CSE 4083/5210 Formal Languages and Automata
Assignment #4
Due: Fri, 16 Sep 2022

Reading. Read Section 1.2 on grammars. Read Chapter 3: "Regular Languages and Regular Grammars." There are several pre-recorded lectures pertaining to this assignment. They can be found following the links on the grid of notes, or on the Canvas LMS. `class05`, page 8ff. Maybe Section 1.2 and Section 3.3, Regular Grammars, should be delayed until Chapter 5 on CFG.

Assignment. Do some small number of the following exercises.

- Section 1.2: 15, 16, 20
- Section 3.3: Problems 1–7
- Section 3.3: (Proofs) problems 15 and 16.

Exercises for sections 3.1 and 3.2 were last week.

Submission. Write up the solutions. You may use pen and paper, plain text, or LaTeX. Produce a PDF document, and submit it on Canvas by the due date before the end of the day.

The due date is for the completed problem set. You should read the material in advance, and start thinking and working on the problems in advance, so that you can ask questions in class.

Collaborating is encouraged; no individual grade for the homework will be used in determined the individual course grade (that's what the tests are for). Copying just wastes everyone's time; it is quality that is important not quantity. Copying is not practicing. Of course, some individual may require much more practice than others to achieve the same level of competency on the tests.

Questions. If you have questions about how to do the problems, you are welcome to send me e-mail: `ryan@fit.edu`. Students may be called upon to share and explain their progress on the exercises during class.

Assessment. Ultimately the written proofs, your choice of exercises, and your participation in answering and *asking* questions, will influence your course grade.

Objectives. At the conclusion of the chapter, the student should be able to the following.

1. (§1.2) Define (unrestricted) grammars
2. (§3.3) Identify whether a particular grammar is linear, left-linear, right-linear, or regular
3. (§3.3) Construct regular grammars for simple languages
4. (§3.3) Construct a nfa that accepts the language generated by a regular grammar
5. (§3.3) Construct a regular grammar that generates the language accepted by a finite automaton