S.No: 14	Exp. Name: ***Write a Python program to perform addition of two matrices***	Date:2024-05-07

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Aim:

Write a **Python** program to find addition of two matrices.

Sample Input and Output-1:

```
Number of rows for matrix - A, m = 2
Number of columns for matrix - A, n = 3
Number of rows for matrix - B, p = 2
Number of columns for matrix - B, q = 3
Enter values for matrix - A
Entry in row: 1 column: 1
Entry in row: 1 column: 2
Entry in row: 1 column: 3
Entry in row: 2 column: 1
Entry in row: 2 column: 2
Entry in row: 2 column: 3
Enter values for matrix - B
Entry in row: 1 column: 1
Entry in row: 1 column: 2
Entry in row: 1 column: 3
Entry in row: 2 column: 1
Entry in row: 2 column: 2
Entry in row: 2 column: 3
Matrix a = [[11, 22, 33], [44, 55, 66]]
Matrix b = [[1, 2, 3], [4, 5, 6]]
Addition of two matrices = [[12, 24, 36], [48, 60, 72]]
```

Sample Input and Output-2:

```
Number of rows for matrix - A, m = 2
Number of columns for matrix - A, n = 2
Number of rows for matrix - B, p = 2
Number of columns for matrix - B, q = 3
Addition is not possible
```

Source Code:

Lab11b.py

```
m = int(input('Number of rows for matrix - A, m = '))
n = int(input('Number of columns for matrix - A, n = '))
p = int(input('Number of rows for matrix - B, p = '))
q = int(input('Number of columns for matrix - B, q = '))
if m==p and n==q:
   matrixa=[]
   matrixb=[]
   result=[]
   for i in range(0,m):
      matrixa+=[0]
      matrixb+=[0]
      result+=[0]
   for i in range(0,m):
      matrixa[i]=[0]*n
```

```
      matrixb[i]=[0]*n
      result[i]=[0]*n
   print("Enter values for matrix - A")
   for i in range(0,m):
      for j in range(0,n):
         print("Entry in row:",i+1,"column:",j+1)
         matrixa[i][j]=int(input())
   print("Enter values for matrix - B")
   for i in range(0,m):
      for j in range(0,n):
         print("Entry in row:",i+1,"column:",j+1)
         matrixb[i][j]=int(input())
   for i in range(len(matrixa)):
      for j in range(len(matrixa[0])):
         result[i][j]=matrixa[i][j]+matrixb[i][j]
   print("Matrix a =",matrixa)
   print("Matrix b =",matrixb)
   print("Addition of two matrices =",result)
else:
   print("Addition is not possible")
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Number of rows for matrix - A, m = 2
Number of columns for matrix - A, n = 3
Number of rows for matrix - B, p = 2
Number of columns for matrix - B, q = 3
Enter values for matrix - A 11
Entry in row: 1 column: 1 11
Entry in row: 1 column: 2 22
Entry in row: 1 column: 3 33
Entry in row: 2 column: 1 44
Entry in row: 2 column: 2 55
Entry in row: 2 column: 3 66
Enter values for matrix - B 1
Entry in row: 1 column: 1 1
Entry in row: 1 column: 2 2
Entry in row: 1 column: 3 3
Entry in row: 2 column: 1 4
Entry in row: 2 column: 2 5
Entry in row: 2 column: 3 6
Matrix a = [[11, 22, 33], [44, 55, 66]]
Matrix b = [[1, 2, 3], [4, 5, 6]]
Addition of two matrices = [[12, 24, 36], [48, 60, 72]]

Test Case - 2
User Output
Number of rows for matrix - A, m = 2
Number of columns for matrix - A, n = 2

Number of rows for matrix - B, p = 2
Number of columns for matrix - B, q = 3
Addition is not possible

Test Case - 3
User Output
Number of rows for matrix - A, m = 2
Number of columns for matrix - A, n = 2
Number of rows for matrix - B, p = 2
Number of columns for matrix - B, q = 2
Enter values for matrix - A 1
Entry in row: 1 column: 1 1
Entry in row: 1 column: 2 2
Entry in row: 2 column: 1 3
Entry in row: 2 column: 2 4
Enter values for matrix - B 1
Entry in row: 1 column: 1 1
Entry in row: 1 column: 2 2
Entry in row: 2 column: 1 3
Entry in row: 2 column: 2 4
Matrix a = [[1, 2], [3, 4]]
Matrix b = [[1, 2], [3, 4]]
Addition of two matrices = [[2, 4], [6, 8]]

Test Case - 4
User Output
Number of rows for matrix - A, m = 3
Number of columns for matrix - A, n = 3
Number of rows for matrix - B, p = 3
Number of columns for matrix - B, q = 3
Enter values for matrix - A 1
Entry in row: 1 column: 1 1
Entry in row: 1 column: 2 2
Entry in row: 1 column: 3 3
Entry in row: 2 column: 1 4
Entry in row: 2 column: 2 5
Entry in row: 2 column: 3 6
Entry in row: 3 column: 1 7
Entry in row: 3 column: 2 8
Entry in row: 3 column: 3 9
Enter values for matrix - B 9
Entry in row: 1 column: 1 9
Entry in row: 1 column: 2 8
Entry in row: 1 column: 3 7
Entry in row: 2 column: 1 6
Entry in row: 2 column: 2 5
Entry in row: 2 column: 3 4
Entry in row: 3 column: 1 3
Entry in row: 3 column: 2 2
Entry in row: 3 column: 3 1
Matrix a = [[1, 2, 3], [4, 5, 6], [7, 8, 9]]

```
Matrix b = [[9, 8, 7], [6, 5, 4], [3, 2, 1]]
Addition of two matrices = [[10, 10, 10], [10, 10, 10], [10, 10, 10]]
```