

1. Consider the following Turing Machine.

State	Input	Write	Move	Next
0	B	B		Accept
	0	0	L	0
	1	1	L	1
1	B	B		Fail
	0	0	L	1
	1	1	L	0

Determine what happens when the Turing Machine is run with the following inputs initially on the tape.

- (a) 0001
 - (b) 0111
 - (c) 0110
 - (d) 0101010001
 - (e) 000000000000000111
 - (f) 00
 - (g)
2. Give the state table for a Turing Machine that appends a parity bit to a tape with a string of consecutive 0's and 1's.
 3. Construct a Turing Machine to compute the sequence 0_1_0_1_0_1..., that is, 0 blank 1 blank 0 blank, etc [1].

References

- [1] A. M. Turing. On computable numbers, with an application to the entscheidungsproblem. *Proceedings of the London Mathematical Society*, s2-42(1):230–265, 1937.