Semester Review
CS 4223, Fall 2019

The exam will cover all the material that we have addressed so far this semester. This list of topics is not exhaustive.

1. The main parts of a compiler (see the PowerPoint presentation)
2. Regular languages and regular expressions
    a. Three fundamental operations (concatenation, alternation, Kleene closure)
    b. Extended operations available in *flex*
3. Context free languages and context free grammars
    a. BNF (Backus-Naur Form)
    b. Parse trees and derivations
    c. Ambiguous grammars
4. GSTAL
    a. Virtual machine
    b. Memory organization
        i. Harvard architecture
        ii. Von Neumann architecture
    c. Instruction set
    d. Hand compiling small programs
5. Slic
    a. Syntax and semantics of Slic
    b. Slic tokens
    c. Context-free grammar of Slic
6. Fundamentals of *flex*
7. Fundamentals of *bison*
8. *Flex* and *bison* semantic code
9. Symbol tables
10. Abstract syntax trees
11. Code generation
12. ~~Recursive descent parsing~~
    a. We addressed this only very briefly. I will not ask about it on the exam.