# Exercise 1: Create a Dictionary  
# 1. Create a dictionary called `person` with the following key-value pairs:  
# - Name: "Alice"  
# - Age: 25  
# - City: "New York"  
# 2. Print the dictionary  
  
person = {  
 "Name" : "Alice",  
 "Age" : 25,  
 "City" : "New York"  
}  
  
print(person)  
  
# Exercise 2: Access Dictionary Elements  
# 1. Access the value of the `"Name"` key in the `person` dictionary and print it.  
# 2. Access the value of the `"City"` key and print it.  
  
print(person["Name"])  
print(person["City"])  
  
# Exercise 3: Add and Modify Elements  
# 1. Add a new key-value pair to the `person` dictionary: `"email": "alice@example.com"`.  
# 2. Change the value of the `"Age"` key to 26.  
# 3. Print the modified dictionary  
  
person["Email"] = "alice@example.com"  
person["Age"] = 26  
print(person)  
  
# Exercise 4: Remove Elements  
# 1. Remove the `"City"` key from the `person` dictionary.  
# 2. Print the dictionary after removing the key  
  
del person["City"]  
print(person)  
  
# Exercise 5: Check if a Key Exists  
# 1. Check if the key `"email"` exists in the `person` dictionary. Print a message based on the result.  
# 2. Check if the key `"phone"` exists in the dictionary. Print a message based on the result  
  
keys = person.keys()  
  
if "Email" in keys:  
 print("Email Exists")  
else:  
 print("Email Not Exists")  
if "phone" in keys:  
 print("Phone Exists")  
else:  
 print("Phone not present")  
  
# Exercise 6: Loop Through a Dictionary  
# 1. Iterate over the `person` dictionary and print each key-value pair.  
  
for key, values in person.items():  
 print(key, ':',values)  
  
# 2. Iterate over the keys of the dictionary and print each key.  
  
for key in person.keys():  
 print(key)  
  
# 3. Iterate over the values of the dictionary and print each value.  
  
for value in person.values():  
 print(value)  
  
# Exercise 7: Nested Dictionary  
# 1. Create a dictionary called `employees` where the keys are employee IDs (`101`, `102`, `103`) and the values are dictionaries containing employee details (like name and job title)  
  
employees = {  
 101: {"name": "Bob", "job": "Engineer"},  
 102: {"name": "Sue", "job": "Designer"},  
 103: {"name": "Tom", "job": "Manager"}  
}  
  
# 2. Print the details of employee with ID `102`.  
  
print(employees[102])  
  
# 3. Add a new employee with ID `104`, name `"Linda"`, and job `"HR"`.  
employees[104] = {"name":"Linda","job":"HR"}  
  
# 4. Print the updated dictionary.  
print(employees)  
  
# Exercise 8: Dictionary Comprehension  
# 1. Create a dictionary comprehension that generates a dictionary where the keys are numbers from 1 to 5 and the values are the squares of the keys.  
  
new\_dict = {x:x\*\*2 for x in range(1,6)}  
  
# 2. Print the generated dictionary  
print(new\_dict)  
  
# Exercise 9: Merge Two Dictionaries  
# 1. Create two dictionaries:  
  
dict1 = {"a": 1, "b": 2}  
dict2 = {"c": 3, "d": 4}  
  
# 2. Merge `dict2` into `dict1` and print the result.  
  
dict3 = {\*\*dict1,\*\*dict2}  
  
print(dict3)  
  
# Exercise 10: Default Dictionary Values  
# 1. Create a dictionary that maps letters to numbers: `{"a": 1, "b": 2, "c": 3}`.  
# 2. Use the `get()` method to retrieve the value of key `"b"`.  
# 3. Use the `get()` method to try to retrieve the value of a non-existing key `"d"`, but provide a default value of `0` if the key is not found.  
  
new\_dict = {"a": 1, "b": 2, "c": 3}  
  
print(new\_dict.get("b"))  
print(new\_dict.get("d",0))  
  
# Exercise 11: Dictionary from Two Lists  
# 1. Given two lists:  
# 2. Create a dictionary by pairing corresponding elements from the `keys` and `values` lists.  
# 3. Print the resulting dictionary  
  
keys = ["name", "age", "city"]  
values = ["Eve", 29, "San Francisco"]  
  
new\_dict1 = {keys[i]:values[i] for i in range(0,len(keys))}  
  
print(new\_dict1)  
  
# Exercise 12: Count Occurrences of Words  
# 1. Write a Python program that takes a sentence as input and returns a dictionary that counts the occurrences of each word in the sentence.  
  
sentence = "the quick brown fox jumps over the lazy dog the fox"  
words = sentence.split()  
occurrence = {}  
for i in words:  
 count = occurrence.get(i,0)  
 occurrence[i] = count + 1  
  
# 2. Print the dictionary showing word counts  
  
print(occurrence)