

## **Design Exercises**

Using the concepts discussed in the Object-Oriented Design lecture (OODesign.pdf) provide a design for the following problem descriptions. Slide 10 of OODesign.pdf provides an example of the kind of answers we are expecting. Feel free to also use UML.

There will be at least one design project in this course, therefore, it is in your best interest to complete this exercise. Also, design questions may appear in exams.

1. You need to design a software system that handles installation requests for a cable company. Installation requests are serviced on a first-come first-serve basis. An installation request is identified by an id number and the technician it is assigned to. An installation request includes information about a customer and type of service requested (digital or analog). The cable company has two types of technicians: those that install analog systems and those installing digital ones. Installing an analog system requires connecting a cable to the back of the TV and setting up the TV; installing a digital system requires making a connection to a company digital box and a separate connection to the TV. In addition to installing systems, any technician can generate a bill for a customer and answer any general questions about services the company offers.
2. You need to design the software system that simulates a TA room. In the TA room we have TAs and students. A student arrives to the room and adds her/his name to a list. Any TA that is available will help the next student in the list. After ten minutes a TA needs to see another student. A TA has a name, a list of courses they can TA for and how long they can be helping students. A student has a name, id and a description of the problem that he/she needs help with. The TA room system keeps track of how many students have been helped (per course), how many could not be helped and how many are waiting.