3. **State 1.**Read in the first symbol. If the first symbol is a blank halt-accept (nothing is a palindrome), If the first symbol is a 1, write blank, move right, go to state 2. If the first symbol is a 0, write blank, move right, go to state 3.

   State 2. if input character is blank, halt-accept. If input character, stay, go to state 2+.

   State 2+. read any input character and move right until a blank is reached. Move left. If input is a 0 halt-reject. If input character is 1, write blank, move left Go to state 4.

   State 3. if input character is blank, halt-accept. If input character, stay, go to state 3+.

   State 3+. read any input character and move right until a blank is reached. Move left. If input is a 1 halt-reject. If input character is 0, write blank, move left Go to state 4.

   State 4. If input character is blank halt-accept. Otherwise read input moving left until a blank is found. Move right go to state 1.

   Proof of correctness: We check what the first symbol is then go to the end of the string and check that it is the same. then move all the way back and repeat. If we just keep slicing the numbers off the ends if they are the same then we by defnition have a palindrome. We also accept the empty string as that is also a palindrome