University of Mohamed Khider
Faculty of Economics, Business and Management Sciences
Subject: Fundamentals of Programming with Python
Level: First Year – Common Core

Exercise 1

```
book = {
    "title": "Conditions of Renaissance",
    "author": "Malek Bennabi",
    "year": 1937,
    "pages": 250
}  # 1

print(book["title"])  # 2

book["year"] = 1938  # 3
print(book)

book["publisher"] = "Dar Al-Shorouk"  # 4
print(book)

if "isbn" in book:  # 5
    print("exist")
else:
    print("ISBN not found")

print(book.get("isbn", "ISBN not found"))  # 5 alternative

for key in book:  # 6
    print(key)

for value in book.values():  # 7
    print(value)

print(len(book))  # 8

book.pop("pages")  # 9
print(book)

new_book = book.copy()  # 10
print(new_book)
print(book)  # 11
```

Exercise 2

```
students = {  # 1 Create the nested dictionary
    "student1": {"name": "Ali", "age": 20, "major": "Economics", "math": 14, "statistics": 15},
    "student2": {"name": "Sara", "age": 22, "major": "Business", "math": 17, "statistics": 16}
}

print(students["student1"]["name"])  # 2 Print the name of student1
# Alternative method for step 2: students.get("student1").get("name")

students["student1"]["math"] = 18  # 3 Update the math grade of student1
# Alternative method for step 3: students["student1"].update({"math": 18})

for std in students:  # 4 Print all student names using a loop
    print(students[std]["name"])
# Alternative method for step 4:
# for info in students.values():
#     print(info["name"])

average = 0  # 5 Calculate the average math grade
for std in students:
    average += students[std]["math"]
average /= len(students)
print(average)
# Alternative method for step 5:
# average = sum([info["math"] for info in students.values()]) / len(students)

if "student3" in students:  # 6 Check if student3 exists
    print("student3 exists")
else:
    print("student3 not found")
# Alternative method for step 6: print(students.get("student3", "student3 not found"))
```