

(Exercise: A Bar)

You're going to simulate serving beers to customers at a bar.

Create a `Beer` class, it doesn't need any data or methods.

Create a `Bar` class. It should have an `ArrayList<Beer>` to hold beers. It should also have an integer to indicate how many beers can be on the bar at a time. It could be e.g. 20.

Create a method `placeBeer(Beer b)`. If the size of the `ArrayList` is 20 or more, then call `wait()`. Otherwise, add a `Beer` to the list, and `notifyAll` waiting threads.

Create a method `takeBeer()`, which removes a `Beer` from the `ArrayList`, if there are any `Beers` left.

Create Class `Bartender`, which periodically (e.g. every other second) will attempt to place a `Beer` on the `Bar`.

Create a Class `Customer`, which periodically will attempt to take a `Beer` from the `Bar`.

Add names/tags to the `Bartender`/`Customer` classes, and add print outs, so you can follow what's going on.

Create a couple of bartenders and a bunch of customers and run your program.

Extra: Change the `Bar` class to be `Runnable`. Have it wait for a number of seconds (e.g. 30 or so), and then set a boolean variable `barIsOpen` to `false`. When this is changed to `false`, the `Bartenders` should stop placing `Beers`, and the `Customers` should stop taking `Beers` and leave. Print out appropriate statements.