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Problem Draw a finite state machine that accepts a string of digits s where either (1) s is empty, or (2) s is a single digit at most 3, or (3) sum of every pair of adjacent digits in s is at most 3. So, 2, 103011 and 21003 will be accepted whereas 8 and 122 will be rejected.

Solution Below, state numbered i is reached when the last seen digit is i , and state 0 is reached initially. Any other symbol that is not shown explicitly at a state leads to a permanently rejecting state.

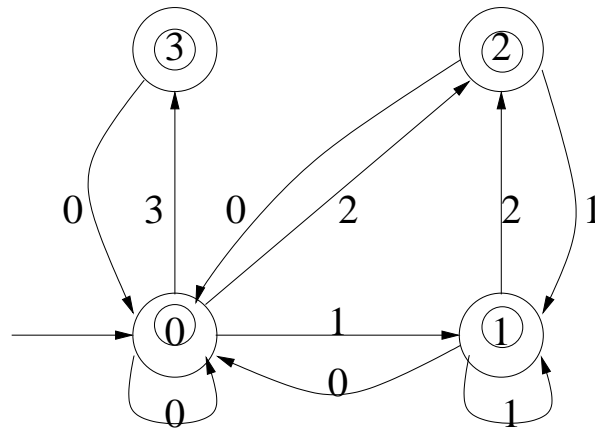


Figure 1: Solution