Assessed Exercise 1: Requirements Analysis

This exercise is worth **50%** of the credit for the course.

Deadline: Friday 26th February, at the beginning of the lecture.

Submissions may be handwritten, printed, or printed with handwritten diagrams.

Your name must be clearly written or printed on the first page of your submission, you must include a declaration of originality form from your department, and all pages of your submission must be stapled or otherwise securely attached together.

Problem

A company hires out tools and equipment (for example drills, power saws, cement mixers, ladders, scaffolding) to customers and requires a computerised system to record details of bookings. Equipment may be booked in advance, or customers may appear at the reception desk and ask if there is an item available for immediate hire. When dealing with a booking or allocating an available item to a customer, the receptionist has to check whether the customer has previously hired equipment from the company or is a new customer. For a new customer, the receptionist has to enter the customer's details. Otherwise, the receptionist has to retrieve the existing customer's record and update any details if necessary. The minimum period of hire is one day and all hires are made for a number of complete days. The return of an item at the end of the hire period is recorded by the receptionist, or by a technician if the reception desk is closed. The manager of the company requires a summary of the status of all equipment at the beginning of each day, giving details of: items out on hire, items booked and items that will be available for hire that day.

1. Identify the stakeholders in the proposed system.
2. From the description, identify functional and non-functional requirements for the system.
3. Are there any functional or non-functional requirements that you think are likely to be relevant but that have not been explicitly stated in the problem? What would you ask the client in order to find out about these potential requirements?
4. Draw a use case diagram describing the main functions of the system. You should assume that all financial transactions are recorded separately from the hire system and do not need to be covered by your specification. State any additional assumptions that you have made about the operation of the system. Give a short description of each actor and each use case.
5. For each use case, describe a primary scenario (the "happy day" scenario) and, if appropriate, one or more alternative scenarios.
6. For each use case, draw an activity diagram to show how an actor will interact with the system in order to complete the use case.