

Big O analysis

Input Size: Our input size is a array of 30 with a 1 in the middle to start off.

Main Operations

-Move

The Algorithm moves its reading position on the top so it can read the middle left and right side of where it is currently located

-Read

These states consists of reading left, middle and right of the current positions of the turning machine

-Write

This states writes a pixel depending if the Turing Machine read the appropriate sequence of Left, middle, and right

Big O:

Our turing Machine functions reads one array and moves along 2 tapes the 1st tap is for read and the second tape is for writing and it will shift down if we get past the 30th position of the down current reading array down to what was written and so on. So To take in account of the operation we have 5 operations, Move, read left, read middle, read right, and write. So Including the fact we traverse 2 arrays 30 times at most this is big O of $(n^2) + 4$ as our best case scenarios if we do not have a write function on the read tape