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CS 487

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## Homework 2

**Consider an automated lecturer:**

**1. Rewrite each of the following student needs as an unambiguous system requirement**

**a. “We must be able to ask the instructor questions.”**

The instructor is required to have a system that allows students to notify the instructor if they have a question. The instructor must be preprogrammed with a set of predetermined questions that the student may ask. The set of questions must be updatable.

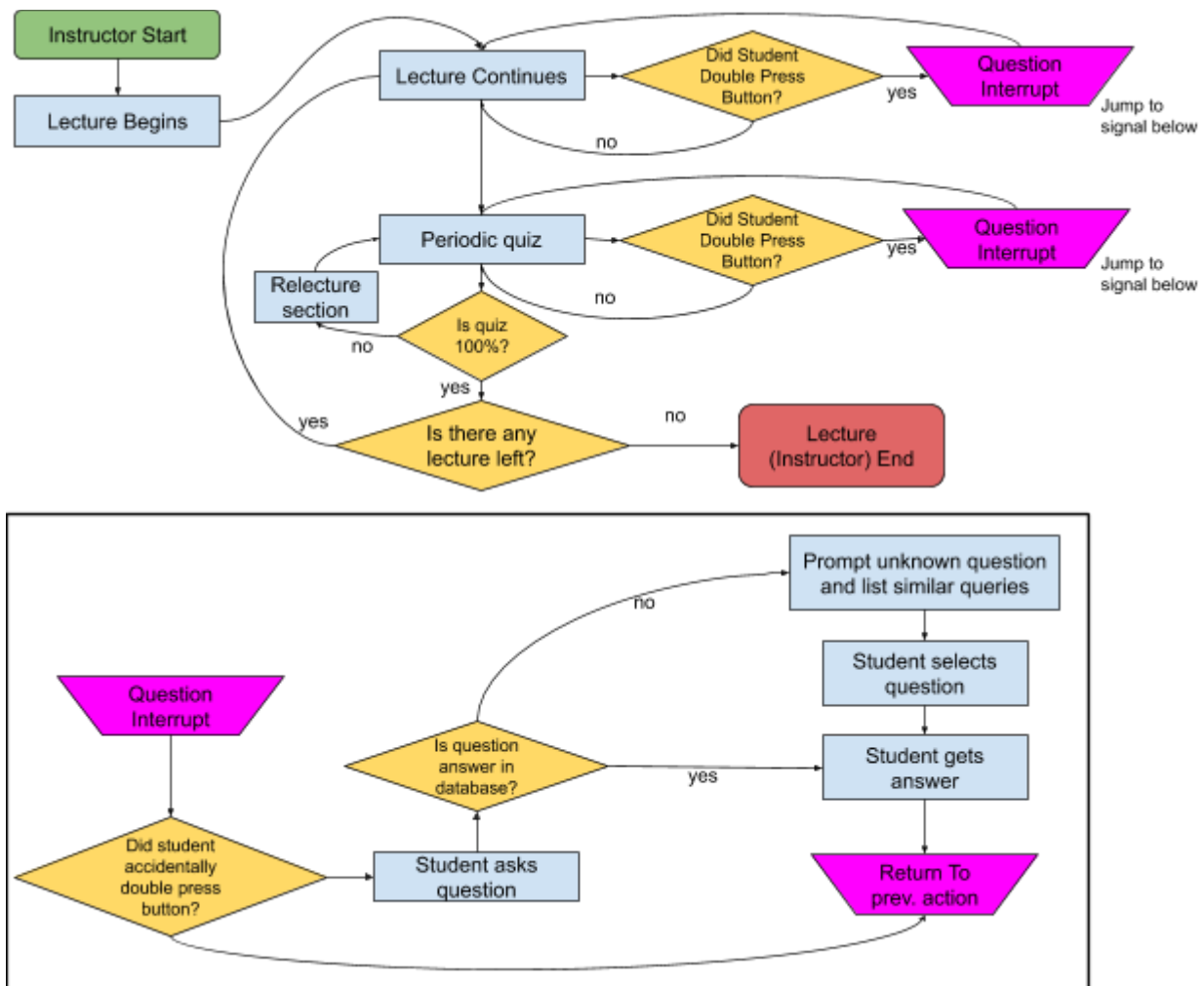
**b. “The instructor must respond to questions quickly.”**

The instructor must be able to process and compare queries to the set of preprogrammed questions and retrieve an answer to the question and notify the student in a short time (less than 30 seconds).

**c. “The instructor must teach me the subject matter.”**

The instructor must lecture in a human-understandable way (visual/audio) while following a preprogrammed curriculum and query periodic questions to the student to confirm that the student learns the subject matter. If the student does not answer questions correctly, the instructor will repeat the subsections of the lecture that the student needs to learn.

2. Document tests to *prove* success for each requirement (*represented in flowchart*).



Test for requirement A is satisfied with the inclusion of the “question interrupt”. Test for requirement B is dependent on the system but considerable question filtering during the question interrupt phase minimizes retrial by student for unknown questions. Test for requirement C is satisfied with “periodic quizzes” and question checking with options to ask questions.

3. Propose a “defensive design” to allow a student to interrupt with a question – explain how your design minimizes the possibility of “false alarms”

A multi-push button that requires a quick double-press could minimize false alarms to the instructor since accidental, long-presses, or malfunctioning buttons could query the instructor unintentionally. A multi-press system reduces accidental presses and is better than other systems like auditory or visual queries since those have a higher probability of being false alarms.