

Which of the following is best suited for a dictionary instead of a list?

- A. The order in which people finish a race
- B. The ingredients necessary for a recipe
- C. The names of world countries and their capital cities
- D. 50 random integers

Answer: C

There is a clear key-value relationship between a country and its capital

```
d = {3:4}
d[5] = d.get(4, 8)
d[4] = d.get(3, 9)
```

What is the dictionary created by the above code?

- A. {3:4, 5:8, 4:9}
- B. {3:4, 5:8, 4:4}
- C. {3:4, 5:4, 4:3}
- D. This code has an error

Answer: B

After the first line, d is {3:4}, after the second {3:4, 5:8} and after the third {3:4, 5:8, 4:4}. Recall the first argument to get is the key, if it is present in the dictionary, its value is returned, if not, its second argument is returned.

```
d = {1:5}
d[2] = d[1]
d[4] = d[3]
```

What is the dictionary created by the above code?

- A. {1:5, 2:5}
- B. {1:5, 2:1}
- C. {1:5, 2:5, 4:None}
- D. This code has an error

Answer: D

After the first line, `d` is `{1:5}`, after the second `{1:5, 2:5}`. But when we try to access the key of 3 in the third line, we get a “Key error” because 3 is not a valid key in the dictionary. Recall that `get` will return its second argument if the key, its first argument, is not present. And that is valid to use a “new” key on the left hand of the assignment operator (doing so adds that key to the dictionary) but not to use an undefined key in an expression.

Which of the following is a difference between lists and dictionaries?

- A. List elements cannot be mutable, but dictionary values can be mutable
- B. Assigning to an index that does not exist in a list is an error, but assigning a value to a key that does not exist in a dictionary is not
- C. A list can contain a dictionary as one of its elements, but a dictionary cannot contain a list as one of its values
- D. There is a dict constructor that creates a dictionary from a suitable object, but there is no list constructor that similarly creates lists

Answer: B

Assigning to key in a dictionary that doesn't exist is a common technique to adding key-value pairs to dictionaries. But it is an error to assign to an index not present in a list (i.e. beyond the end of the list).