

University of Dhaka Institute of Information Technology (IIT) Bachelor of Science in Software Engineering (BSSE)



Course: SE312 Theory of Computing (Section: B)
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Lab 10

1. Consider the following context-free grammar (CFG) for palindromes:

$$S \rightarrow A1B$$

$$A \rightarrow 0A \mid \epsilon$$

$$B \rightarrow 0B \mid 1B \mid \epsilon$$

Write a program to take a string as input and show leftmost and rightmost derivations of the given string using the above CFG.

Example

Input: 00101

Output:

Leftmost: S => A1B => 0A1B => 00A1B => 001B => 0010B => 00101B => 00101

Rightmost: $S \Rightarrow A1B \Rightarrow A10B \Rightarrow A101B \Rightarrow A101 \Rightarrow 0A101 \Rightarrow 00A101 \Rightarrow 00101$