Homework 5: Context-Free Languages and Turing Machines
Theory of Computation (CSCI 3500)

Write the solution to each question on its own page.
All questions must be in order.
Your name must be on each page.
All assignments not adhering to this will not be graded.

0. Consider the following language:

$$L_0 = \{w_1 \# w_2 \in \{0,1\}^* \mid |w_1|_0 = 2 * |w_2|_1\}$$

   i. Define a PDA for L_0.

   ii. Define a CFG for L_0.

   iii. Define a Turing machine for L_0.

1. Define a Turing machine over the alphabet $\{0,1\}$ that moves the input word down one symbol, and adds \$ to the left-most square.