

CmpE 473 Internet Programming
Fall 2007
Assignment 1—Due: 17/10/2007

You will do this assignment in groups of four. One person in the group will be the project leader for each assignment in the course. The project leader should be different in each assignment.

You will implement a client/server system for serving food menus.

Scenario: Consider a customer who wants to buy a food menu at a restaurant. A food menu consists of a main dish, a dessert, and a drink. Each food type (main dish, dessert, drink) is provided by a different vendor. To serve a particular menu to the customer, the restaurant should make sure that it has all the items in the menu. To do so, it will contact each vendor one by one and ask the availability of the corresponding item. If the vendor cannot supply the order, then the restaurant will figure out an available menu (again after checking availability with the vendors) and offer this menu to the customer. The customer may or may not accept the new menu. The restaurant will keep on creating a new offer until it runs out of options.

Technical Details: All entities in the application (customer, restaurant, main dish vendor, dessert vendor, drink vendor) will be independent Java applications. The customer communicates only with the restaurant (not with any of the vendors). The customer uses Java sockets to communicate with the restaurant. The restaurant will communicate with the vendors using RMI. Each vendor in the system will have a DB of its own to keep track of availability. Each entity can only access its own DB. For example, the restaurant can only access the databases of the vendors through method calls over the vendors (not directly).

The client software will represent the customer. It will contain a GUI for the user to enter the items in the food menu. After the user enters this information and clicks the *Buy* button, the information will be communicated to the restaurant, which will check to see if it can offer the menu as explained in the *Scenario* above. No human input is necessary for the server side. The result of the search will be shown at the client GUI. The GUI should allow the user to accept or reject alternative menus.

For the implementation, you need to have one restaurant, one of each vendors, and a few customers. In the demo, you should be able to show cases where

1. The restaurant talks to the vendors and can offer the menu because all the vendors have the necessary item in their stock.
2. The main dish and the dessert vendors have the necessary items but the drink vendor does not have the requested drink. Hence, the restaurant offers a new menu to the customer and the customer accepts.
3. None of the vendors have the requested items. Hence, the restaurant offers a new menu to the customer but the customer rejects. Next, the restaurant makes all possible offers but cannot satisfy the customer.

You will give a demo of your system and hand in a detailed report on CD. You should turn in your CD on the due date **before** class. Watch for the notification of demo dates. **All** members of the group need to be present in the demo. Be prepared to show all aspects of your program, including

the different scenarios listed above. You need to explain the protocol you used, the application logic that the restaurant uses, and other details that are important for your implementation.

The demos will take place in the university so make sure that your demo runs on the PC Lab in the university or that you can bring in the necessary hardware and software for the demo.