2021.1 Multicore Computing, Project #2

(Due : 11:59pm, May 10th)

Submission Rule

1. Create a directory "proj2".
2.1 In the directory "proj2", insert (i)JAVA source code, (ii) a PDF or TXT document file that shows three examples of execution results (output) and (iii) readme.txt. In **readme.txt** file, you should briefly explain how to compile and execute the source code you submit. You should use JAVA language.
3. zip the directory "proj2" into "proj2.zip" and submit the zip file into eClass homework board.

Project Description

We studied a garage parking problem in lecture note 4-1. The JAVA source code for the problem, **ParkingGarageOperation.java**, which is available in our class webpage "project 2" announcement, uses **wait()/notify()** to implement the garage parking problem.

[What you need to do for this project]: Write a JAVA code generating results that are equivalent (i.e. similar) to the results of the original JAVA code **ParkingGarageOperation.java** using **java.util.concurrent** (especially **ArrayBlockingQueue** and **BlockingQueue** classes) instead of using **wait()/notify()**. This means you should not use **wait()/notify()** functions in your JAVA program. You may start from **ParkingGarageOperation.java** and modify it. See the **ArrayBlockingQueueExample.java** (available on our class webpage) that can be helpful for doing this project. Please assume that the number of free parking places is 10 and the number of cars is 40.

In the results, you should print "Car #: trying to enter" just before entering and print "Car #: entered" just after actual entering in order to show whether the entering car is waiting for empty place or not. Please see the output example below.

Output example :

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$ java ParkingGarageOperation
Car 3: trying to enter
Car 3: entered
Car 21: trying to enter
Car 21: entered
Car 28: trying to enter
Car 28: entered
Car 24: trying to enter
Car 24: entered
Car 14: trying to enter
Car 14: entered
Car 9: trying to enter
Car 9: entered
Car 15: trying to enter
Car 15: entered
Car 35: trying to enter
Car 35: entered
Car 35: left
Car 25: trying to enter
Car 25: entered
Car 2: trying to enter
Car 2: entered
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Car 15: left
Car 12: trying to enter
Car 12: entered
Car 35: trying to enter
Car 35: entered
Car 11: trying to enter
Car 6: trying to enter
Car 29: trying to enter
Car 36: trying to enter
Car 17: trying to enter
Car 40: trying to enter
Car 10: trying to enter
Car 21: left
Car 11: entered
Car 34: trying to enter
Car 26: trying to enter
Car 8: trying to enter
Car 22: trying to enter
Car 13: trying to enter
Car 35: left
Car 6: entered
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