CMPSC 460 – Principles of Programming Languages
Study Guide for the Final Exam
Spring 2017

Chapter 1:

- What is a programming Language?
- Classification of Programming Languages
- Why study programming languages?
- Language Evaluation Criteria

History:

- ALGOL & COBOL

Scheme:

- Meta-circular Evaluator
    - apply & eval
- How to write Scheme programs in order to implement procedural representation code

Procedural Representation:

- Focus on how to implement a datatype using procedural representation.

Prolog:

- Everything we discussed is included except:
    - Prolog - Inferencing Process, unification & trace

Chapter 2:

- Be able to write and parse BNF grammars
- Ambiguous Grammar
    - All examples

Chapter 6:

- Definition of a control flow
    - Both data transmission & order of execution
- Arithmetic Expressions: Design Issues
    - All design issues
- What is the difference between a statement and an expression?
- Using structured programming instead of goto statements

- Nesting Selectors - Ambiguity
- Case/Switch Statements
    - All design issues
- Enumeration Controlled Iteration:
    - All design issues
- Recursion and tail recursion
- Non-Determinism

Chapter 7:

- Definition of abstract data type
- Type Systems
    - Definition
    - Static vs dynamic data types
    - When do we perform type checking
        - Static Typing vs Dynamic Typing
    - Strongly & weakly typed languages
- Standard ML
    - Everything is included
- Type equivalence
    - Structural & name equivalence