

CSCI 3236 Homework #4

Due date: September 21, 2022 (Wednesday), 11:59pm

1. (a) (5pts) Construct a context free grammar over $\{a, b, c\}$ whose language is $\{a^n b^{2n} c^m \mid n, m > 0\}$.
(b) (5pts) Construct a context free grammar over $\{a, b\}$ whose language is $\{a^m b^n \mid 0 \leq n \leq m \leq 3n\}$.
2. (10pts) Write a CFG to generate identifiers (IDs) in the Java Programming Language. An ID in Java is a string of characters consisting of letters (upper-level or lower-level), digits, underscore `_`, or dollar sign `$`. It cannot start with a digit.
3. (10pts) Using your grammar created in problem 1, give a leftmost derivation, AND draw the tree for the derivation for the identifier `$$_1uP`.