**Python Nested Dictionary**

In Python, a dictionary is an unordered collection of items. For example:

dictionary = {'key' : 'value',

'key\_2': 'value\_2'}

Here, dictionary has a key:value pair enclosed within curly brackets {}.

**What is Nested Dictionary in Python?**

In Python, a nested dictionary is a dictionary inside a dictionary. It's a collection of dictionaries into one single dictionary.

nested\_dict = { 'dictA': {'key\_1': 'value\_1'},

'dictB': {'key\_2': 'value\_2'}}

Here, the nested\_dict is a nested dictionary with the dictionary dictA and dictB. They are two dictionary each having own key and value.

**Create a Nested Dictionary**

We're going to create dictionary of people within a dictionary.

**Example 1: How to create a nested dictionary**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'}}

print(people)

{1: {'name': 'John', 'age': '27', 'sex': 'Male'}, 2: {'name': 'Marie', 'age': '22', 'sex': 'Female'}}

**Access elements of a Nested Dictionary**

To access element of a nested dictionary, we use indexing [] syntax in Python.

**Example 2: Access the elements using the [] syntax**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'}}

print(people[1]['name'])

print(people[1]['age'])

print(people[1]['sex'])

When we run above program, it will output:

John

27

Male

**Add element to a Nested Dictionary**

**Example 3: How to change or add elements in a nested dictionary?**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'}}

people[3] = {}

people[3]['name'] = 'Luna'

people[3]['age'] = '24'

people[3]['sex'] = 'Female'

people[3]['married'] = 'No'

print(people[3])

{'name': 'Luna', 'age': '24', 'sex': 'Female', 'married': 'No'}

**Example 4: Add another dictionary to the nested dictionary**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'},

3: {'name': 'Luna', 'age': '24', 'sex': 'Female', 'married': 'No'}}

people[4] = {'name': 'Peter', 'age': '29', 'sex': 'Male', 'married': 'Yes'}

print(people[4])

{'name': 'Peter', 'age': '29', 'sex': 'Male', 'married': 'Yes'}

In the above program, we assign a dictionary literal to people[4]. The literal have keys name, age and sex with respective values. Then we print the people[4], to see that the dictionary 4 is added in nested dictionary people.

**Delete elements from a Nested Dictionary**

In Python, we use “ del “ statement to delete elements from nested dictionary.

**Example 5: How to delete elements from a nested dictionary?**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'},

3: {'name': 'Luna', 'age': '24', 'sex': 'Female', 'married': 'No'},

4: {'name': 'Peter', 'age': '29', 'sex': 'Male', 'married': 'Yes'}}

del people[3]['married']

del people[4]['married']

print(people[3])

print(people[4])

{'name': 'Luna', 'age': '24', 'sex': 'Female'}

{'name': 'Peter', 'age': '29', 'sex': 'Male'}

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**Example 6: How to delete dictionary from a nested dictionary?**

people = {1: {'name': 'John', 'age': '27', 'sex': 'Male'},

2: {'name': 'Marie', 'age': '22', 'sex': 'Female'},

3: {'name': 'Luna', 'age': '24', 'sex': 'Female'},

4: {'name': 'Peter', 'age': '29', 'sex': 'Male'}}

del people[3], people[4]

print(people)

{1: {'name': 'John', 'age': '27', 'sex': 'Male'}, 2: {'name': 'Marie', 'age': '22', 'sex': 'Female'}}

**Iterating Through a Nested Dictionary**

Using the for loops, we can iterate through each elements in a nested dictionary.

**Example 7: How to iterate through a Nested dictionary?**

people = {1: {'Name': 'John', 'Age': '27', 'Sex': 'Male'},

2: {'Name': 'Marie', 'Age': '22', 'Sex': 'Female'}}

for p\_id, p\_info in people.items():

print("\nPerson ID:", p\_id)

for key in p\_info:

print(key + ':', p\_info[key])

When we run above program, it will output:

Person ID: 1

Name: John

Age: 27

Sex: Male

Person ID: 2

Name: Marie

Age: 22

Sex: Female