

Due 4/10

Construct a deterministic one way infinite single tape Turing machine that accepts  $\{ 0^n(01)^m1^k \mid n, m, k \geq 0, n > m, m > k \}$ . This is the type of Turing machine that is specified in our original definition of a Turing machine in class.

You may not make use of the fact that JFLAP has blank spaces to the left of the input. And you may not use blocks or the stay directive (each transition must read a single symbol, write a single symbol, and move the read/write head left or right) for this Turing machine.

Since JFLAP does not have a reject state, you can either have a state that you transition to that has no transitions leaving it or you can simply leave off transitions that can never result in your Turing machine to accept the string, which will cause your Turing machine to reject the input.

My version has 23 states. And does the following:

- 1) inserts a \$ and shifts the input to the right one position
  - a) verifies that the string does not start with 1 or end with 0
- 2) while rewinding
  - a) change  $1^k \rightarrow c^k$
  - b) change  $(01)^m \rightarrow (bb)^m$
  - c) change  $0^n \rightarrow a^n$
- 3) check  $n > m$
- 4) check  $m > k$

E-mail the JFLAP file to me ([david.garrison@binghamton.edu](mailto:david.garrison@binghamton.edu)) by 11:59:59.999pm on the date due. The filename must be your last name followed by “\_p5.jff” (as an example, my filename would be “garrison\_p5.jff”). The subject of your e-mail is to be “CS 373 program 5”.

For this programming assignment, and the remainder of them for the semester, you need to follow my submission directions – filename (lower case last name followed by “\_p5.jff”) and e-mail subject (“CS 373 program 5”).