CSCI 2400 – Models of Computation

Homework 8

Problem 1 (Turing Machine Constructions).

(a) Draw a Turing Machine that accepts the language: \( L = \{ x \in \{a, b, c\}^* \mid n_a(x) = n_b(x) = n_c(x) \} \).

(b) Draw a Turing Machine that computes the function: \( f(x) = \lfloor \frac{x}{2} \rfloor \), for \( x \geq 1 \).

Problem 2 (Variations of Turing Machines).
Suppose, we have a PDA with infinite number of stacks. Prove that this automata is at least as powerful as a Turing Machine.