

# CSE160 Practice Problems

## 1. Which of the following statements about dictionaries is TRUE?

- A. Keys in a dictionary can be mutable types like lists.
- B. A dictionary key can have multiple values.
- C. Dictionary keys must be unique.
- D. Values in a dictionary must be unique.

## 2. What will happen if you try to access the key "B" here?

```
atomic_number = {"H": 1, "Fe": 26, "Au": 79}  
print(atomic_number["B"])
```

- A. It will print None.
- B. It will return 0.
- C. It will raise a KeyError.
- D. It will print an empty string.

## 3. Which of the following is an invalid dictionary key?

- A. A string ("key1")
- B. An integer (1)
- C. A list ([1, 2, 3])

## 4. Given the dictionary below, what will the following code output?

```
pet_names = {"Ducks": ["Duckula", "Howard"], "Mice": ["Stuart", "Mickey"]}  
pet_names["Mice"] = ["Jerry"]  
print(pet_names["Mice"])
```

- A. ["Stuart", "Mickey"]
- B. ["Stuart", "Mickey", "Jerry"]
- C. ["Jerry"]
- D. KeyError

## Problem 1: Modify the Dictionary

```
favorite_fruits = {  
    "Alice": "apple",  
    "Bob": "banana",  
    "Charlie": "cherry"  
}
```

```
# Add your modification here
```

```
print(favorite_fruits)
```

**Task:** Add a new key-value pair where "Daisy" is associated with "dragonfruit", then print the updated dictionary.

## Problem 2: Iterate Over Keys and Values

```
state_capitals = {  
    "GA": "Atlanta",  
    "WA": "Olympia",  
    "CA": "Sacramento"  
}
```

```
# Print all the state abbreviations and their capitals  
# Modify code below
```

**Task:** Use a loop to print all the state abbreviations (keys) and their corresponding capitals (values) in the format "State: GA, Capital: Atlanta".

### Problem 3: Dictionary Comprehension

```
numbers = [1, 2, 3, 4]
```

```
# Use dictionary comprehension to create a dictionary where the key is a number  
# and the value is its square
```

```
squares = {}  
print(squares)
```

**Task:** Modify the code using dictionary comprehension to produce a dictionary that maps each number in `numbers` to its square.

### Problem 4: Check If a Key Exists

```
student_grades = {"Alice": "A", "Bob": "B", "Charlie": "C"}
```

```
# Check if "Daisy" is in the dictionary  
# Modify code below
```

```
print(student_grades["Daisy"])
```

**Task:** Modify the code to first check if "Daisy" exists in the dictionary before trying to access her grade. If she doesn't exist, print "Daisy is not in the dictionary".

## Problem 5: Count Occurrences in a List

```
fruits = ["apple", "banana", "apple", "cherry", "banana", "apple"]

# Count how many times each fruit appears and store the result in a dictionary
fruit_count = {}
print(fruit_count)
```

**Task:** Modify the code to count how many times each fruit appears in the list and store the results in "fruit count". The output should be {'apple': 3, 'banana': 2, 'cherry': 1}.

## Answers

- 1. C (Dictionary keys must be unique)
- 2. C (It will raise a KeyError)
- 3. C (A list)
- 4. C (["Jerry"])

### Problem 1:

```
favorite_fruits["Daisy"] = "dragonfruit"
```

### Problem 2:

```
for state, capital in state_capitals.items():  
    print(f"State: {state}, Capital: {capital}")
```

### Problem 3:

```
squares = {n: n ** 2 for n in numbers}
```

### Problem 4:

```
if "Daisy" in student_grades:  
    print(student_grades["Daisy"])  
else:  
    print("Daisy is not in the dictionary.")
```

### Problem 5:

```
for fruit in fruits:  
    if fruit in fruit_count:  
        fruit_count[fruit] += 1  
    else:  
        fruit_count[fruit] = 1
```