Lecture #4: DFA Design and Verification — Part Two What Will Happen During the Lecture

Review

The lecture presentation will begin with a **brief** review of the material in the preparatory videos and documents for this lecture — and students will have the chance to ask questions about this.

Problem To Be Solved

Let $\Sigma = \{a, b\}$ and let $L \subseteq \Sigma^*$ be the following language:

 $L = \{ w \in \Sigma^* \mid \omega \text{ ends with abb} \}.$

During the previous lecture, the design process introduced in the preparatory reading was used to try to design a deterministic finite automaton that has this language — working under the assumption that the only thing that a DFA would need to remember, when processing a given string, was whether that string belongs to this language.

This attempt failed — and we established that this is *not* enough information. We must figure out what other — or *additional* — information must be remembered, in order to continue.

During this lecture presentation, this exercise will be completed. If time permits the development of a *proof of the correctness of the designed DFA* will also be discussed — along with the difference between *verification* and *testing* — and why both are important.

Once again, students who have time are encouraged to fill out the "Notes For You To Complete" before the lecture presentation, in order to be better prepared for upcoming exercises, assignments and tests.