

# Tutorial 11

## COMP 335: Introduction to Theoretical Computer Science

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# Outline

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## Question 1

Build a PDA for the following CFG::

$$S \rightarrow XYX \quad (1)$$

$$X \rightarrow 0X|\lambda \quad (2)$$

$$Y \rightarrow 1Y|1 \quad (3)$$

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## Question 2

Build a PDA for the following CFG::

$$S \rightarrow 0A0|1B1|B0B \quad (1)$$

$$A \rightarrow C \quad (2)$$

$$B \rightarrow S|A \quad (3)$$

$$C \rightarrow S|\lambda \quad (4)$$

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## Question 3

Build a PDA for the following CFG::

$$S \rightarrow XaY|Wb \quad (1)$$

$$X \rightarrow aXb|\lambda \quad (2)$$

$$Y \rightarrow cY|\lambda \quad (3)$$

$$W \rightarrow aWc|Z \quad (4)$$

$$Z \rightarrow bZ|\lambda \quad (5)$$