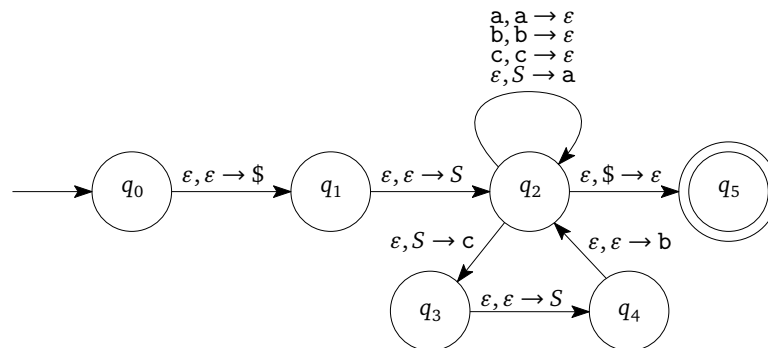


Pework 2.2a: Pushdown Automata

Write your preliminary solutions to each problem and submit a PDF on Canvas. The names in brackets indicate the subset responsible for presenting the problem.

1. [Joshua, Grace, Meghan] Consider the following pushdown automaton (PDA) with input alphabet $\Sigma = \{a, b, c\}$ and stack alphabet $\Gamma = \{\$, S\} \cup \Sigma$. Determine which of the strings a , aaa , bac , cab , $bbacc$ it accepts.



2. [Levi, Curtis, Micah] Give a state diagram for a PDA that recognizes the set of all palindromes in $\Sigma = \{0, 1\}$.
3. [Connor, Todd, David] Give a state diagram for a PDA that recognizes the set of all strings in $\Sigma = \{0, 1\}$ that have the same number of 0's as 1's.
4. [Allie, Ky, Andrew, Ben] Let $A = \{a^i b^j c^k \mid i = j \text{ or } j = k \text{ where } i, j, k \geq 0\}$. Give a state diagram for a PDA that recognizes the language A .

BEGIN YOUR SOLUTIONS BELOW THIS LINE
