BASIC PHYTON ASSIGNMENT 8

#1. Write a Python Program to Add Two Matrices?

```
def add_matrices(matrix1, matrix2):
    """
    This function will return the the addition of two matrices
    """
    try:
        result = [[0 for _ in range(len(matrix1[0]))] for _ in range(len(matrix1))]

        for i in range(len(matrix1)):
            for j in range(len(matrix2)):
                result[i][j] = matrix1[i][j] + matrix2[i][j]

        return result

    except Exception as e:
        print("\nSome Exception has occurred...!! Exception is: ",e)


try:
    rows = int(input("Enter number of rows: "))
    columns = int(input("Enter number of columns: "))

    print("\n")
    matrix1 = [[int(input(f"Element[{i}][{j}] for Matrix1: ")) for j in range(columns)] for i in
range(rows)]

    print("\n")
    matrix2 = [[int(input(f"Element[{i}][{j}] for Matrix2: ")) for j in range(columns)] for i in
range(rows)]

    print("\nMatrix1: ")
    for row in matrix1:
        print(row)

    print("\nMatrix2: ")
    for row in matrix2:
        print(row)

    result = add_matrices(matrix1, matrix2)

    print("\nAddition of matrix1 and matrix2: ")
```

```
    for row in result:
        print(row)

except Exception as e:
    print("\nSome Exception has occurred...!! Exception is: ",e)
```

```
Enter number of rows: 3
Enter number of columns: 3


Element[0][0] for Matrix1: 1
Element[0][1] for Matrix1: 2
Element[0][2] for Matrix1: 3
Element[1][0] for Matrix1: 4
Element[1][1] for Matrix1: 5
Element[1][2] for Matrix1: 6
Element[2][0] for Matrix1: 7
Element[2][1] for Matrix1: 8
Element[2][2] for Matrix1: 9


Element[0][0] for Matrix2: 9
Element[0][1] for Matrix2: 8
Element[0][2] for Matrix2: 7
Element[1][0] for Matrix2: 6
Element[1][1] for Matrix2: 5
Element[1][2] for Matrix2: 4
Element[2][0] for Matrix2: 3
Element[2][1] for Matrix2: 2
Element[2][2] for Matrix2: 1

Matrix1:
[1, 2, 3]
[4, 5, 6]
[7, 8, 9]

Matrix2:
[9, 8, 7]
[6, 5, 4]
[3, 2, 1]

Addition of matrix1 and matrix2:
[10, 10, 10]
[10, 10, 10]
```

[10, 10, 10]

In [30]:

#2. Write a Python Program to Multiply Two Matrices?

```
def multiply_matrices(matrix1, matrix2):
    """
    This function will return the multiplication of two matrices
    """
    try:
        result = [[sum(a*b for a,b in zip(m1_row, m2_col)) for m2_col in zip(*matrix2)] for m1_row
in matrix1]
        return result

    except Exception as e:
        print("\nSome Exception has occurred...!! Exception is: ",e)

try:
    row1 = int(input("Enter number of rows for Matrix1: "))
    column1 = int(input("Enter number of columns for Matrix1: "))

    print("\n")
    matrix1 = [[int(input(f"Element[{i}][{j}] for Matrix1: ")) for j in range(column1)] for i in
range(row1)]

    row2 = int(input("\nEnter number of rows for Matrix2: "))
    column2 = int(input("Enter number of columns for Matrix2: "))

    print("\n")
    matrix2 = [[int(input(f"Element[{i}][{j}] for Matrix1: ")) for j in range(column2)] for i in
range(row2)]

    print("\nMatrix1: ")
    for row in matrix1:
        print(row)

    print("\nMatrix2: ")
    for row in matrix2:
        print(row)

    if column1 == row2:
        result = multiply_matrices(matrix1, matrix2)

        print("\nMultiplication of Matrix1 and Matrix2: ")
        for row in result:
```

```
            print(row)
    else:
        print("\nMultiplication not possible..!!")

except Exception as e:
    print("\nSome Exception has occurred...!! Exception is: ",e)
```

```
Enter number of rows for Matrix1: 2
Enter number of columns for Matrix1: 2


Element[0][0] for Matrix1: 1
Element[0][1] for Matrix1: 2
Element[1][0] for Matrix1: 3
Element[1][1] for Matrix1: 4

Enter number of rows for Matrix2: 2
Enter number of columns for Matrix2: 2


Element[0][0] for Matrix1: 5
Element[0][1] for Matrix1: 6
Element[1][0] for Matrix1: 7
Element[1][1] for Matrix1: 8

Matrix1:
[1, 2]
[3, 4]

Matrix2:
[5, 6]
[7, 8]

Multiplication of Matrix1 and Matrix2:
[19, 22]
[43, 50]
```

In [36]:

#3. Write a Python Program to Transpose a Matrix?

```
def transpose_matrix(matrix):
    """
    This function will return the transpose of a matrix
    """
```

```
    try:
        result = [[matrix[rows][cols] for rows in range(len(matrix))] for cols in
range(len(matrix[0]))]
        return result
    except Exception as e:
        print("\nSome Exception has occurred...!! Exception is: ",e)


try:
    rows = int(input("Enter number of rows: "))
    columns = int(input("Enter number of columns: "))

    print("\n")
    matrix = [[int(input(f"Element[{i}][{j}] for Matrix1: ")) for j in range(columns)] for i in
range(rows)]

    print("\nOriginal Matrix: ")
    for row in matrix:
        print(row)

    result = transpose_matrix(matrix)

    print("\nTranspose of Matrix: ")
    for row in result:
        print(row)

except Exception as e:
    print("\nSome Exception has occurred...!! Exception is: ",e)
```

```
Enter number of rows: 2
Enter number of columns: 3


Element[0][0] for Matrix1: 1
Element[0][1] for Matrix1: 2
Element[0][2] for Matrix1: 3
Element[1][0] for Matrix1: 4
Element[1][1] for Matrix1: 5
Element[1][2] for Matrix1: 6

Original Matrix:
[1, 2, 3]
[4, 5, 6]
```

Transpose of Matrix:
[1, 4]
[2, 5]
[3, 6]

In [43]:

#4. Write a Python Program to Sort Words in Alphabetic Order?

```
def sort_words(string):
    """
    This function will sort words in alphabetic order and return list of words
    """
    try:
        words = [word.lower() for word in string.split()]
        words.sort()
        return words
    except Exception as e:
        print("\nSome Exception has occurred...!! Exception is: ",e)
try:
    string = input("Enter the string: ")
    print("\nOriginal String: \n" + string)

    result = sort_words(string)
    print("\nAfter Sorting: \n")
    for word in result:
        print(word)

except Exception as e:
    print("\nSome Exception has occurred...!! Exception is: ",e)
```

Enter the string: Hello good Morning This Is Akhand Pratap Singh from Full Stack data Science b
atch

Original String:
Hello good Morning This Is Akhand Pratap Singh from Full Stack data Science batch

After Sorting:

akhand
batch
data
from
full
good
hello

```
is
morning
pratap
science
singh
stack
this
```

In [42]:

#5. Write a Python Program to Remove Punctuation From a String?

```
punctuations = '''!()-[]{};:'"\,<>./?@#$%^&*_~'''
def remove_punctuations(string):
    """
    This function will return the string after removing punctuations from the string
    """
    try:
        result = ""
        for char in string:
            if char not in punctuations:
                result += char

        return result

    except Exception as e:
        print("\nSome Exception has occurred...!! Exception is: ",e)


try:
    string = input("Enter the string: ")
    print("\nOriginal String: \n" + string)

    result = remove_punctuations(string)
    print("\nAfter removing punctuations: \n" + result)
except Exception as e:
    print("\nSome Exception has occurred...!! Exception is: ",e)
```

```
Enter the string: Hello..!! Good Morning All, Hope You all will doing great..--!!? Good Bye //

Original String:
Hello..!! Good Morning All, Hope You all will doing great..--!!? Good Bye //

After removing punctuations:
Hello Good Morning All Hope You all will doing great Good Bye
```

In [ ]: