

LIFT MANAGEMENT SYSTEM

Write a code for maintaining the lifts of a given building.

Assume there are N lifts in a building of M floors.

Key Params:

Current Floor: The floor at which the lift is.

Starting Floor: The floor from which the request was made.

Destination Floor: The floor to which the lift must go.

State: The lift can either be open or closed.

Rules:

- All the lifts are at the ground floor at the start.
- If a lift is moving from 0th floor to the 5th floor, the lift will take 5 units of time to reach the destination floor provided the current floor of the lift is 0.
- Lift will consume 1 unit to open to let the person in and 1 to let the person out.
- The input can be triggered at any given point in time.

Input:

N : No of lifts in a given building. (Eg:2)

M: No of floors in a building. (Eg: 10)

0 4

This signifies that the lift must travel from the 0th floor to the 4th floor.

7 3

This signifies that the lift must travel from the 7th floor to the 3rd floor.

Eg:

(L1,L2) ---> (0,0)

0 7

3 0

LIFT 1 will cater the first request in 9 units. (1 to open, 7 commute and 1 to open)

LIFT 2 will cater the second request in 8 units. (3 units to go to the 3rd floor, 1 to open, 3 to return and 1 to open again)

Now, assume at time unit T=2, there is a request :

4 6

Lift 1 must be able to cater to this request as it is going in an upward direction.

Sample Input Output:

INPUT:

No of Lifts: 2

No of Floors: 10

L1=0,L2=0

0 7

3 0

OUTPUT:

Mention the Current floor of all the lifts with the state.

T=0

LIFT 1 -- > 0 (OPEN), LIFT 2 ---> 0 (CLOSE)

T=1

LIFT 1 -- > 0 (CLOSE), LIFT 2 ---> 1 (CLOSE)

T=2

4 6

LIFT 1 -- > 1(CLOSE), LIFT 2 ---> 2 (CLOSE)

T=3

LIFT 1 -- > 2 (CLOSE), LIFT 2 ---> 3 (OPEN)

T=4

LIFT 1 -- > 3(CLOSE) , LIFT 2 ---> 3 (CLOSE)

T=5

LIFT 1 -- > 4(OPEN), LIFT 2 ---> 2(CLOSE)

T=6

LIFT 1 -- > 4(CLOSE), LIFT 2 ---> 1(CLOSE)

T=7

LIFT 1 -- >5(CLOSE), LIFT 2 ---> 0(OPEN)

T=8

LIFT 1 -- >6(OPEN), LIFT 2 ---> 0(CLOSE)

T=9

LIFT 1 OPENS

LIFT 1 -- >6 (CLOSE), LIFT 2 ---> 0(CLOSE)

T=10

LIFT 1 -- >7(OPEN), LIFT 2 ---> 0(CLOSE)

T=11

LIFT 1 OPENS

LIFT 1 -- >7(CLOSE), LIFT 2 ---> 0(CLOSE)

LIFT 1: 11 SECONDS

LIFT 2: 8 SECONDS

Expectation:

1. The code should be functionally complete.
2. The code should be modular.
3. The design should be extensible.
4. The code should be parameterized than hard coded.