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 11

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

$$S \rightarrow \quad aS \mid aSbS \mid \epsilon$$

Write a program to take a string as input and show that this grammar is ambiguous.

Hint: Show that the string *aab* has two leftmost derivations using the above CFG.

Example

Input: *aab*

Output:

Leftmost 1: S => aS => aaSbS => aabS => aab

Leftmost 2: S => aSbS => aaSbS => aabS => aab

The grammar is ambiguous.