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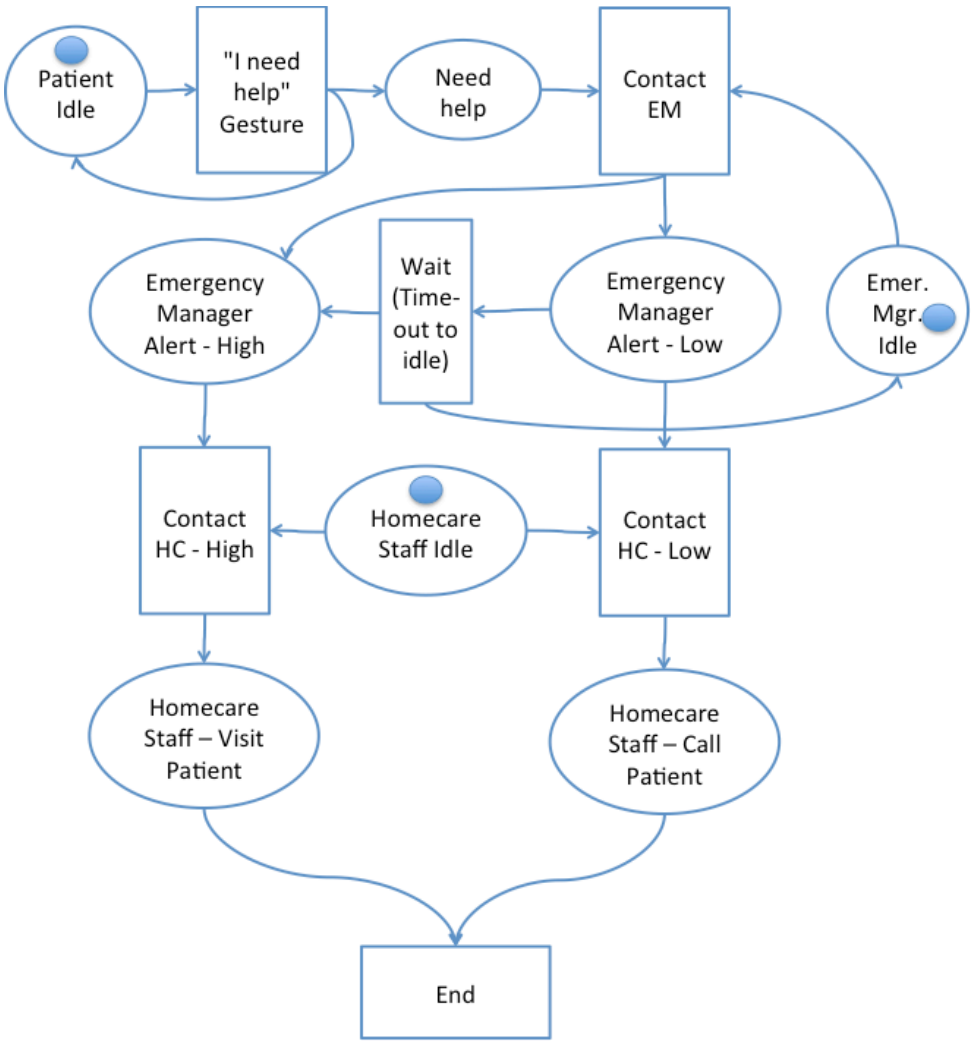
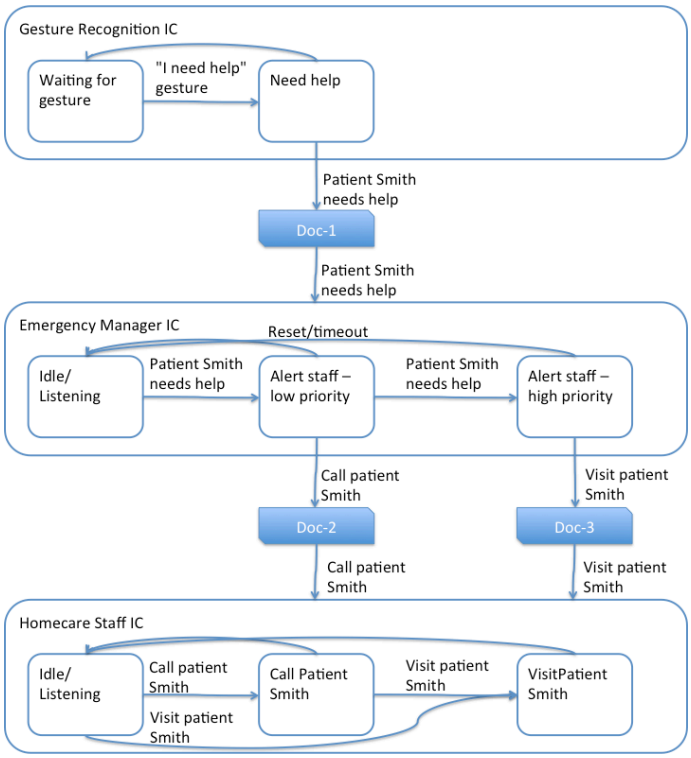
CS2310 Exercise 3:
The purpose of this exercise is to understand the relationship between active index and Petri nets. Both are tools for the modeling of distributed multimedia systems. Active index cells are added incrementally to build a dynamic index, and the connections can also change dynamically. However, if the massages passed between index cells are deterministically routed, then it is possible to convert active index into a Petri net. Otherwise you must use a Petri net with conditions (predicates) associated with the transitions, or an **Evaluation Net** (E-net).

(a) Convert the active index you constructed in Exercise #2 into a Petri net (or an E-net).

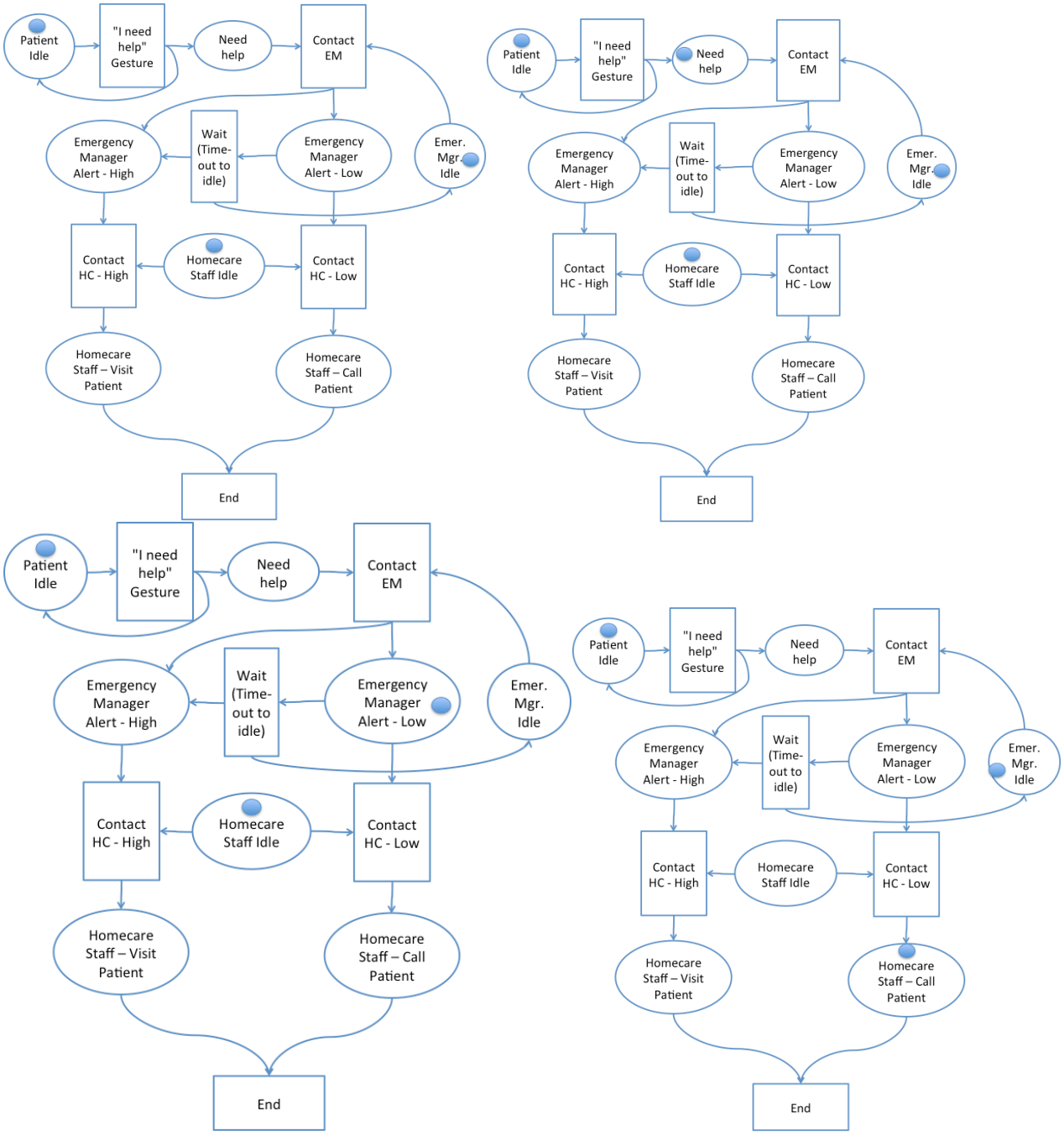


(b) Take the diagram you drew in part (c) of Exercise #2. Redraw it here (because you may want to make some changes), and now use the marked Petri net to illustrate the scenario. You can draw a sequence of marked Petri net to show how the system works.

From Exercise #2:



The sequence below illustrates an instance of the patient sending 1 "I need help" gesture, and then triggering a call from the homecare staff.



(c) Suppose the emergency manager index cell corresponds to a **super-component**, i.e., the emergency manager can enumerate a number of feasible solutions and select the most appropriate one. Draw the personal health care system as a pair of (I-card, C-card), and convert it into an ordinary Petri net. (To do that, you need to assume a specific number of feasible solutions for the emergency manager to evaluate. Let us say three.)