Name: Shubham S. Yadav

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Matrix Multiplication

In [1]:
```
def matrixMul(arr1, arr2):

    arr3 = [[0 for i in range(len(arr2[0]))]
            for i in range(len(arr1))]

    for i in range(len(arr1)):
        for j in range(len(arr2[0])):
            for k in range(len(arr2)):
                arr3[i][j] += arr1[i][k] * arr2[k][j]
    return arr3


mat1 = [[1, 2, 3],
        [4 , 5, 6],
        [7 ,8, 9]]

mat2 = [[1, 2, 3, 4],
        [5, 6, 7, 8],
        [9, 1, 2, 3]]

result = matrixMul(mat1, mat2)

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

```
[38, 17, 23, 29]
[83, 44, 59, 74]
[128, 71, 95, 119]
```

Print a triangle

In [2]:
```
k = n = int(input("Enter the number:"))

for i in range(1, n):

    print(" " * (k), end="")
    k -= 1

    for j in range(-i + 1, i):
        print(abs(j) + 1, end="")

    print()
```

```
Enter the number:5
     1
    212
   32123
  4321234
```

Find the Square root of a input number.

In [3]:
```
def getSqrrt(num):

    if num < 0:
        getSqrrt(int(input("Number cannot be negative, try again:")))

    if num == 4:
        print("Square root: 2")

    else:
        for i in range(0, round(num / 2)):
            if (num == i * i):
                print("square root: ", i)
                break
        else:
            getSqrrt(int(input("Not a perfect square, try again:")))

getSqrrt(int(input("Enter the number: ")))
```

```
Enter the number: 6
Not a perfect square, try again:7
Not a perfect square, try again:8
Not a perfect square, try again:9
square root:  3
```

Another approach

In [4]:
```
int(144 ** 0.5)
```

Out[4]: 12

In [5]:
```
def getSqrrt(num):

    if num < 0:
        getSqrrt(int(input("Number cannot be negative, try again:")))

    else:
        sqrrt = num ** (.5)

        if (sqrrt == int(sqrrt)):
            print("Square root", int(sqrrt))

        else:
            getSqrrt(int(input("Not a perfect square, try again:")))

getSqrrt(int(input("Enter the number: ")))
```

```
Enter the number: 623
Not a perfect square, try again:624
Not a perfect square, try again:625
Square root 25
```

Simple sum of array

In [6]:
```
def sumArr(arr1):
    sum = 0
    for i in range(len(arr1)):
        sum += arr1[i]

    return sum

arr1 = [i for i in range(1, 11)]
print(sum(arr1))
```

```
55
```

Given a square matrix, calculate the absolute difference between the sums of its diagonals.

In [7]:
```
def diff(arr1):
    diff1 = diff2 = 0
    for i in range(len(arr1)):
        for j in range(len(arr1[i])):
            if i == j:
                diff1 += arr1[i][j]
            if i == len(arr1[i]) - j - 1:
                diff2 += (arr1[i][j])
    return abs(diff1 - diff2)

arr1 = [[1, 2, 3, 4],
        [5, 6, 7, 8],
        [9, 9, 8, 7],
        [6, 5, 4, 3]]
print(diff(arr1))
```

```
8
```

Given an array of integers, determine the minimum number of elements to delete to leave only elements of equal value.

In [8]:
```
def minNum(arr1):
    occ = dict()
    for i in range(len(arr1)):
        occ[arr1[i]] = arr1.count(arr1[i])
    return len(arr1) - occ.get(max(occ))

arr1 = [1, 2, 3, 3, 4, 5, 5, 5]
print(minNum(arr1))
```

```
5
```

In [ ]:
```

```