

1. What does an empty dictionary's code look like?

Ans : An empty dictionary in Python is represented by curly braces {}. Here's what it looks like:

```
empty_dict = {}
```

2. What is the value of a dictionary value with the key 'foo' and the value 42?

Ans : The value of a dictionary with the key 'foo' and the value 42 would be 42. In Python, dictionary values can be accessed using their corresponding keys.

```
my_dict = {'foo': 42}
```

```
value = my_dict['foo']
```

```
print(value) # Output: 42
```

3. What is the most significant distinction between a dictionary and a list?

Ans : **Dictionaries:** Unordered key-value pairs. Accessed by keys.

Lists: Ordered collections of items. Accessed by numerical index.

4. What happens if you try to access spam['foo'] if spam is {'bar': 100}?

Ans : If we try to access spam['foo'] and spam is {'bar': 100}, a KeyError will be raised because the key 'foo' does not exist in the dictionary spam.

```
spam = {'bar': 100} value = spam['foo'] # This line raises a KeyError
```

5. If a dictionary is stored in spam, what is the difference between the expressions 'cat' in spam and 'cat' in spam.keys()?

Ans : Difference between 'cat' in spam and 'cat' in spam.keys():

- **'cat' in spam:** This expression checks if the string 'cat' exists as a key in the dictionary **spam**. It returns **True** if 'cat' is a key in **spam**, and **False** otherwise.
- **'cat' in spam.keys():** This expression explicitly checks if the string 'cat' exists as a key in the dictionary **spam**. It is functionally equivalent to the first expression. It returns **True** if 'cat' is a key in **spam**, and **False** otherwise.

Example :

```
spam = {'cat': 1, 'dog': 2, 'fish': 3}
```

```
# Check if 'cat' is a key in spam
```

```
print('cat' in spam) # Output: True
```

```
# Check if 'cat' is a key in spam using spam.keys()

print('cat' in spam.keys()) # Output: True
```

6. If a dictionary is stored in `spam`, what is the difference between the expressions `'cat' in spam` and `'cat' in spam.values()`?

Ans : Difference between `'cat' in spam` and `'cat' in spam.values()`:

- **'cat' in spam**: This expression checks if the key **'cat'** exists in the keys of the dictionary **spam**. It returns **True** if **'cat'** is a key in **spam**, and **False** otherwise.
- **'cat' in spam.values()**: This expression checks if the string **'cat'** exists as a value in any of the key-value pairs in the dictionary **spam**. It returns **True** if **'cat'** is a value in any of the values of **spam**, and **False** otherwise.

Example :

```
spam = {'cat': 1, 'dog': 2, 'fish': 3}

# Check if 'cat' is a key in spam

print('cat' in spam) # Output: True

# Check if 'cat' is a value in any of the key-value pairs in spam

print('cat' in spam.values()) # Output: True
```

7. What is a shortcut for the following code?

```
if 'color' not in spam:

    spam['color'] = 'black'
```

Ans : `spam.setdefault('color', 'black')`

This line of code checks if the key **'color'** is present in the dictionary **spam**. If it's not present, it sets the value of **'color'** to **'black'**. If **'color'** already exists in **spam**, it does nothing, leaving its value unchanged.

8. How do you "pretty print" dictionary values using which module and function?

Ans : To "pretty print" dictionary values in Python, you can use the **pprint** module and its **pprint()** function. This function provides a more readable and structured output format compared to the built-in **print()** function when printing complex data structures like dictionaries.

Example:

```
import pprint

# Dictionary with nested structure

data = {

    'name': 'Alice',

    'age': 25,

    'address': { 'city': 'London',

                  'postcode': 'SW1A 1AA',

                  'street': 'Buckingham Palace Road' },

    'contacts': [

        {'type': 'email', 'value': 'alice@example.com'},

        {'type': 'phone', 'value': '123-456-7890'} ]

    }

# Pretty print the dictionary

pprint.pprint(data)
```

Output:

```
{'address': {'city': 'London',

              'postcode': 'SW1A 1AA',

              'street': 'Buckingham Palace Road'},

 'age': 25,

 'contacts': [{'type': 'email', 'value': 'alice@example.com'},

               {'type': 'phone', 'value': '123-456-7890'}],

 'name': 'Alice'}
```