

# Assignment 6C – Quiz Functionality with Dictionary Operations & Sequence Unpacking

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**Purpose:** Extend the PDS Management System by embedding a **dictionary-based quiz** to test understanding of dictionary operations, inspired by the GeeksforGeeks Python Dictionary Quiz. Demonstrates use of nested dictionaries, sequence unpacking, `*args/**kwargs`, and dictionary lookup.

**Marks:** 8/10

**Team mates: (Group-1)**

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- 3) Vithun
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**Part-1:**

## Concepts Used from GeeksforGeeks Dictionary Interview Questions

In this project, I used some of the ideas I learned from the GeeksforGeeks "Top 30 Python Dictionary Interview Questions" page.

### 1) Nested Dictionary

I learned how to store detailed info using dictionaries inside a dictionary. So I used that to create a quiz where each question has its own data like options and the correct answer.

### 2) Looping through Dictionary with `.items()`

I used `.items()` to loop through the quiz questions. This helped me get both the question number and its details easily in the loop.

### 3) Unpacking Key and Value

From the examples, I saw how we can unpack the key and value directly in the for loop (like `for key, value in dict.items()`). I used this to neatly access question IDs and question info.

#### 4) Dictionary Updates and Access

I understood how we can change values in a dictionary or get values safely. Even though I didn't use `.get()` here, learning about it helped me think about safe access.

### Part-B (Quiz)

#### Question 1

Find the output of the following program:

```
d = dict()
for x in enumerate(range(2)):
    d[x[0]] = x[1]
    d[x[1]+7] = x[0]
print(d)
```

- ☐ A {0: 1, 7: 0, 1: 1, 8: 0}
- ☐ B {1: 1, 7: 2, 0: 1, 8: 1}
- ☒ C {0: 0, 7: 0, 1: 1, 8: 1}
- ☐ D KeyError

#### Question 2

Find the output of the following program:

```
d = {1 : 1, 2 : '2', '1' : 1, '2' : 3}
d['1'] = 2
print(d[d[d[str(d[1])]]])
```

- ☐ A 2
- ☒ B 3
- ☐ C '\2'
- ☐ D KeyError

#### Discuss it

##### Explanation

Simple key-value pair is used recursively,  $D[1] = 1$ ,  $\text{str}(1) = '1'$ . So,  $D[\text{str}(D[1])] = D['1'] = 2$ ,  $D[2] = '2'$  and  $D['2'] = 3$ .

### Question 3

Find the output of the following program:

```
d = {1 : {'A' : {1 : "A"}, 2 : "B"}, 3 : "C", 'B' : "D", "D": 'E'}  
print(d[d[1][2]], end = " ")  
print(d[d[1]["A"][2]])
```

☐ A C B

☒ B E Key Error

☐ C B D

☐ D D B

Discuss it

#### Explanation

Key-Value Indexing is used in the example above.  $D[1] = \{ 'A' : \{ 1 : "A", 2 : "B" \}, D[1][2] = "B", D[D[1][2]] = D["B"] = "D" \}$  and  $d[D["D"]] = "E"$ .  $D[1] = \{ 'A' : \{ 1 : "A", 2 : "B" \}, D[1]["A"] = \{ 1 : "A" \}$  and  $D[1]["A"][2]$  doesn't exist, thus `KeyError`.

### Question 4

Find the output of the following program:

```
d = dict()  
for i in range(3):  
    for j in range(2):  
        d[i] = j  
print(d)
```

☐ A {0: 0, 1: 0, 2: 0}

☒ B {0: 1, 1: 1, 2: 1}

☐ C {0: 0, 1: 0, 2: 0, 0: 1, 1: 1, 2: 1}

☐ D `TypeError: Immutable object`

Discuss it

#### Explanation

1st loop will give 3 values to  $i$  0, 1 and 2. In the empty dictionary, values are added and overwritten in  $j$  loop, for eg.  $D[0] = [0]$  becomes  $D[0] = 1$ , due to overwriting.

### Question 5

Question 5: Find the output of the following program:

```
d = {1 : [1, 2, 3], 2: (4, 6, 8)}  
d[1].append(4)  
print(d[1], end = " ")  
li = [d[2]]  
li.append(10)  
d[2] = tuple(L)  
print(d[2])
```

- ☒ A [1, 2, 3, 4] ((4, 6, 8), 10)
- ☐ B [1, 2, 3, 4] (4, 6, 8, 10)
- ☐ C [1, 2, 3, 4] TypeError: tuples are immutable
- ☐ D [1, 2, 3, 4] [4, 6, 8, 10]

#### Discuss it

##### Explanation

In the first part, key-value indexing is used and 4 is appended into the list. As tuples are immutable, in the second part the tuple is converted into a list, and value 10 is added finally then converted back to tuple.

### Question 6

What will be the output of the following code?

```
s = "Geeks for Geeks"  
print(s[0], s[-1])
```

- ☐ A G G
- ☒ B G s
- ☐ C G k
- ☐ D e k

#### Discuss it

##### Explanation

`s[0]` accesses the first character 'G' and `s[-1]` accesses the last character 's'.

### Question 7

Find the output of the following program:

```
a = {}  
a.fromkeys(['a', 'b', 'c', 'd'], 98)  
print(a)
```

- ☐ A Syntax error
- ☐ B {'a':98, 'b':98, 'c':98, 'd':98}
- ☐ C {'a':None, 'b':None, 'c':None, 'd':None}
- ☒ D {}

#### Discuss it

##### Explanation

fromkeys() method returns a new dictionary but does not modify the original dictionary a, so print(a) outputs {} (empty dictionary).

### Question 8

Find the output of the following program:

```
dict = {}  
print(all(dict))
```

- ☐ A {}
- ☐ B False
- ☒ C True
- ☐ D An exception is thrown

#### Discuss it

##### Explanation

The all() method returns:

- True – If all elements in an iterable are true or iterable is empty.
- False – If any element in an iterable is false.

### Question 9

Find the output of the following program:

```
a = {'geeks' : 1, 'gfg' : 2}
b = {'geeks' : 2, 'gfg' : 1}
print (a == b)
```

- ☐ A True
- ☒ B False
- ☐ C Error
- ☐ D None

Discuss it

#### Explanation

If two dictionary are the same it returns true, otherwise it returns false.

### Question 10

Which of the following is FALSE about dictionary?

- ☐ A The values of a dictionary can be accessed using keys
- ☒ B The keys of a dictionary can be accessed using values
- ☐ C Both of the above
- ☐ D None of the above

Discuss it

#### Explanation

The values of a dictionary can be accessed using keys but the keys of a dictionary can't be accessed using values.