LAB QUIZ 02 (SECTION SE B)

CS211 – Data Structures & Algorithms  
Usman Institute of Technology  
Fall 2020

1. Create a class **Matrix** and write functions in python whose return values are given below. You can use the following script and add the functions in the script given below:
2. Add a function **GetLeftDiagonal**, that returns the values of only left diagonal from the matrix. (You are not allowed to use any built-in function of matrix diagonal)
3. Add a function **SumLeftDiagonal,**  that returns the sum of the values of left diagonal from the matrix. (You are not allowed to use any built-in function of matrix diagonal)
4. Add a function **SearchValue**, that takes an argument *value*  and returns the index of the value from the matrix. The function should return the index by converting the two dimension value into a single dimension. It should return -1 if the value doesn’t exist.

**class Matrix:**

**def \_\_init\_\_(self,row,col):**

**self.row = row**

**self.col = col**

**self.data = [0 for i in range(row\*col)]**

**def Location(self,i,j):**

**l = i \* self.col + j**

**return l**

**def SetValue(self,i,j,v):**

**l = self.Location(i,j)**

**self.data[l] = v**

**def GetValue(self,i,j):**

**l = self.Location(i,j)**

**return self.data[l]**

**def Print(self):**

**for i in range(self.row):**

**for j in range(self.col):**

**print(self.GetValue(i,j), end = " ")**

**print('\n')**

**def** **GetLeftDiagonal**(self):

// your code goes here

**def** **SumLeftDiagonal**(self):

// your code goes here

**def** **SearchValue**(self,value):

// your code goes here

**Example:**

row = 3

col = 3

obj = Matrix(row,col)

for i in range(row):

for j in range(col):

obj.SetValue(i,j,i+j)

obj.Print()

print(obj.GetLeftDiagonal())

print(obj.SumLeftDiagonal())

print(obj.SearchValue(4))

**Output:**

0 1 2  
1 2 3

2 3 4

#left diagonal

0 2 4

#sum of left diagonal

6

#Search value 4 in matrix

8 (should return 8 after converting into linear dimension)