Home Work - Day 10

Python Dictionary Datatype

1. Convert two lists into a dictionary

Below are the two lists. Write a Python program to convert them into a dictionary in a way that item from list1 is the key and item from list2 is the value

Given:
keys = ['Ten', 'Twenty', 'Thirty']
values = [10, 20, 30]

Expected Output:
{'Ten': 10, 'Twenty': 20, 'Thirty': 30}

2. Merge two Python dictionaries into one

Given:
dict1 = {'Ten': 10, 'Twenty': 20, 'Thirty': 30}
dict2 = {'Thirty': 30, 'Fourty': 40, 'Fifty': 50}

Expected Output:
{'Ten': 10, 'Twenty': 20, 'Thirty': 30, 'Fourty': 40, 'Fifty': 50}

3. Print the value of key ‘history’ from the below dict

Given:

```
sampleDict = {
        "class": {
           "student": {
                "name": "rajvamshi",
                "marks": {
                     "physics": 70,
                     "history": 80
                }
           }
      }
}
```

Expected Output: 80

4. Initialize dictionary with default values
In Python, we can initialize the keys with the same values.

Given:
employees = ['Kelly', 'Emma']
defaults = {"designation": 'Developer', "salary": 8000}

Expected Output:
{
'Kelly': {'designation': 'Developer', 'salary': 8000},
'Emma': {'designation': 'Developer', 'salary': 8000}
}

5. Write a Python program to add a key to a dictionary

Given:
d = {"Name": "Ram", "Age":23}

Expected Output:
{'Name': 'Ram', 'Age': 23}
{'Name': 'Ram', 'Age': 23, 'City': 'Salem'}
{'Name': 'Ram', 'Age': 23, 'City': 'Salem', 'Gender': 'Male'}

6. Write a Python program to concatenate following dictionaries to create a new one

Given:
d1= {"Name": "Ram", "Age":23}
d2= {"City": "Salem", "Gender": "Male"}
d3= {"Mark":450}
d4= {}

Expected Output:
{'Name': 'Ram', 'Age': 23, 'City': 'Salem', 'Gender': 'Male', 'Mark': 450}

7. Write a Python script to merge two Python dictionaries

Given:
d1= {"Name”: “Ram", "Age":23}
d2= {"City": "Salem", "Gender": "Male"}

Expected Output: {'Name': 'Ram', 'Age': 23, 'City': 'Salem', 'Gender': 'Male'}

8. Write a Python program to sum all the items in a dictionary

Given: d = {1:23, 2:45, 3: -17, 4:87}

Expected Output: 138

9. Access dictionary key’s element by index

Given:
student = {"Name": "Pooja", "Age":23, "Gender": "Female", "City": "Salem", "Mark":488}

Expected Output:
Name
Age
Gender
City
Mark

10. Write a Python program to check multiple keys exists in a dictionary

Given:
student = {'name': 'Ram', 'age': 23, 'city': 'Salem'}

Expected Output:
True
False
False

11. Write a Python program to Convert two lists into a dictionary

Given:
keys = ["One", "Two", "Three", "Four", "Five"]
values = [1, 2, 3, 4, 5]

Expected Output:
{'One': 1, 'Two': 2, 'Three': 3, 'Four': 4, 'Five': 5}

12. Create a dictionary by extracting the keys from a given dictionary
Write a Python program to create a new dictionary by extracting the mentioned keys from the below dictionary.

Given dictionary:
sample_dict = {"name": "Kelly", "age": 25, "salary": 8000, "city": "New York"}

 # Keys to extract
keys = ["name", "salary"]

Expected output:
{'name': 'Kelly', 'salary': 8000}

13. Delete a list of keys from a dictionary

Given: sample_dict = {"name": "Kelly", "age": 25, "salary": 8000, "city": "New York"}

 # Keys to remove
keys = ["name", "salary"]

14. Create a logic for the Rename key of a dictionary

Write a program to rename a key city to a location in the following dictionary.

Given: sample_dict = {"name": "Kelly", "age":25, "salary": 8000, "city": "New York"}

Expected output: {'name': 'Kelly', 'age': 25, 'salary': 8000, 'location': 'New York'}

15. Get the key of a minimum value from the following dictionary

Given: sample_dict = {'Physics': 82, 'Math': 65, 'history': 75}

Expected output: Math

16. Change value of a key in a nested dictionary
Write a Python program to change Brad's salary to 8500 in the following dictionary.

Given:

```
sample_dict = {
                'emp1': {'name': 'Jhon', 'salary': 7500},
                'emp2': {'name': 'Emma', 'salary': 8000},
                'emp3': {'name': 'Brad', 'salary': 500}
        }
```

Expected output:

```
        {
                'emp1': {'name': 'Jhon', 'salary': 7500},
                'emp2': {'name': 'Emma', 'salary': 8000},
                'emp3': {'name': 'Brad', 'salary': 8500}
        }
```

17. Create a program for Adding items to the dictionary

18. Create a program for Removing items from the dictionary

19. Write a program for Python Built-in functions with dictionary as given below:

I. max() and min()
II. len()
III. all() and any()
IV. type()

20. Below is the summary of all operations that we learned in this lesson:

Assume d1 and d2 are dictionaries with following items.

d1 = {'a': 10, 'b': 20, 'c': 30}
d2 = {'d': 40, 'e': 50, 'f': 60}

Operations	Description
dict({'a': 10, 'b': 20})	Create a dictionary using a **dict()** constructor.
d2 = {}	Create an empty dictionary.
d1.get('a')	Retrieve value using the key name **a**.
d1.keys()	Returns a list of keys present in the dictionary.
d1.values()	Returns a list with all the values in the dictionary.
d1.items()	Returns a list of all the items in the dictionary with each key-value pair inside a tuple.
len(d1)	Returns number of items in a dictionary.
d1['d'] = 40	Update dictionary by adding a new key.
d1.update({'e': 50, 'f': 60})	Add multiple keys to the dictionary.
d1.setdefault('g', 70)	Set the default value if a key does not exist.
d1['b'] = 100	Modify the values of the existing key.
d1.pop('b')	Remove the key **b** from the dictionary.
d1.popitem()	Remove any random item from a dictionary.
d1.clear()	Removes all items from the dictionary.
'key' in d1.keys()	Check if a **key** exists in a dictionary.
d1.update(d2)	Add all items of dictionary **d2** into **d1**.
d3= {d1, **d2}**	Join two dictionaries.
d2 = d1.copy()	Copy dictionary **d1** into **d2**.
max(d1)	Returns the key with the maximum value in the dictionary **d1**
min(d1)	Returns the key with the minimum value in the dictionary **d1**