Informal Requirements Specification Exercise

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Version 1.0

Introduction

The purpose of this exercise is to prepare a (non-formal) requirements specification for a software system. It may later be used as a baseline for work in formal specification.

Assignment details

Introduction

Because this exercise concentrates on the specification and documentation of requirements, rather than on eliciting them from clients or stakeholders, the problem domain is one that you should already be familiar with. You are expected to take into account your own knowledge of the problem domain in completing this work.

You may complete this exercise by yourself, but it is preferable to work as a member of a team (2-3 members). If you do this, your colleagues may have differing views about the requirements. You should reach some kind of consensus about the requirements and document them as well as you can. There is more than one possible "right answer" for this project.

System description

Study this overview of the system you are to specify. It is taken from a similar problem addressed at the Fourth International Workshop on Software Specification and Design, April 3-4, 1987, Monterey, California.

- An n-elevator system is to be installed in a building with m floors. The elevators and the control mechanism are supplied by the manufacturer. The internal mechanisms of these are assumed (given).
- The problem concerns the logic to move elevators between floors according to the following constraints:
    a. Each elevator has a set of buttons, one for each floor. These illuminate when pressed and cause the elevator to visit the corresponding floor. The illumination is cancelled when the corresponding floor is visited by the elevator.
    b. Each floor has two buttons (except the top and bottom floors), one to request upward travel and one to request downward travel. These buttons illuminate when pressed. The illumination is cancelled when an elevator visits the floor and is either moving in the desired direction or has no outstanding requests.
    c. When an elevator has no requests to service, it should remain at its final destination with its doors closed and await further requests. (An alternative would be to specify a floor to which the elevator should return under these conditions.)
    d. All requests for elevators from floors must be serviced eventually, with all floors being given equal priority.
    e. All requests for floors within an elevator must be serviced eventually, with floors

          being serviced sequentially in the direction of travel.

    f. Each elevator has an emergency button that, when pressed, causes a warning signal to be sent to the site manager. The elevator is then deemed "out of service." Each elevator has a mechanism to cancel its "out of service" status.

It is likely that you have are familiar with elevator systems similar to the one described here. You should use your own experience to help you understand the details of the system for which you are trying to specify the requirements.

Report

- Document your understanding of the system requirements.
  - Focus primarily on requirements related to controlling the movement of each elevator in response to passenger inputs and related factors.
  - Since you are preparing an informal (or non-formal) specification, your document will be mostly textual in nature.
  - If you wish, you may include tables or diagrams.
- Add a section to your specification describing any difficulties you encountered, or any questions that you still have.

If you have questions about the assignment, please consult the instructor.