CCCS 301 Assignment 2

Introduction

You must do this assignment individually, and you should follow all the instructions including all the naming and wording for methods name and project name. When you submit your file, make sure that your code compiles and runs even if you cannot complete the program. Do Not submit a file that is not be able to run. You may end up with 0 because of it.

This assignment is worth 10% of your final grade, and it is out of 100 points.

No late assignments are permitted. You will get 0 for a late assignment.

Due Date

See MyCourses

What to submit

- Zip and submit the following projects onto MyCourses: $YOUR_NAME$_A2

Question: Burgers and Fries (100 points)

After the pandemic, you decide to open a fast-food restaurant. Since this is a start-up business, you only focus on selling one meal: burger and fries. After a couple of days of observation, you found that you need to have at least one chef for making the burger and one chef for making fries for serving customers. In this assignment, you need to simulate this restaurant using the Java thread you learn in the class. *Please start your assignment using the template I provide.*

In the restaurant, you have one burger chef, one fries chef, and one waitress. In this simulation, the burger chef can produce a burger every **3 seconds**, and the fries chef can produce a set of fries every **2 seconds**.

There is a kitchen table between the two chefs. The table is used to temporarily place the burgers or fries. Since the table has a limited size, it only allows having a **maximum of 5 burgers or 5 sets of fries**. Next, If the kitchen table has at least one burger and one set of fries, either the burger chef or fries chef can combine them to make a combo and place it on the ready table. Note that in your simulation, you need to show me **who makes the combo**.

Finally, the waitress can serve these combos to customers from the ready table. The average serving time for one customer is **10 seconds**, but the ready table can only have a **maximum of 3 meals**. Thus, both chefs should wait until both kitchen and ready table are available before beginning their next task. All wait times should take 1 second.

To get full marks, you need to:
1. Follow the printing format. (e.g., draw a horizontal line when making a combo or serving a meal)
2. Follow the simulation logic.
3. Correctly show the action and status.
4. The program should never end.

ZIP your project and hand it in to myCourses when you are done. Pl ease DO NOT RAR it or use other compression extension like .7z, you will lose marks because of it.

Please check the next page for a sample output. You will get a different output any time you restart the program.

```
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 1
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 0, fries left: 0, meals left: 1
================================================================================
[Action] Waitress serve a meal
[Status] meals left: 0
--------------------------------------------------------------------------------
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 1
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 0, fries left: 0, meals left: 1
================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 1
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 2
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 0, fries left: 1, meals left: 2
================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 2
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 0, fries left: 1, meals left: 3
================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 2
[Action] Waitress serve a meal
[Status] meals left: 2
--------------------------------------------------------------------------------
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 3
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 0, fries left: 2, meals left: 3
================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 3
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 1
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 4
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 2
```

```
[Action] Waitress serve a meal
[Status] meals left: 2
------------------------------------------------------------------------------------
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 3
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 2, fries left: 4, meals left: 3
====================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 3
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 4
[Action] Waitress serve a meal
[Status] meals left: 2
------------------------------------------------------------------------------------
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 5
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 4, fries left: 4, meals left: 3
====================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 5
[Action] Waitress serve a meal
[Status] meals left: 2
------------------------------------------------------------------------------------
[Action] FriesChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 4, fries left: 4, meals left: 3
====================================================================================
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 5
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
[Action] Waitress serve a meal
[Status] meals left: 2
------------------------------------------------------------------------------------
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 4, fries left: 4, meals left: 3
====================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
[Action] BurgerChef add a burger on the kitchen table
[Status] burgers left: 5
[Action] Waitress serve a meal
[Status] meals left: 2
------------------------------------------------------------------------------------
[Action] BurgerChef makes Burger and Fries and place it on the ready table
[Status] burgers left: 4, fries left: 4, meals left: 3
====================================================================================
[Action] FriesChef add a fries on the kitchen table
[Status] fries left: 5
```