

An Adaptive Alarm Application

The purpose of an alarm application is to attract user attention. Specifically, cell phone applications do so by ringing. In a typical setting, a user sets an alarm for a future time and the application rings the phone at that time. This seems to be the standard functionality since the early cell phones until the most recent smart phones. While these alarm applications know *what* to do and *how* to do it, they lack an understanding of *why* to do something. Even if the application developer knew the why (at least vaguely), his intuitions are often buried in the code. Your task in this assignment is to build an *adaptive alarm* application. In the process, you will document the thought process (i.e., what design decisions you made and why). There are several ways an alarm application can be adaptive. The following scenarios exemplify a few opportunities for adaptation.

- A student has classes in the morning. Usually she wakes up an hour before the first class. However on a particular day, the transit system is running late due to weather/traffic. She must therefore catch an earlier bus than usual. But by the time she wakes up, readies up and leaves its already too late.
- A sales professional is scheduled to make multiple business pitches in a single day tour of Chicago. The day before he estimates the times he would have to leave each venue to get in time to the next. He set alarms for when he must wrap up at each talk. But he underestimates Chicago's traffic and leaves very little time for travel.
- A professor who has spent all night preparing a presentation, has an early morning flight to a conference. But the flight is delayed by two hours. He ends up losing sleep unnecessarily since the alarm is set for too early now.
- A student living in a Hostel sets the alarm before an exam, but ends up repeatedly snoozing the alarm and reached late for the exam. This would hardly have happened if there was somebody around to make sure she wakes up.

These are not the only opportunities. You might realize additional scenarios suitable for adaptation. If there is an additional scenario you want to incorporate, please discuss with me. However, the crux of the project is not to come up with (and consequently implement) an exhaustive list of features. Instead, your focus should be model precisely 1) what is that you are doing, 2) how you are doing that, and 3) why are you doing it a certain way. In the first phase of the development, you will produce system models that capture the actors, their goals and plans, and dependencies among them. The case study provides ideas to get started on this.

Note that you will implement and evolve the system in the following phases. So, try to make the modeling a worthwhile activity. A well constructed model makes the implementation and system evolution easier.