|  |  |
| --- | --- |
| **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.  list = [1, 2, 3, 4, 5, 6, 7, 8, 9]  print list1 |

|  |
| --- |
| **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 | list = [1, 2, 3, 4, 5, 6, 7, 8, 9]  list[0]=5;  print list |
| What is the syntax for printing the entire array in the starter activity | print list |
| What is the syntax for printing only the second position in the starter activity | list = [1, 2, 3, 4, 5, 6, 7, 8, 9]  print list[1] |
| What is the syntax for creating an empty integer array (or list) named myList | list = [1, 2, 3, 4, 5, 6, 7, 8, 9]  myList = []  print myList |
| What is the syntax for populating the myList array (or list) with sequential numbers 1-99 | list = [int,]\*99  i = 0  while i<99:  list[i]= i+1  i += 1  print list |
| What is the syntax for populating myList with random numbers | from random import randint  list =[randint(1,10)] |
| What is the syntax for retrieving a random value from within an array or list | from random import randint  list =[randint(1,10)]  print list |

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.

|  |
| --- |
| Make a list called dice1, import random int. 1 through 6, then type print dice1 |

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 random  import sys  dicenum = input("How many dice do you want to roll? ")  #if(not(dicenum.isdigit())):  #print("This is not a valid input")  #sys.exit()  if (int(dicenum) <= 0 or int(dicenum)>= 100):  print("This is not a valid number of dice")  sys.exit()  dicesides = input("how many sides on the dice? ")  #if (not(dicesides.isdigit())):  #print("This is not a valid input")  #sys.exit()  if (int(dicesides) <=3 or int(dicesides) >=31):  print("This is not a valid number of sides")  sys.exit()  dicearray = []  dice = []  resultnums = []    for i in range(0,int(dicesides)):  dice.insert(i,i+1)  for i in range(0,int(dicenum)):  dicearray.insert(i,dice)  for i in range(0,len(dicearray)):  result = random.randint(0,int(dicesides)-1)  resultnums.insert(i,dicearray[i][result])  print("Here are you lucky numbers: ", str(resultnums)[1:-1]) |