DuckDuckQuaff
Seong Hyeon "Ryan" Kim, Woosuk Lee, Raymond Wu

APCS2 pd 8
2018-05-30

Final Project Proposal
Wok Wok

General Description of Project:
Our final project proposal is to create an in-terminal simulation of cooking in a restaurant. The goal of the game is to serve a pre-determined amount of customers in the least amount of time.

Once the simulation begins, the clock will start with a suggested finish time based on the amount of customers.

There will be a queue of customers who wish to order an item off of the menu (Array of `int`s representing number of items customer ordered). The menu will be represented by a binary search tree (ArrayList). The contents of the binary search tree will hold a new abstract data type we will create that will resemble a dictionary, such that the "key" is the name of the menu item (e.g. *hamburger*), and the "value" will be an array of ingredients (e.g. `["bread", "patty", "tomato", "lettuce"]`)

Once a customer reaches the dequeue end of the line, the user (the cook) must gather the materials needed to make the requested product via binary search, which is why we decided to use a BST for the menu. If the ingredients cooked matches that of the one that the customer ordered, the customer is dequeued, and the process repeats for the remaining customers.

When the last customer has been dequeued, the simulation ends, and the clock stops. If the end time is less than the suggested finish time, bonus points will be added to the score.

Prioritized To-Do List
1. Have a fully functioning game
    a. Implement timer for game duration
    b. One-level game with predetermined amount of customers (e.g. 10)
    c. Each customer orders 1 item only
    d. Create customer priority queue, menu BST with dictionary-like ADT
    e, Create Customer and Cook classes
2. Expand on one-level game
    a. Variable amount of customers
    b. Variable amount of items ordered per customer
    c. Customers with least amount of requests dequeued first
3. Change customer queue into priority queue
    a. Customers have VIP tag (boolean instance variable) for priority queue

Concepts Addressed in Our Project:
- BST implemented as an ArrayList, using binary search
- Priority Queue implemented as an array
- Creating an ADT to store all menu items