Alloy Elevator Specification — CSE503, Winter 08
Due: March 6 before class.
Groups: You may work in groups of at most three students.

Your assignment is to create an Alloy specification for an n-elevator system in a building with m floors. The specification should satisfy all of the following properties.

- Each elevator has a set of buttons, one button for each floor.

  - These activate when pressed and cause the elevator to visit the corresponding floor.
  - The activation is canceled when the corresponding floor is visited by the elevator.

- Each floor, except the ground and top floors, has *up* and *down* buttons. The ground floor has an *up* button. The top floor has a *down* button.

  - The buttons are canceled when an elevator visits the floor and is either traveling in the desired direction or visits a floor with no requests outstanding. (I.e., that floor is its only request.)
  - In the latter case, if both floor request buttons are active, only one should be canceled.

- When an elevator has no requests to service, it should remain at its final destination with its doors closed and await further requests.

- All requests for elevators from floors must be serviced by some elevator eventually, with all floors given equal priority.

- All requests for floors from within elevators must be serviced eventually, with floors being serviced sequentially in the direction of travel.

Good luck!