

Course: Software Design Techniques

Homework #5

XYZ is a company which provides metropolitan internet services to its customers. When service subscription requests arrive at the company they are processed and approved, and invoices for all active subscriptions are printed and dispatched to customers.

XYZ also manages the customers' problems using the troubleshoot ticket system. The call centre with its IT help desk software is a valuable resource for technicians to manage and resolve troubleshooting tickets.

Last years the XYZ business has developed very well, the customers are much more numerous and distributed on a wider area, so the XYZ staff decided to transform XYZ in a franchiser and to allow to franchisees in the territory (independent companies which have a direct stake in the business) to use the XYZ's trademark and provide maintenance for XYZ's internet services.

Joint problem solving and coordination procedures have been established with the related franchisees . Each franchisee maintains its own Trouble Ticket system, and uses web services shared with XYZ in a collaborative effort to resolve the problem.

Once a Trouble Ticket is opened in the XYZ call centre with a customer, the franchisee's technicians should provide maintenance in the franchisee's area: they should support the customer, and inform their franchisee of the events and procedures relating to the problem.

The following scenario describes simplified troubleshooting of a problem.

A customer can submit troubleshoot requests to the call centre with the problem he/she encountered (lost internet connection, too low bandwidth etc.). in the request he/she declares his/her personal data (name, home address, CNP, e-mail address etc.) and the problem he/she encountered

When the XYZ call centre operator identifies a new problem troubleshoot request he/she registers it with his/her application in the company's database and a problem ticket is automatically created. The ticket identifier is communicated to the customer.

Then the operator selects the closest to the customer's address franchisee and a service request to it is forwarded by the call centre application. The called service is **newProblemTicket** and the request includes an XML document containing the ticket identifier, the customer's personal data and encountered problem, the request date/time, if the problem resolution is urgent or not.

The franchisee's Trouble Ticket system registers the ticket and generates a report for the intervention team. The franchisee manager organizes a team of technicians to be sent at the customer's address. The technicians try to solve the problem as soon as possible.

When the problem has been solved, the franchisee's Trouble Ticket system calls the **billProblemTicket** web service of the franchiser's call centre application in order to confirm the problem resolution. The call includes invoice information containing the ticket identifier, the intervention cost (TVA excluded), the billing date/time, and a short description of the intervention.

Finally, XYZ sends an invoice to the customer by ordinary mail.

Develop two little prototypes for the call centre application and the franchisee's Trouble Ticket system that exchange information using **newProblemTicket** and **newProblemTicket** services.

Simulate the above scenarios with the two prototypes.