|  |  |
| --- | --- |
| **Date Assigned: 2/6/17** | **Date Due: 2/8/17** |
| **Unit:** Language Basics | **Turn In List:** **1. This document** |
| *“I will understand and implement arrays (or lists) in an application.”* | |

**Title: Arrays and Multidimensional Arrays**

**Content Objectives:** Students will familiarize themselves with creating, initializing, and editing arrays.

|  |
| --- |
| **Starter Activity** |
| Include code for creating an array (or list) of integers called nums and setting the values within the array to a range of numbers 0-9.  Int[] intArray = new int[9];  intArray[0] = 0;  intArray[1] = 1;  intArray[2] = 2;  intArray[3] = 3;  intArray[4] = 4;  intArray[5] = 5;  intArray[6] = 6;  intArray[7] = 7;  intArray[8] = 8;  intArray[9] = 9;  for (int i=0; i<intArray.length; i++) {  System.out.println(intArray[i]);  } |

|  |
| --- |
| **Assignment:** |
| Students will use the following websites and internet searches to complete the table below:  Java: <http://www.tutorialspoint.com/java/java_arrays.htm>  C++: <http://www.cplusplus.com/doc/tutorial/arrays/>  Python: <http://www.tutorialspoint.com/python/index.htm> Lists, tuples and dictionaries  C#: <http://www.tutorialspoint.com/csharp/csharp_arrays.htm> |

|  |  |
| --- | --- |
| **Include Sample Code Concepts Below (copy and paste lines from editor)** | |
| Include code for updating only the first position of the array in the starter activity to the value of 5 | arrList.set(5, newValue); |
| What is the syntax for printing the entire array in the starter activity | String[] array = new String[] {“0”,”1”,”2”,”3”,”4”,”5”,”6”,”7”,”8”,”9”};  System.out.println(Arrays.toString(array)); |
| What is the syntax for printing only the second position in the starter activity | List<String> alist = new ArrayList<String>();  Alist.add(“1”);  Alist.add(“2”);  (and so on till number 9)  String value = alist.get(1); |
| What is the syntax for creating an empty integer array (or list) named myList | New String[0] creates an empty array  Or  Private static final String[] EMPTY\_ARRAY = new String[0]; |
| What is the syntax for populating the myList array (or list) with sequential numbers 1-99 | Public class Array {  Public static void main(String[] args) {  Int I;  Int[] ar1 = new int[100];  For(int i = 0; i < ar1.length; i++) {  Ar1[i] = (int)(Math.random() \* 100);  System.out.println(ar1[i] + “ “);  }  }  } |
| What is the syntax for populating myList with random numbers | Hint: you may need an import or include statement…  Import java.util.Random;  Public class NumberList {  Private static double[] anArray;  Public static double[] list() {  anArray = new double[10];  for(int i=0;i<anArray.length;i++) {  anArray[i] = random(0,9);  }  return anArray;  } |
| What is the syntax for retrieving a random value from within an array or list | Hint: you may need an import or include statement…  Import java.util.Random;  Public static int getRandom(int[] array) {  Int rnd = new Random().nextInt(array.length);  Return array[rnd];  } |

Psuedocode an app that simulates a dice roll with at least one array (or list) called dice1 and allows the user to run it to produce a random value from dice.

|  |
| --- |
| I didn’t call it dice1 but instead used like frequency of the faces on a six sided die to land side up on that face. So you need to generate a random variable then use an array but I used an int array then used a for loop to use the array and such. |

Code an app that at least meets the requirements for the above psuedocode but also allows the user to select a set number of dice to roll. Try creating a method to simulate the dice roll.

|  |
| --- |
| Import java.util.Random;  Public class DiceGame {  Public static void main(String[] args) {  Random rand = new Random();  Int freq[] = new int[7];  For(int roll = 1; roll < 100; roll++) {  ++freq[1 + rand.nextInt(6)];  }  System.out.println(“Face\tFrequency”);  For(int face = 1; face < freq.length; face++) {  System.out.println(face + “\t” + freq[face]);  }  } |
| } |