Papers Dock

PYTHON

9618

ARRAYS

Concept Of Arrays

5	"Pappan"
4	"Banto"
3	"Bano"
2	"Pappu"
1	"Ahmed"
0	"Taha"

Names

Arrays stores multiple values of same datatype in python we use list as Arrays under single identifier

Create An Array Names

Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

Accessing The Individual Elements

Names[0]	Taha
Names[4]	Banto

Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

Print Ahmed

print(Names[1])

```
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]
print(Names[1])
```

Finding The Length Of Arrays

Length = len(Names)

print(Length)

```
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]
Length = len(Names)
print(Length)
```

Print All The Elements

```
for x in range(len(Names)
print(Names[x])
```

```python
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

for x in range(len(Names)):
    print(Names[x])
```

Practice Question

Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

Find the index position of Bano

```python
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

for x in range(len(Names)):
    if Names[x] == "Banto":
        print("The Index Value is: ", x)
```

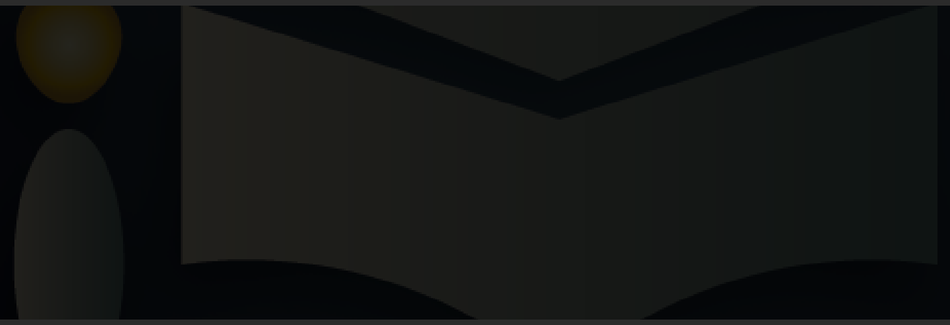
Adding An Item In The List

Question: Add one more name in array Names

```
Names.append("Shabnam")
```

```python
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]


Names.append("Shabnam")
print(Names)
```



```
['Taha', 'Ahmed', 'Pappu', 'Bano', 'Banto', 'Pappan', 'Shabnam']
```

Practice Question

Input a name from the User if that name is in array then print it is already there and if not in the array then add it into the array

```python
Names = ["Taha", "Ahmed", "Pappu", "Bano", "Banto", "Pappan"]

Newname = input("Enter the name: ")
x = 0
flag = False
while x < len(Names) and flag == False:
    if Newname == Names[x]:
        print("It is already there")
    else:
        Names.append(Newname)
        flag = True
    x = x + 1

print(Names)
```

Practice Question

Numbers = [10, 32, 24, 56, 75, 86]

Reverse the Order of the array

[86, 75, 56, 24, 32, 10]

```
Numbers = [10, 32, 24, 56, 75, 86]
new = [0, 0, 0, 0, 0, 0]

opposite_index = 5

for index in range(6):
    new[index] = Numbers[opposite_index]

    opposite_index = opposite_index - 1

print(new)
```

Practice Question

Ask Numbers form the user and find the average of those number and when the user types in 0 then stop asking the number from the user and print the average

Note : 0 should not be considered a number

```python
sum   = 0
count = 0

flag = True

while flag == True:
    number = float(input("Enter The Number: "))

    if number == 0:
        flag = False
    else:
        count = count + 1
        sum = sum + number

average = sum/count
print("Average is: ", average)
```

2 Dimensional Array

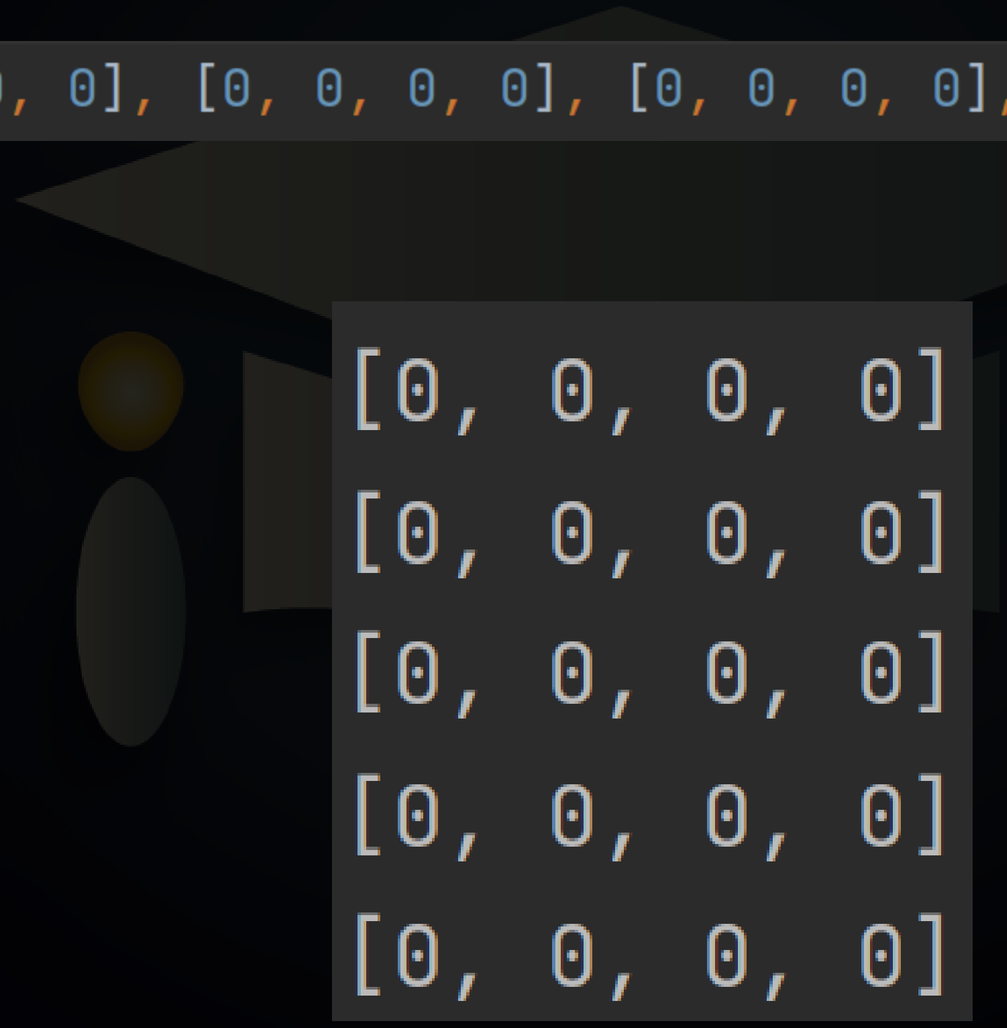
2D Array

A 2D array is a data structure that stores elements in a grid or matrix of rows and columns. It consists of multiple rows and columns, where each element is uniquely identified by its row and column values. 2D arrays are commonly used in programming to represent images, screens and game boards

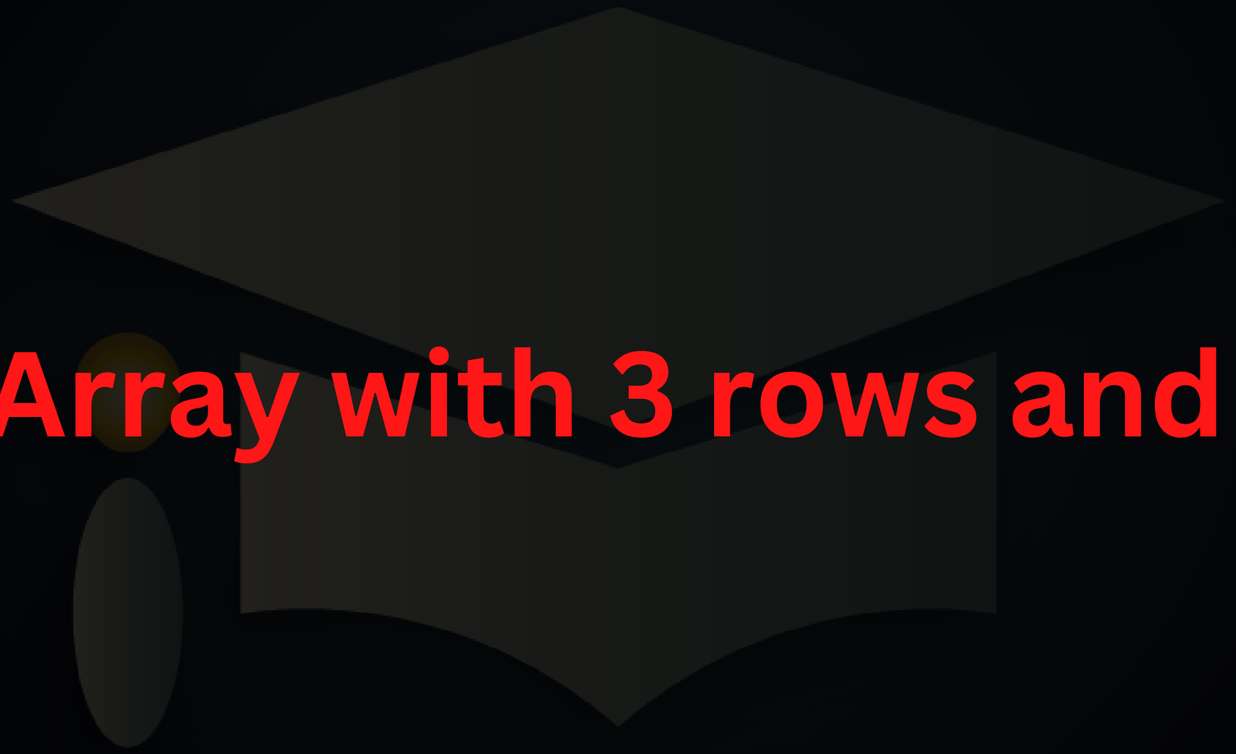
Create an Array with 5 rows and 4 Columns

Create an Array with 5 rows and 4 Columns

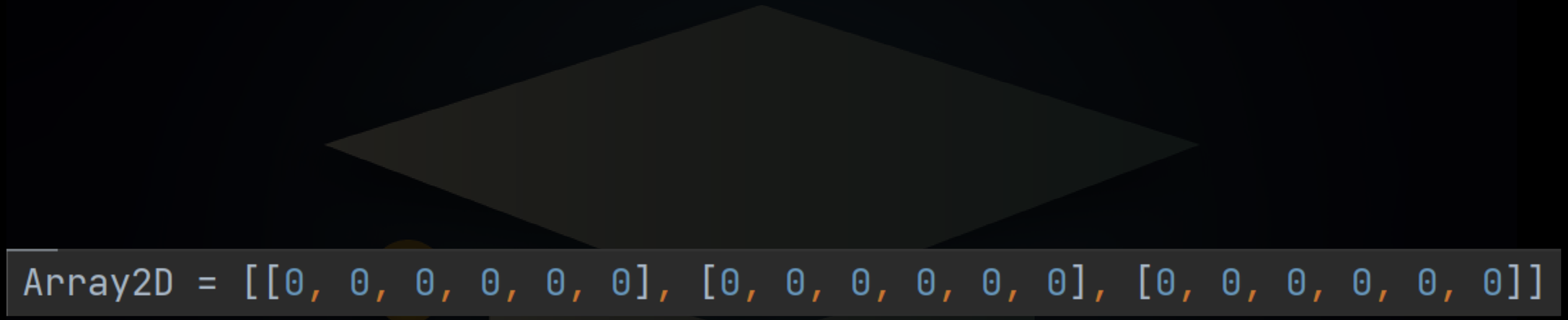
```
Array2D = [[0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0]]
```



Practice Question



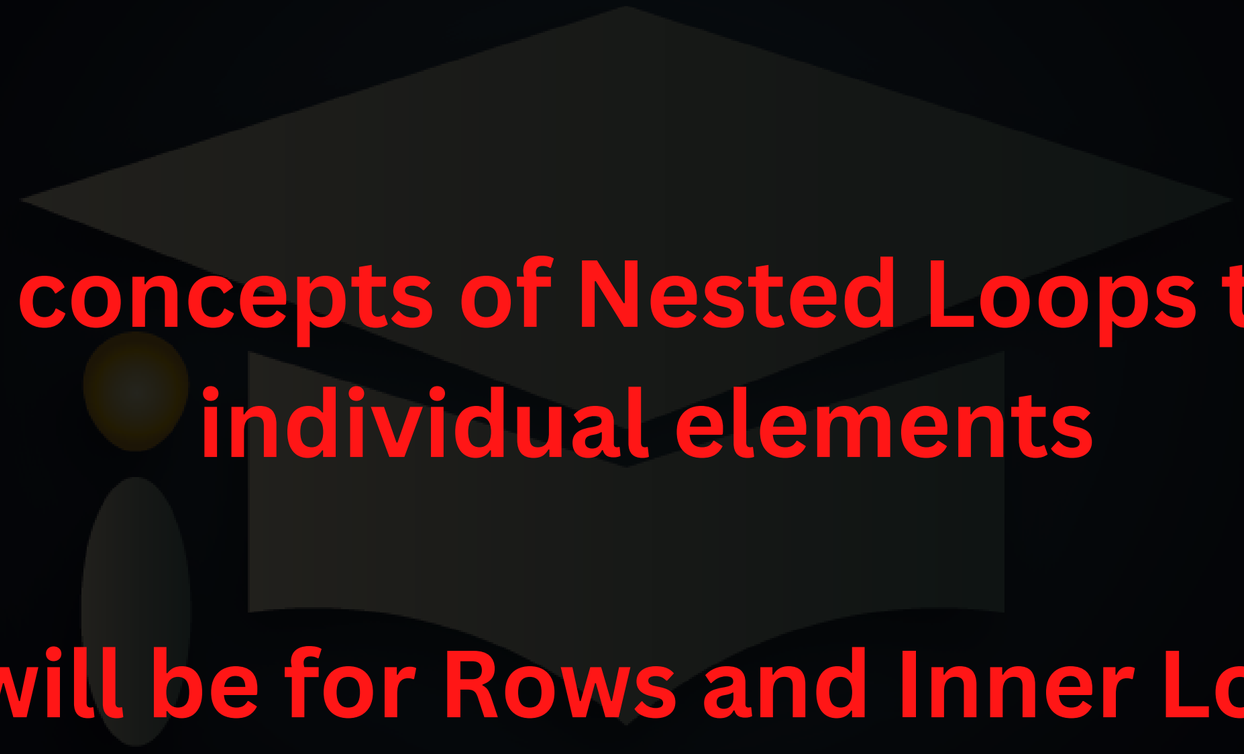
Create an Array with 3 rows and 6 Columns


Array2D = [[0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0], [0, 0, 0, 0, 0, 0]]

How to access the individual elements in 2D array

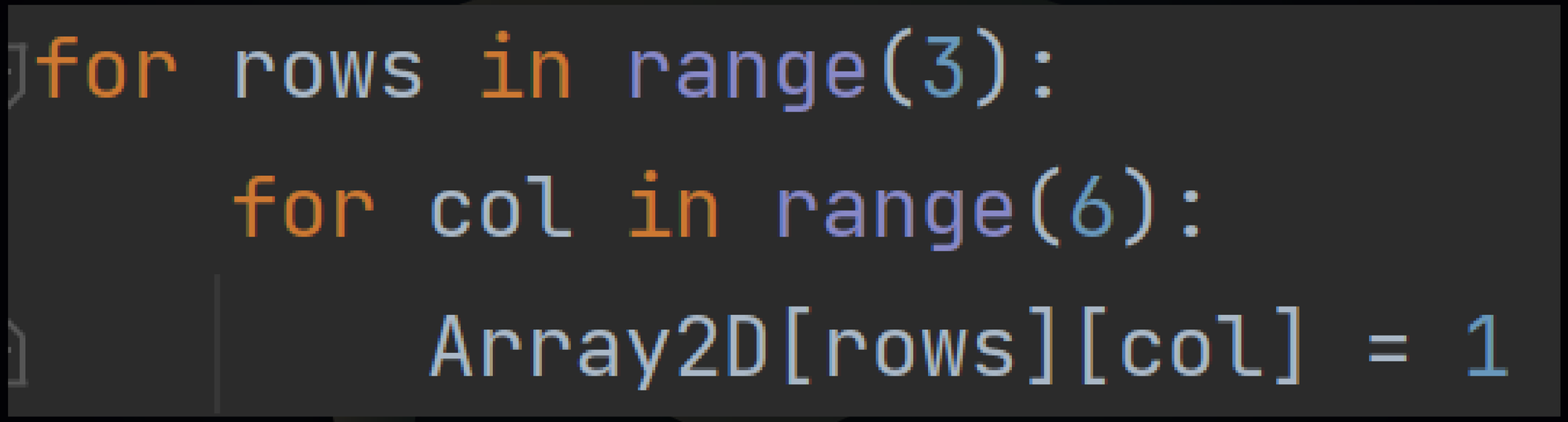
Array2D[RowIndex][ColumnIndex]

Accessing Elements In Loops



We use the concepts of Nested Loops to access the individual elements

Outer loop will be for Rows and Inner Loop will be for Columns


for rows in range(3):
for col in range(6):
Array2D[rows][col] = 1

Practice Question

There is a 2D array print "Present if "Faisal" is in the array

```
Array2D = [["Ahmed", "Ali", "Bano"], ["Qasim", "Faisal", "Khalid"]]

for rows in range(2):
    for col in range(3):
        if Array2D[rows][col] == "Faisal":
            print("Present")
```

Creating Arrays Using Loops

1D Array

```
EmptyArray = [""] * 500
```

This creates a 1D array called EmptyArray with 500 elements, where each element is an empty string.

2D Array

```
Empty2d = [[""] * 40 for i in range(500)]
```

This line of code creates a 2D array with 500 rows and 40 columns with the name Empty2d containing Empty Strings