

```
1) m = [  
[2, 4, 6],  
[8, 0, 1],  
[3, 5, 7]  
]
```

```
m.append([10, 11, 12])  
print(m)
```

```
col1 = [13, 14, 15, 16]  
for i in range(len(m)):  
    m[i].append(col1[i])  
print(m)
```

```
m.insert(1, [16, 17, 18, 20])  
print(m)
```

```
col2 = [19, 20, 21, 22, 23]  
for i in range(len(m)):  
    m[i].insert(2, col2[i])  
print(m)
```

```
PS C:\Users\adnan> python -u "c:\Users\adnan\Downloads\task4.py"  
● [[2, 4, 6], [8, 0, 1], [3, 5, 7], [10, 11, 12]]  
[[2, 4, 6, 13], [8, 0, 1, 14], [3, 5, 7, 15], [10, 11, 12, 16]]  
[[2, 4, 6, 13], [16, 17, 18, 20], [8, 0, 1, 14], [3, 5, 7, 15], [10, 11, 12, 16]]  
[[2, 4, 19, 6, 13], [16, 17, 20, 18, 20], [8, 0, 21, 1, 14], [3, 5, 22, 7, 15], [10, 11, 23, 12, 16]]  
○ PS C:\Users\adnan>
```

```
2) z = [
```

```
[1, 2, 3, 4],  
[5, 6, 7, 8],  
[9, 10, 11, 12],  
[13, 14, 15, 16]  
]
```

```
print(z[1])
```

```
print([row[2] for row in z])
```

```
print(z[2], z[3])
```

```
print([row[:2] for row in z])
```

```
print(z[2][1:], z[3][1:])
```

```
print([z[1][0], z[1][3]], [z[3][0], z[3][3]])
```

```
print([z[i][i] for i in range(4)])
```

```
print([z[0][3], z[1][2], z[2][1], z[3][0]])
```

```
PS C:\Users\adnan> python -u "c:\Users\adnan\Downloads\task4.py"  
● [5, 6, 7, 8]  
[3, 7, 11, 15]  
[9, 10, 11, 12] [13, 14, 15, 16]  
[[1, 2], [5, 6], [9, 10], [13, 14]]  
[10, 11, 12] [14, 15, 16]  
[5, 8] [13, 16]  
[1, 6, 11, 16]  
[4, 7, 10, 13]
```

```
3) m = [  
    [1, 1, 1],  
    [1, 1, 1],  
    [1, 1, 1]  
]
```

```
for row in m:
```

```
    row.append(0)  
print(m)
```

```
for row in m:
```

```
    row.append(5)  
print(m)
```

```
m.append([1, 2, 3, 4, 5])  
print(m)
```

```
m.insert(1, [6, 7, 8, 9, 10])  
print(m)
```

```
c = [10, 20, 30, 40, 50]
```

```
for i in range(len(m)):  
    m[i].append(c[i])  
  
print(m)
```

```
PS C:\Users\adnan> python -u "c:\Users\adnan\Downloads\task4.py"
[[1, 1, 1, 0], [1, 1, 1, 0], [1, 1, 1, 0]]
[[1, 1, 1, 0, 5], [1, 1, 1, 0, 5], [1, 1, 1, 0, 5]]
[[1, 1, 1, 0, 5], [1, 1, 1, 0, 5], [1, 1, 1, 0, 5], [1, 2, 3, 4, 5]]
[[1, 1, 1, 0, 5], [6, 7, 8, 9, 10], [1, 1, 1, 0, 5], [1, 1, 1, 0, 5], [1, 2, 3, 4, 5]]
[[1, 1, 1, 0, 5], [6, 7, 8, 9, 10], [1, 1, 1, 0, 5], [1, 1, 1, 0, 5], [1, 2, 3, 4, 5], [1, 2, 3, 4, 50]]
PS C:\Users\adnan>
```

```
4) m = [
    [1, 2, 3, 4, 5],
    [6, 7, 8, 9, 10],
    [11, 12, 13, 14, 15],
    [16, 17, 18, 19, 20],
    [21, 22, 23, 24, 25]
]
```

```
print(m[0], m[2], m[4])
```

```
print([row[::-2] for row in m])
```

```
print(m[1][:3], m[3][:3])
```

```
print([m[i][i] for i in range(len(m))])
```

```
print([m[i][4 - i] for i in range(len(m))])
```

```
print(m[0][::2], m[2][::2], m[4][::2])
```

```
print([m[i][4] for i in range(1, 4)])
```

```
print(m[1][2:4], m[3][2:4])
```

```
print(m[-1])
```

```
print(m[0][1:4:2], m[1][1:4:2], m[2][1:4:2])
```

```
[1, 2, 3, 4, 5] [11, 12, 13, 14, 15] [21, 22, 23, 24, 25]
[[1, 3, 5], [6, 8, 10], [11, 13, 15], [16, 18, 20], [21, 23, 25]]
[6, 7, 8] [16, 17, 18]
[1, 7, 13, 19, 25]
[5, 9, 13, 17, 21]
[1, 3, 5] [11, 13, 15] [21, 23, 25]
[10, 15, 20]
[8, 9] [18, 19]
[21, 22, 23, 24, 25]
[2, 4] [7, 9] [12, 14]
```

```
5) m = [  
[10, 20, 30],  
[40, 50, 60],  
[70, 80, 90]  
]
```

```
m[1][2] = 6
```

```
print(m)
```

```
print(m[0], m[1])
```

```
print(m[1][1:], m[2][1:])
```

```
print([m[i][i] for i in range(3)])
```

```
rev = [m[i][2 - i] for i in range(len(m))]  
print(rev)
```

```
print(m[0][1], m[1][1], m[2][1])
```

```
● PS C:\Users\adnan> python -u "c:\Users\adnan\Downloads\task4.py"  
[[10, 20, 30], [40, 50, 6], [70, 80, 90]]  
[10, 20, 30] [40, 50, 6]  
[50, 6] [80, 90]  
[10, 50, 90]  
[30, 50, 70]  
20 50 80
```

```
6) A = [  
[11, 0, 4, 6, 5],
```

```
[1, 9, 3, 2, 1],  
[7, 0, 4, 9, 8],  
[3, 7, 12, 15, 0]  
]
```

```
print(A[3][2])
```

```
print(A[1][1:4], A[2][1:4])
```

```
print([A[1][1], A[2][1]])
```

```
print(A[1][:3], A[2][:3], A[3][:3])
```

```
print(  
    [A[0][0], A[0][2], A[0][4]],  
    [A[3][0], A[3][2], A[3][4]]  
)
```

```
A.insert(4, [0, 0, 0, 0, 0])
```

```
print(A)
```

```
print([A[i][i] for i in range(len(A) - 1)])
```

```
print([A[i][4] for i in range(len(A) - 1)])
```

```
print(A[1], A[2])
```

```
print(
```

$A[0][2:4]$,

$A[1][2:4]$,

$A[2][2:4]$,

$A[3][2:4]$

)

```
● 12
[9, 3, 2] [0, 4, 9]
[9, 0]
[1, 9, 3] [7, 0, 4] [3, 7, 12]
[11, 4, 5] [3, 12, 0]
[[11, 0, 4, 6, 5], [1, 9, 3, 2, 1], [7, 0, 4, 9, 8], [3, 7, 12, 15, 0], [0, 0, 0, 0, 0]]
[11, 9, 4, 15]
[5, 1, 8, 0]
[1, 9, 3, 2, 1] [7, 0, 4, 9, 8]
[4, 6] [3, 2] [4, 9] [12, 15]
```