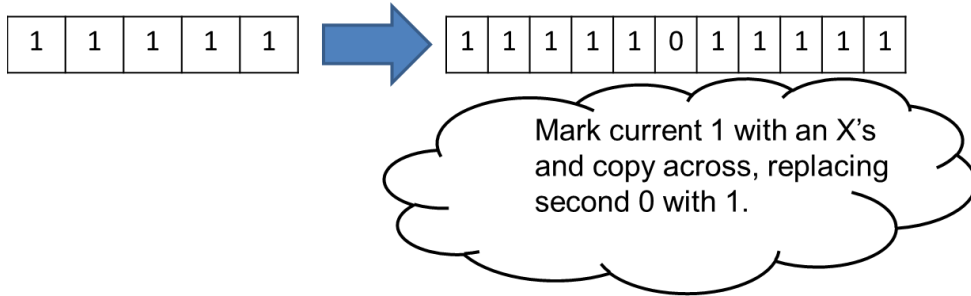


TM Handout

Name _____

Sketch a diagram of a Turing Machine that will copy a string of 1's on the tape. The TM should copy the string of 1's to the right of the original data and separate it by a "0".



Idea: To keep track of the current position, start from left to right and mark the current '1' with an X. Then move to the far right of the tape and place a 1. Move the head back to the X, replace it with a 1 and move right to the next 1.

Consider the following set of intermediate tape states. Note that the character to the right of the ▪ will be read next.

▪11111
....
X1111▪0
X11110▪0
X11110▪1
....
▪X111101
1▪111101
1X▪11101
....
1X11101▪0
1X11101▪1
....
1▪X111011
....
11111011111



How will you know when you have copied all of the 1's?

Sketch a diagram of the TM. Be sure to label the states and indicate the halting state.

Convert your diagram into a format specification.

S =

Q =

f(Q,S)				