Practical Learning #3

Python Dictionaries

Dictionary

- A dictionary is a collection which is unordered, changeable and indexed.
- In Python dictionaries are written with curly brackets, and they have keys and values.
- Each key is separated from its value by a colon (:), the items are separated by commas, and the whole thing is enclosed in curly braces.
- An empty dictionary without any items is written with just two curly braces, like this: {}.
- Keys are unique within a dictionary while values may not be.
- The values of a dictionary can be of any type, but the keys must be of an immutable data type such as strings, numbers, or tuples.

Example:

1. Create a new python file named LE3_Lastnamefirstname.
2. Type the following code.
3.

```
#Create and print a dictionary
thisdict =      {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
print(thisdict)
```

OUTPUT:

```
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}
```

4.

```
#Accessing Items
#access the items of a dictionary
#by referring to its key name,
#inside square brackets

x = thisdict["model"]
print(x)

#There is also a method called get()
#that will give you the same result

x = thisdict.get("model")
print(x)
```

OUTPUT:

```
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}
Mustang
Mustang
```

5.

```
#Change Values
#Change the value of a specific item
#by referring to its key name

thisdict["year"] = 2018
print(thisdict)
```

OUTPUT:

```
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}
Mustang
Mustang
{'brand': 'Ford', 'model': 'Mustang', 'year': 2018}
```

6. Comment code from #4 to #5
7.

```
#Adding Items
#Is done by using a new index key
#and assigning a value to it

thisdict["color"] = "red"
print(thisdict)
```

OUTPUT:

```
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964, 'color': 'red'}
```

8.

```
#Removing Items
#pop() method removes the item with the specified key name

thisdict.pop("model")
print(thisdict)

#popitem() method removes the last inserted item
#(in versions before 3.7, a random item is removed instead)

thisdict.popitem()
print(thisdict)


#del keyword removes the
#item with the specified key name

del thisdict["year"]
print(thisdict)


#del keyword can also delete the dictionary completely
"""
del thisdict
print(thisdict) #this will cause an error because "thisdict" no longer exists.
"""
```

OUTPUT:

```
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964}
{'brand': 'Ford', 'model': 'Mustang', 'year': 1964, 'color': 'red'}
{'brand': 'Ford', 'year': 1964, 'color': 'red'}
{'brand': 'Ford', 'year': 1964}
{'brand': 'Ford'}
```

9. Comment all previous codes.
10. Type and study the following program:

```
studentList = {"last":[],"first":[]}
ctr = 0
def menu():
    print("1 = Add Student")
    print("2 = View Student List")
    print("3 = Delete Student Record")
    print("4 = Update Student Record")
    print("X = Exit")
    choice=input("Enter your choice: ")
    return choice
def main():
    global ctr
    while True:
        choice=menu()
        if choice=="1":
            ctr=ctr+1
            ln=input("Enter Last name: ")
            fn=input("Enter First name: ")
            studentList["last"].append(ln)
            studentList["first"].append(fn)
            #print(studentList)
        elif choice=="2":
            for i in range(ctr):
                print(i+1,end=" ")
                print(studentList["last"][i]+", "+studentList["first"][i])
        elif choice=="3":
            sno=int(input("Enter number to delete: "))
            if sno<1 or sno>ctr:
                print("Invalid number!")
            else:
                studentList["last"].pop(sno-1)
                studentList["first"].pop(sno-1)
                ctr = ctr -1
        elif choice=="4":
            sno=int(input("Enter number to Update: "))
            if sno<1 or sno>ctr:
                print("Invalid number!")
            else:
                for x in studentList:
                    c=input("Update " + x + "Y/N? ")
                    if c.upper()=="Y":
                        newData = input("Enter " + x +": ")
                        studentList[x][sno-1]=newData


        elif choice=="X":
            break;
main()
```