

CS 334 – Fall 2004: Answer to Opportunity 5

One possible PDA is $(\{p, a\}, \Sigma, V \cup \Sigma, \delta, p, \{q\})$ where

$$\delta(p, \Lambda, \Lambda) = (q, S)$$

$$\delta(q, \Lambda, S) = (q, aSa)$$

$$\delta(q, \Lambda, S) = (q, bSb)$$

$$\delta(q, \Lambda, S) = (q, c)$$

$$\delta(q, a, a) = (q, \Lambda)$$

$$\delta(q, b, b) = (q, \Lambda)$$

$$\delta(q, c, c) = (q, \Lambda)$$

This PDA accepts by final state.

For a PDA that accepts by empty stack:

$(\{q\}, \Sigma, V \cup \Sigma, \delta, q, S)$ where

$$\delta(q, \Lambda, S) = (q, aSa)$$

$$\delta(q, \Lambda, S) = (q, bSb)$$

$$\delta(q, \Lambda, S) = (q, c)$$

$$\delta(q, a, a) = (q, \Lambda)$$

$$\delta(q, b, b) = (q, \Lambda)$$

$$\delta(q, c, c) = (q, \Lambda)$$