List of lists

January 27, 2023

1 Nested Lists

[5]:
```
# ind   0   1   2     0   1   2     0   1   2
lst = [[10, 20, 30], [40, 50, 60], [70, 80, 90]]
#ind        0              1             2
print(lst)
print(len(lst))
print(lst[0])
print(lst[1])
print(lst[1][1])
```

```
[[10, 20, 30], [40, 50, 60], [70, 80, 90]]
3
[10, 20, 30]
[40, 50, 60]
50
```

[6]:
```
# ind   0   1   2     0   1   2     0   1   2
lst = [[10, 20, 30], [40, 50, 60], [70, 80, 90]]
#ind        0              1             2
for i in range(len(lst)): # i = 0 1 2
    for j in range(len(lst[i])): # j = 0 1 2
        print(lst[i][j], end = ' ')
```

```
10 20 30 40 50 60 70 80 90
```

[8]:
```
lst = [[10, 20, 30], [40, 50, 60], [70, 80, 90]]
for i in lst:
    for j in i:
        print(j, end = ' ')
```

```
10 20 30 40 50 60 70 80 90
```

2 How to read list of lists

[10]:
```
outer_list = []
n = 3
for _ in range(n):
```

```
    inner_list = list(map(int, input().split()))
    outer_list.append(inner_list)
print(outer_list)
```

```
10 20 30
40 50 60 70 80 90
14 15
[[10, 20, 30], [40, 50, 60, 70, 80, 90], [14, 15]]
```

[11]:
```
n = int(input())
# [[10, 20, 30],
# [40, 50, 60],
# [70, 80, 90]]
mat = []
for i in range(n):
    row = list(map(int, input().split()))
    mat.append(row)
print(mat)
```

```
3
10 20 30
40 50 60
70 80 90
[[10, 20, 30], [40, 50, 60], [70, 80, 90]]
```

[14]:
```
names = ['ironman', 'thor', 'hulk']
# list of lists which contains
# max(names[0]), min(names[0]), len(names[0])
# [['r', 'a', 7], ['t', 'h', 4], ['u', 'h', 4]]
details = []
for i in names:
    details.append([max(i), min(i), len(i)])
print(details)
```

```
[['r', 'a', 7], ['t', 'h', 4], ['u', 'h', 4]]
```

[15]:
```
names = ['ironman', 'thor', 'hulk']
# list of lists which contains
# max(names[0]), min(names[0]), len(names[0])
# [['r', 'a', 7], ['t', 'h', 4], ['u', 'h', 4]]
details = [[max(i), min(i), len(i)] for i in names]
print(details)
```

```
[['r', 'a', 7], ['t', 'h', 4], ['u', 'h', 4]]
```

[17]:
```
list_of_integers = [int(x) for x in input().split()]
print(list_of_integers)
```

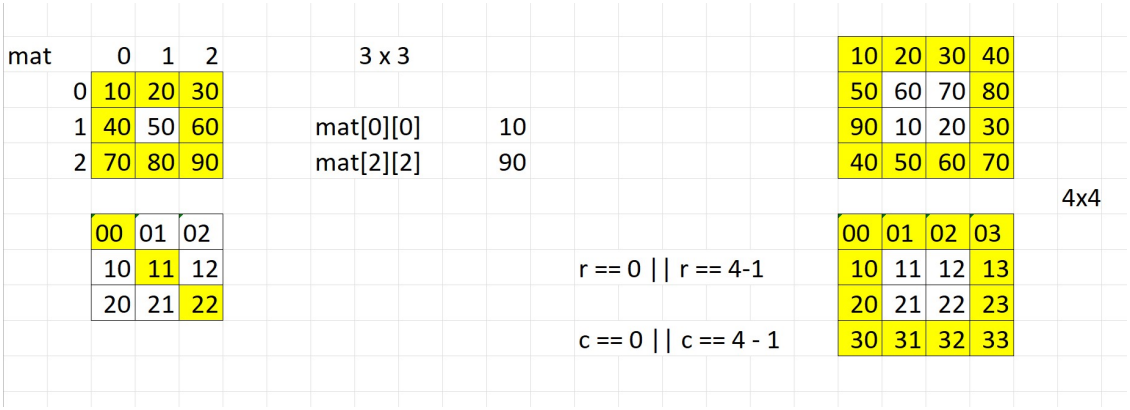
```
10 20 30 40
[10, 20, 30, 40]
```

[18]:
```
list_of_integers = [[int(x) for x in input().split()] for i in range(3)]
print(list_of_integers)
```

```
10 20 30
40 50 60
70 80 90
[[10, 20, 30], [40, 50, 60], [70, 80, 90]]
```

[19]:
```
r, c = map(int, input().split())
mat = [[int(x) for x in input().split()] for i in range(r)]
print(mat)
```

```
2 2
10 20
30 40
[[10, 20], [30, 40]]
```



[22]:
```
# find out the maximum of row-wise sums of a matrix
r, c = map(int, input().split())
mat = []
for i in range(r):
    x = list(map(int, input().split()))
    mat.append(x)

sums = []
for i in mat:
    sums.append(sum(i))
print(max(sums))
```

```
4 3
1 2 3
4 5 6
-6 -4 -1
7 5 9
21
```

[29]:
```
# Add the elements of principal diagonal
n = int(input())
mat = []
for i in range(n):
    x = list(map(int, input().split()))
    mat.append(x)

s = 0
for i in range(n): # range(3) --> 0 1 2
    for j in range(n): # range(3) --> 0 1 2
        if i == j:
            s = s + mat[i][j]
print(s)
```

```
3
10 20 30
40 50 60
70 80 90
150
```

[32]:
```
# Sum of all Boundary elements in matrix
mat = [[10, 20, 30],
       [40, 50, 60],
       [70, 80, 90]]
n = len(mat)
S = 0
for i in range(n):
    for j in range(n):
        if i == 0 or i == n - 1 or j == 0 or j == n - 1:
            S += mat[i][j]
print(S)
```

```
400
```