Final: Theory of Computation

Colorado Mesa University

If generative AI is used in the production of your submission to this assignment, you must disclose the ways in which it was used to avoid loss of credit. Be prepared to thoroughly defend your answers verbally or in (hand) writing.

Part 1: Final Paper

Write a detailed final paper (including code as-needed) about an interesting topic or field within the theory of computer science. This paper should be a formally formatted `pdf`, so `latex`, `markdown`, `rmd`, or comparable alternative should be used. This paper should have a bibliography containing at least one published and/or peer-reviewed source other than the textbook. `bibtex` is recommended, but any format of formal bibliography is acceptable. Project ideas should be approved by instructor before substantial work has been put in. Both research and thorough implementation projects are acceptable, given that they meet all other requirements.

Project ideas:

- Quantum computability, and complexity
- Grammar and parser theory
- Heuristic approaches in NP-complete problems
- Automaton models not covered in the book

Part 2: Final Presentation

Present your final project, paper, and/or program to the class. Include a demo if applicable. Be prepared to answer questions in-depth on your topic. Presentation lengths will vary from 10 minutes to a class period, depending on availability and presenter preference: Quality and depth should be prioritized over a specific presentation length.