanValue*);**

**System.*out*.println("char: [" + *staticCharValue* + "]");**

**}**

**}**

**Output:**

**Instance Variables (Default Values):**

**int: 0**

**float: 0.0**

**double: 0.0**

**long: 0**

**short: 0**

**byte: 0**

**boolean: false**

**char: []**

**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).**

**Program code:**

**package Assignment;**

**import java.util.Scanner;**

**public class ArithmeticOperations {**

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

**Scanner sc = new Scanner(System.*in*);**

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

**int num1 = sc.nextInt();**

**System.*out*.print("Enter the second number: ");**

**int num2 = sc.nextInt();**

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

**char operator = sc.next().charAt(0);**

**switch (operator) {**

**case '+':**

**System.*out*.println("Result: " + (num1 + num2));**

**break;**

**case '-':**

**System.*out*.println("Result: " + (num1 - num2));**

**break;**

**case '\*':**

**System.*out*.println("Result: " + (num1 \* num2));**

**break;**

**case '/':**

**if (num2 != 0) {**

**System.*out*.println("Result: " + (num1 / num2));**

**} else {**

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

**}**

**break;**

**default:**

**System.*out*.println("Error: Invalid operator entered.");**

**break;**

**}**

**sc.close();**

**}**

**}**

**Output:**

**Enter the first number: 10**

**Enter the second number: 5**

**Enter an arithmetic operator (+, -, \*, /): +**

**Result: 15**