Assignments

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Settings for "Design and Testing (2014 Pair Assignment 1)"

Created by	Gail E. Kaiser
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Student Submissions	Single Uploaded File only
Number of resubmissions allowed	Unlimited
Accept Resubmission Until	Oct 14, 2014 5:00 pm
Grade	Points (max 20.0)
Alert:	Yes
Honor pledge:	Yes

Assignment Instructions

For this assignment, you will work in pairs from the same team. Do the work together as a pair, but not the entire team of four. One of the two members of the pair should submit, with both names (and unis) on the assignment. (CVN students can do this assignment individually.)

Develop a high-level design and test plan for either or both of the two systems described below, and submit together in one document. You only need to do one; extra credit will be granted if you complete both.

Assume the system will be implemented using the same framework that your team has chosen for the project, but do not discuss implementation details. For each system, describe the following:

- Major classes, with their main member variables and methods, including relationships among classes where relevant. Sketch class diagrams. Discuss any design patterns used (these can be *any* design patterns, not limited to those discussed in class). [7 points]
- Major interactions within and between these classes, that collectively implement all the use cases. Sketch sequence diagrams. Again, discuss any design patterns used (these can be *any* design patterns, not limited to those discussed in class). [6 points]
- Black box acceptance testing using equivalence partitions and boundary value analysis, based on the classes and interactions you have designed. Describe specific equivalence classes and their boundaries, where relevant, and the corresponding test cases (in prose). [7 points]

The diagrams may be drawn by hand, in which case scan the images to include in your submitted document, or you may use any diagramming tool that exports images that you can import into your submitted document.

A. CabTouch

The best way to get a Yellow Medallion Taxicab quickly! The idea is to develop a mobile application for tourists to New York City who wish to take registered Taxicabs.

Drivers
1. Register for the application.
2. Available drivers (ready to take passengers) set their status as “Available” and specify their location.
3. Drivers who have picked up passengers or are not operating update their status as

"Unavailable".
4, When a driver receives a request from a potential passenger, the driver can agree or not agree to pick up the passenger, and notifies the passenger accordingly.

Passengers
1. The users of the app (potential passengers) allow for their location to be detected.
2. The available drivers in/near the location are returned.
3. The user can check information about any of the available drivers (available from NYC OpenData).
4. The user can choose to call a driver or send a notification (message/email) to the driver stating where she is now and where she wants to go.
5. The user iterates this process until picked up.

Assume all drivers who agree to pick up a passenger indeed do pick up and take them where they wants to go.

B. Library+

When we want to borrow books from libraries for a course project, it would be really frustrating if we had to find the availability of each book by searching from library to library. If possible, we would prefer to get all the books from the same library. Life would become much easier were we able to get such information all in one place, by several simple clicks.

Library+ is a mobile app that allows users to search for nearby libraries as well as information about which books they have in stock. A user can specify the title of each book she would like to borrow and the app returns a list of libraries that have this book available, along with their locations shown on a map.

1. The user searches for her set of books. For each book, the app returns the list of libraries with that book in stock. Each library is accompanied by information such as location and days/hours the library is open.

2. The user specifies when she would like to go pick up the books and the location she will be leaving from. The app finds the optimal path, via subway and/or walking, for the user to visit each library in the shortest time to pick up all the books currently available, and informs the user of any delays (e.g., one of the libraries is not open at the desired date/time).

Assume the user has borrowing privileges at all the libraries, and the app has access to information about all the libraries in the city as well as the city street map and subway lines.

Additional resources for assignment

- ArgoUML (1 KB; Oct 1, 2014 4:03 pm)
- Modelio (1 KB; Oct 1, 2014 4:03 pm)
- StarUML (1 KB; Oct 1, 2014 4:03 pm)
- Umbrello (1 KB; Oct 1, 2014 4:03 pm)
- Violet (1 KB; Oct 1, 2014 4:03 pm)

▸ Student view of the assignment "Design and Testing (2014 Pair Assignment 1)"