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Q1

```
def create2darray(rows, col):
  array = []
  for i in range(rows):
     row = []
     for j in range(col):
        value = int(input(f"Enter value for row {i+1}, column {j+1}: "))
        row.append(value)
     array.append(row)
  return array

def print2darray(array):
  for row in array:
     print(row)

rows = int(input("Enter rows: "))
col = int(input("Enter columns: "))

matrix = create2darray(rows, col)

print("The 2D array is:")
print2darray(matrix)
```

```
The 2D array is:
[1, 2, 3, 4, 5, 6, 7, 8, 9]
[2, 4, 6, 8, 10, 12, 14, 16, 18]
[3, 6, 9, 12, 15, 18, 21, 24, 27]
[4, 8, 12, 16, 20, 24, 28, 32, 36]
[5, 10, 15, 20, 25, 30, 35, 40, 45]
[6, 12, 18, 24, 30, 36, 42, 48, 54]
[7, 14, 21, 28, 35, 42, 49, 56, 63]
[8, 16, 24, 32, 40, 48, 56, 64, 72]
[9, 18, 27, 36, 45, 54, 63, 72, 81]
```

Q2

```
def create2darray(rows, cols):
  array = []
```

```
  for i in range(rows):
      row = []
      for j in range(cols):
          value = int(input(f"Enter value for row {i+1}, column {j+1}: "))
          row.append(value)
      array.append(row)
  return array

def print2darray(array):
  for row in array:
      print(row)

def computesum2darray(array):
  totalsum = 0
  for row in array:
      totalsum += sum(row)
  return totalsum

rows = int(input("Enter rows: "))
cols = int(input("Enter columns: "))

matrix = create2darray(rows, cols)

print("The 2D array is:")
print2darray(matrix)

totalsum = computesum2darray(matrix)
print(f"The sum of all elements: {totalsum}")
```

```
Enter rows: 2
Enter columns: 2
Enter value for row 1, column 1: 1
Enter value for row 1, column 2: 2
Enter value for row 2, column 1: 3
Enter value for row 2, column 2: 4
The 2D array is:
[1, 2]
[3, 4]
The sum of all elements: 10
>
```

Q3

```
def multiplymatrices(matrix1, matrix2):
  rows1 = len(matrix1)
  cols1 = len(matrix1[0])
```

```
  rows2 = len(matrix2)
  cols2 = len(matrix2[0])

  if cols1 != rows2:
     print("Number of columns in the first matrix must be equal to the number of rows in the second
matrix.")
     return None

  result = [[0 for _ in range(cols2)] for _ in range(rows1)]

  for i in range(rows1):
     for j in range(cols2):
        for k in range(cols1):
           result[i][j] += matrix1[i][k] * matrix2[k][j]

  return result

def inputmatrix(rows, cols):
  matrix = []
  for i in range(rows):
     row = []
     for j in range(cols):
        element = float(input(f"Enter element ({i+1}, {j+1}): "))
        row.append(element)
     matrix.append(row)
  return matrix

def printmatrix(matrix):
  for row in matrix:
     print(row)

def main():
  rows1 = int(input("Enter the number of rows for the first matrix: "))
  cols1 = int(input("Enter the number of columns for the first matrix: "))
  print("Enter elements for the first matrix:")
  matrix1 = inputmatrix(rows1, cols1)

  rows2 = int(input("Enter the number of rows for the second matrix: "))
  cols2 = int(input("Enter the number of columns for the second matrix: "))
  print("Enter elements for the second matrix:")
  matrix2 = inputmatrix(rows2, cols2)

  print("\nMatrix 1:")
  printmatrix(matrix1)
  print("\nMatrix 2:")
  printmatrix(matrix2)

  result = multiplymatrices(matrix1, matrix2)
```

```
  if result:
     print("\nResult of multiplication:")
     printmatrix(result)
main()
```

```
Enter the number of rows for the first matrix: 2
Enter the number of columns for the first matrix: 2
Enter elements for the first matrix:
Enter element (1, 1): 1
Enter element (1, 2): 2
Enter element (2, 1): 3
Enter element (2, 2): 4
Enter the number of rows for the second matrix: 2
Enter the number of columns for the second matrix: 2
Enter elements for the second matrix:
Enter element (1, 1): 1
Enter element (1, 2): 2
Enter element (2, 1): 3
Enter element (2, 2): 4

Matrix 1:
[1.0, 2.0]
[3.0, 4.0]

Matrix 2:
[1.0, 2.0]
[3.0, 4.0]

Result of multiplication:
[7.0, 10.0]
[15.0, 22.0]
```


Q4

```
foodconsumption = [[0] * 7 for _ in range(3)]


for i in range(3):
   print(f"Enter the food consumption data for monkey {i + 1}:")
   for j in range(7):
      foodconsumption[i][j] = float(input(f"Day {j + 1}: "))

averagefood = [sum(row) / 7 for row in foodconsumption]
```

```
leastfood = min(min(row) for row in foodconsumption)
greatestfood = max(max(row) for row in foodconsumption)


print("\nReport:")
for i in range(3):
    print(f"Monkey {i + 1}: Average food consumption: {averagefood[i]} pounds")
print(f"Least amount of food eaten during the week by any one monkey: {leastfood} pounds")
print(f"Greatest amount of food eaten during the week by any one monkey: {greatestfood} pounds")
```

```
Enter the food consumption data for monkey 2:
Day 1: 1
Day 2: 2
Day 3: 3
Day 4: 4
Day 5: 5
Day 6: 6
Day 7: 7
Enter the food consumption data for monkey 3:
Day 1: 1
Day 2: 2
Day 3: 3
Day 4: 4
Day 5: 5
Day 6: 6
Day 7: 7

Report:
Monkey 1: Average food consumption: 4.0 pounds
Monkey 2: Average food consumption: 4.0 pounds
Monkey 3: Average food consumption: 4.0 pounds
Least amount of food eaten during the week by any one monkey: 1.0 pounds
Greatest amount of food eaten during the week by any one monkey: 7.0 pounds
>
```