Lab 11
Non-sequential Counter in Logisim

Lab report due before your lab period on November 16–18

- Design a three-bit binary counter that iterates over the following states when $X = 0$ and repeats

  000
  010
  110
  011
  101
  001
  100
  111

- When $X = 1$, the counter should go through the states in the reverse order
- Use one JK, one T, and one D flip-flop, in any order
- Implement your counter in Logisim
  - A starter file is available on Logisim
  - Do not move the input or output pins
  - Use only flip-flops and basic gates
- Submit your Logisim file on Vista before your lab

The report for this lab should include the following sections:

1. Description/Objectives
2. Procedure, which must include
   (a) The input equations for every flip-flop
   (b) Circuit diagram for the counter
3. Observations
4. Conclusions