South Louisiana Community College
ASDV 1220, Programming Fundamentals
Lab Arrays I

Learning Objectives

After completion of this lab, you should be able to

1. Understand array initialization.
2. Understand accessing and modifying array element.
3. Understand array traversal and array indexing.

Create project Lab16

Problem 1

Create a class **Array1**. Add the following code that creates 2 arrays. Array **myList1** which is declared and initialed (NOTE: the *new* operator is there and called indirectly) at declaration AND array **myList2** which is declared and THEN initialized.

```
1   package lab16;
2
3   public class Array1
4   {
5       public static void main( String... ar)
6       {
7           double[] myList1 = {1.1, 2.1, 3.1, 4
8           double[] myList2 = new double[4];
9
10
11          myList2[0] = -1.1;
12          myList2[1] = -2.1;
13          myList2[2] = -3.1;
14          myList2[3] = -4.1;
15
16
17          System.out.println( myList1[2] );
18          System.out.println( myList2[2] );
19      }
20  }
```

Problem 2

Create a class **Array2**. Inside its main() create 2 arrays, **names1** initialized at declaration to "John" "Bill" and "George" and **names2** using the operator **new and then** initialize it to "Mary", "Ann" and "Lola". Print the last element from both arrays.

Problem 3

Create a class **Array3**. Read the comments inside the cod and run the code that uses for-loops to initialize the array. The dot-**length** returns the number of elements in the array.

1.

```
1  package lab16;
2
3  public class Array3
4  {
5     public static void main(String[] args)
6     {
7      int[] values = new int[5];
8      //itialiaze array with the currect value of i plus the value
9      //of the of previous array element
10     for (int i = 1; i < values.length; i++)
11       values[i] = i + values[i-1];
12
13     //put in the first array element the 2nd plus the last array elements
14     values[0] = values[1] + values[values.length-1];
15
16     ///print the array
17     for (int i = 0; i < values.length; i++)
18         System.out.println( values[i] );
19   }
20 }
```

Problem 4

Create a class **Array4**. Create an array of of type integer and of size 33. Use a loop and initialize the array with 33 random values in the range 1 to 100. Print the array, 3 elements per line, where each of the 3 elements is separated by a whitespace.

Problem 5

Create a class **Array5**. Type and run the code below. An array of strings created with operator-new initializes its elements to null (nothing means null). Understand how lines 14, 15 initialize the array to values "index" + I + whitespace. Understand how lines 18, 19, 20 append 20 random characters to the elements of the array. SET a **breakpoint** at line 20 and use the debugger to TRACE the code and observe the array elements changing at each F&/F8 so you understand what's going on. If you are too lazy to do that, you will have difficulties to grow in programming. Become familiar with the Netbeans Debugger! The Debugger is your friend.

2.

```
1   package lab16;
2   public class Array5
3   {
4       public static void main(String[] args)
5       {
6        String[] alphaBetics = new String[5];
7        final int NAME_SIZE = 20;
8
9           //print the array that has all nulls
10       for (int i = 0; i < alphaBetics.length; i++)
11          System.out.println( alphaBetics[i] );
12
13          //initiaze the array to character-numbers
14       for (int i = 0; i < alphaBetics.length; i++)
15          alphaBetics[i] =  "index " + Integer.toString(i) + " ";
16
17          ///append to the array 20 random alphabetic characters
18       for (int i = 0; i < alphaBetics.length; i++)
19         for (int j = 0; j < NAME_SIZE; j++)
20             alphaBetics[i] += (char) ( 65 + Math.random() * 26 );
21
22          //print the array again
23       for (int i = 0; i < alphaBetics.length; i++)
24          System.out.println( alphaBetics[i] );
25    }
26  }
```

Problem 6

Create a class **Array6.** Create an array of type String with 10 elements. Initialize the array with exactly 3 random small case alphabetic characters. Print the array once, 10 elements per line separated by a whitespace. Print the array again but the charterers of each array element should be printed in reversed order. Separate each element from each other using a whitespace.

Problem 7

Create a class **Array7.** Write a program that reads from the user 5 whole numbers in the range 10 to 20 inclusively. Your program prints all the numbers the user entered plus the maximum number in the array together with its array index.