BRAC University

Department of Computer Science and Engineering (CSE)

CSE470: Software Engineering

SET - A Semester: **Summer 2025** Time: **25 minutes**
Examination: **Quiz 3** Full marks: **15**

Name: _____ **ID**: _____ **Section**: 8

You have recently joined Blunt Electronics in the Microwave Oven division. They are trying to come with a new smart lineup of microwaves to beat the competition. This smart oven connects to an app that lets the family register their members. Then when the registered members use the oven, it generates a QR code that can be scanned by the app. When a registered member scans the app, the oven will send them a notification once the food is ready. The QR code can be scanned by multiple registered users, in which case all of those users will get the notification. But you need to make sure one member does not get notifications about orders that they did not scan for. Also there should be no possibilities of data inconsistencies. Here is a driver code for your reference: (**Hint**: to make a python list empty you can use the **list.clear()** method.)

Driver Code	Output
oven = Microwave() print("======1======") member1 = User("Member 1") member2 = User("Member 2") member3 = User("Member 3") print("======2======") member1.register() member2.register() print("======3======") member1.scanQR() member2.scanQR() print("======4======") member3.scanQR() print("======5======") oven.updateFoodStatus() print("======6======") member3.register() print("======7======") member3.scanQR() print("======8======") oven.updateFoodStatus()	======1====== ======2====== Member 1 is registered! Member 2 is registered! ======3====== Member 1 is added to the queue! Member 2 is added to the queue! ======4====== Member 3 Unregistered ======5====== Food Update: Member 1, Your food is ready! Member 2, Your food is ready! ======6====== Member 3 is registered! ======7====== Member 3 is added to the queue! ======8====== Food Update: Member 3, Your food is ready!

1. What design pattern(s) should be used in this scenario? [2]
2. Implement the necessary classes in such a way that the driver code generates the given output. [10]
3. If later in this process your company finds out that there is a specific format of User class that you need to follow, what type of pattern changes will be required and why? Answer in **maximum 3 lines**. [1+2]

Answer: ∞ CSE470 Quiz-3 Solution.ipynb

BRAC University
Department of Computer Science and Engineering (CSE)

CSE470: Software Engineering

SET - B

Semester: **Summer 2025**
Examination: **Quiz 3**

Time: **25 minutes**
Full marks: **15**

Name: _____   **ID**: _____   **Section**: **8**

You have recently joined a local electronics company in the Microwave Oven division. They have a lineup of smart ovens. These smart ovens offer the following features: insertFood, toast, heat and grill. Now they want to export their products globally and are now required to follow global heating standards in their ovens. According to the World Oven Association (WOA), each of the export quality ovens must have these two functionalities: BBQ and Toast. Also the updated oven should have data consistency features built-in for future needs. Now it is your responsibility to make a product that matches the international standards. Here is a driver code for your reference:

Driver Code	Output
local = LocalMicrowave() print("======1======") local.insertFood() print("======2======") local.toast() print("======3======") local.heat() print("======4======") local.grill() print("======5======") newOven = NewMicrowave() print("======6======") newOven.insertFood() print("======7======") newOven.bbq() print("======8======") newOven.toast() print("======9======") newOven.heat()	======1====== Food is inserted! ======2====== Food is inserted! Toasting! ======3====== Food is inserted! Heating! ======4====== Food is inserted! Grilling! ======5====== ======6====== Food is inserted! ======7====== Food is inserted! Grilling! ======8====== Food is inserted! Toasting! ======9====== Food is inserted! Heating!

1. What design pattern(s) should be used in this scenario? [2]
2. Implement the necessary classes in such a way that the driver code generates the given output. [10]
3. If later in this process your company wants to send notifications to their users from the oven every time the food is done, what type of pattern changes will be required and why? Answer in **maximum 3 lines**. [1+2]

Answer: ∞ **CSE470 Quiz-3 Solution.ipynb**