**Assignment 5**

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

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

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

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

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

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

7. What is a shortcut for the following code?

if 'color' not in spam:

spam['color'] = 'black'

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

**Solutions :**

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

An empty dictionary is represented by {} in Python.

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empty\_dict = {}

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

If a dictionary has a key-value pair where the key is 'foo' and the value is 42, the dictionary would look like this:

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{'foo': 42}

The value associated with the key 'foo' is 42.

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

The primary difference is:

* **Dictionaries** are collections of **key-value pairs** where each key is unique. They are unordered until Python 3.7 (insertion order is maintained from Python 3.7 onwards).
* **Lists** are ordered collections of items, indexed by integers starting from 0.

In a dictionary, values are accessed using keys, while in a list, values are accessed using indexes.

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

If spam is {'bar': 100}, then trying to access spam['foo'] will raise a **KeyError** because the key 'foo' does not exist in the dictionary.

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spam = {'bar': 100}

spam['foo'] # This will raise 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()?**

* 'cat' in spam checks if 'cat' is a **key** in the dictionary spam.
* 'cat' in spam.keys() does the same thing but explicitly checks within the keys of spam.

Both expressions achieve the same result, but 'cat' in spam is more concise and is generally preferred.

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

* 'cat' in spam checks if 'cat' is a **key** in the dictionary spam.
* 'cat' in spam.values() checks if 'cat' is a **value** in the dictionary spam.

These expressions serve different purposes: the first checks for a key, while the second checks for a value.

**7. What is a shortcut for the following code?**

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if 'color' not in spam:

spam['color'] = 'black'

A shortcut for this code is to use the setdefault() method, which sets a default value if the key does not exist in the dictionary.

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spam.setdefault('color', 'black')

This line will set spam['color'] to 'black' only if 'color' is not already a key in spam.

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

To "pretty print" dictionary values, you can use the pprint module and its pprint function.

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import pprint

my\_dict = {'name': 'Alice', 'age': 25, 'city': 'New York'}

pprint.pprint(my\_dict)

The pprint function prints the dictionary in a more readable, formatted way, especially helpful when dealing with nested dictionaries.