

Assignment 8 Solutions

1. Write a Python Program to Add two Matrices ?

```
In [1]: def addMatrices(a,b):
        print(f'Inputs: {a},{b}')
        if len(a) == len(b):
            out_matrix = []
            for ele in range(len(a)):
                if len(a[ele]) == len(b[ele]):
                    out_matrix.append([])
                    for sub_ele in range(len(a[ele])):
                        out_matrix[ele].append(a[ele][sub_ele]+b[ele][sub_ele])
                else:
                    print('Both Matrices must contains same no of rows and columns')
        else:
            print('Both Matrices must contains same no of rows and columns')
        print(f'Output: {out_matrix}')
```

```
addMatrices([[1,2,3],[4,5,6],[7,8,9]],[[9,8,7],[6,5,4],[3,2,1]])
addMatrices([[2,3,5],[1,1,1],[2,2,2]],[[4,3,5],[1,2,3],[3,2,1]])
```

Inputs: [[1, 2, 3], [4, 5, 6], [7, 8, 9]],[[9, 8, 7], [6, 5, 4], [3, 2, 1]]
 Output: [[10, 10, 10], [10, 10, 10], [10, 10, 10]]
 Inputs: [[2, 3, 5], [1, 1, 1], [2, 2, 2]],[[4, 3, 5], [1, 2, 3], [3, 2, 1]]
 Output: [[6, 6, 10], [2, 3, 4], [5, 4, 3]]

2. Write a Python Program to Multiply two Matrices ?

```
In [2]: a = [[1,2,3],[4,5,6],[7,8,9]]
        b = [[1,4,7],[2,5,8],[3,6,9]]

        def multiply_matrice(a,b):
            output = []
            if len(a[0]) == len(b):
                for ele in range(len(a[0])):
                    output.append([0 for ele in range(len(b[0]))])
                for i in range(len(a)):
                    for j in range(len(b[0])):
                        for k in range(len(b)):
                            output[i][j] += a[i][k]*b[k][j]
                print(output)
            else:
                print('Matrix Multiplication is Not Possible')
```

```
multiply_matrice(a,b)
```

```
[[14, 32, 50], [32, 77, 122], [50, 122, 194]]
```

3. Write a Python Program to transpose a Matrix ?

```
In [3]: a = [[1,2,3],[4,5,6],[7,8,9]]
b = [[1,2],[4,5],[7,8]]
c = [[1,2,3],[4,5,6]]

def generate_transpose(in_matrix):
    out_matrix = []
    for ele in range(len(in_matrix[0])):
        out_matrix.append([0 for i in range(len(in_matrix))])
    for i in range(len(in_matrix)):
        for j in range(len(in_matrix[i])):
            out_matrix[j][i] = in_matrix[i][j]
    print(f'{in_matrix} -> {out_matrix}')

generate_transpose(a)
generate_transpose(b)
generate_transpose(c)
```

[[1, 2, 3], [4, 5, 6], [7, 8, 9]] -> [[1, 4, 7], [2, 5, 8], [3, 6, 9]]
[[1, 2], [4, 5], [7, 8]] -> [[1, 4, 7], [2, 5, 8]]
[[1, 2, 3], [4, 5, 6]] -> [[1, 4], [2, 5], [3, 6]]

4. Write a Python Program to sort Words in an Alphabetical Order ?

```
In [4]: def sortString():
    in_string = input("Enter a String: ").title()
    sorted_list = sorted(in_string.split(' '))
    print(' '.join(sorted_list))

sortString()
```

Enter a String: Ineuron Full Stack Data Sciečne
Data Full Ineuron Sciečne Stack

5. Write a Python Program to remove Punctuations From a String ?

```
In [5]: def removePunctuations():
    punctuations = '!()-[]{};:~"\\',<>./?@#$$%^&*~''''
    in_string = input('Enter a String: ')
    out_string = ''
    for ele in in_string:
        if ele not in punctuations:
            out_string += ele
    print(out_string)

removePunctuations()
```

Enter a String: "Full Stacks DS" @ Ineuron
Full Stacks DS Ineuron

