LAB 02: Types and Objects

CS211 – Data Structures and Algorithms  
Usman Institute of Technology  
Fall 2019

* **How to submit:**
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**CS Section A**

* + - Class ID: 22664649
    - Enrollment Key: DSFALL19CSA

**CS Section B**

* + - Class ID: 22664651
    - Enrollment Key: DSFALL19CSB

1. **Create a two dimensions array in python using the following method and write following function**

arr = [ [0] \* cols] \* rows

* 1. Write a function **SetValues** to set the following values in the two dimensions array
  2. Write a function to **PrintValues** print the two dimension array.

1. **Create a two dimensions array in python using the following method and write following function**

arr = [ [0 for i in range(cols)] for j in range(rows)]

* 1. Write a function **SetValues** to set the following values in the two dimensions array
  2. Write a function to **PrintValues** print the two dimension array.

1. **Create a class Array which takes two parameters to initialize: rows and cols and write functions in Python whose parameters and return value are given below.**
2. Add a constructor of the class must initialize a list containing rows \* cols element. All element must be declared 0 by default.

**class** **Array**:

**def** **\_\_init\_\_**(self, rows, cols):

// your code goes here

1. Add a function **SetValues** which takes three prameters i, j and v, for row, column, and value respectively. The function set the value at ith row and jth column. The function is supposed to convert these two dimension value into a linear dimension.

The following equation can be used for conversion:

Location = i \* R + j (memory addresses have been omitted from the equation)

**def** **SetValues**():

// your code goes here

Example: Matrix A = , Matrix B =

1. Add a function GetValue which takes two parameters i and j and returns the value for ith row and jth column. You have to convert two dimensional values into a single dimension value.
2. The class should also have a function **PrintValues**() that print the values of the array in Row and Column format.

**def** **PrintValues**():

// your code goes here

Example: Matrix A = , Matrix B =

1. Add a function **Max()** that returns the maximum value in the array.

**def** **Max**():

// your code goes here

Example: Matrix A =

Maximum value = 9

1. Add a function **AddValues()** that takes two parameters array1 and array2 and returns a matrix containing sum of two given matrices.

**def** **AddValues**(array1, array2):

// your code goes here

1. Add a function **SubValues()** that takes two parameters array1 and array2 and returns a matrix containing difference of two given matrices.

**def** **SubValues**():

// your code goes here