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Q1

a) Linked list:-

"A linked list is a list whose elements may not occupy continuous memory locations and whose elements are connected by means of links between them".

Example:-

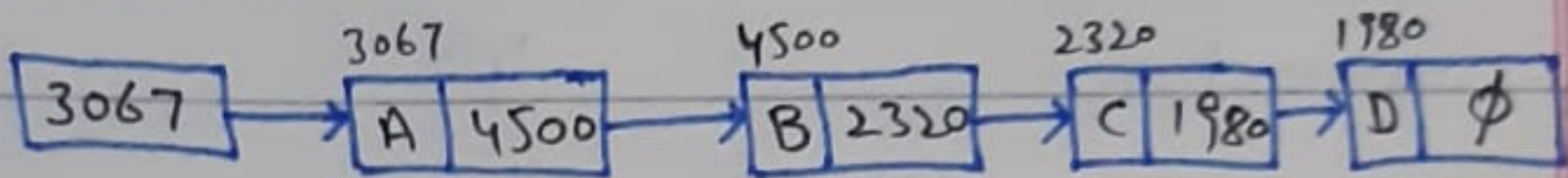
Consider the history section of web browsers, where it creates a linked list of web-pages visited, so that when you check history or press ok button, the previous node's data is fetched.



b)-

ONE Way linked list:-

Execution:-



①  $P \leftarrow \text{getnode}(3067)$

②  $\text{Head} \leftarrow P$

③  $\text{info}(P) \leftarrow \text{data}$

3067  $\leftarrow$  A

4500  $\leftarrow$  B

2320  $\leftarrow$  C

1980  $\leftarrow$  D

④  $\text{Link}(P) \leftarrow \phi$

(3067)(4500)(2320)(1980)

⑤  $q \leftarrow P(3067)(4500)(2320)(1980)$

⑥ Y.Y.Y.Y.N

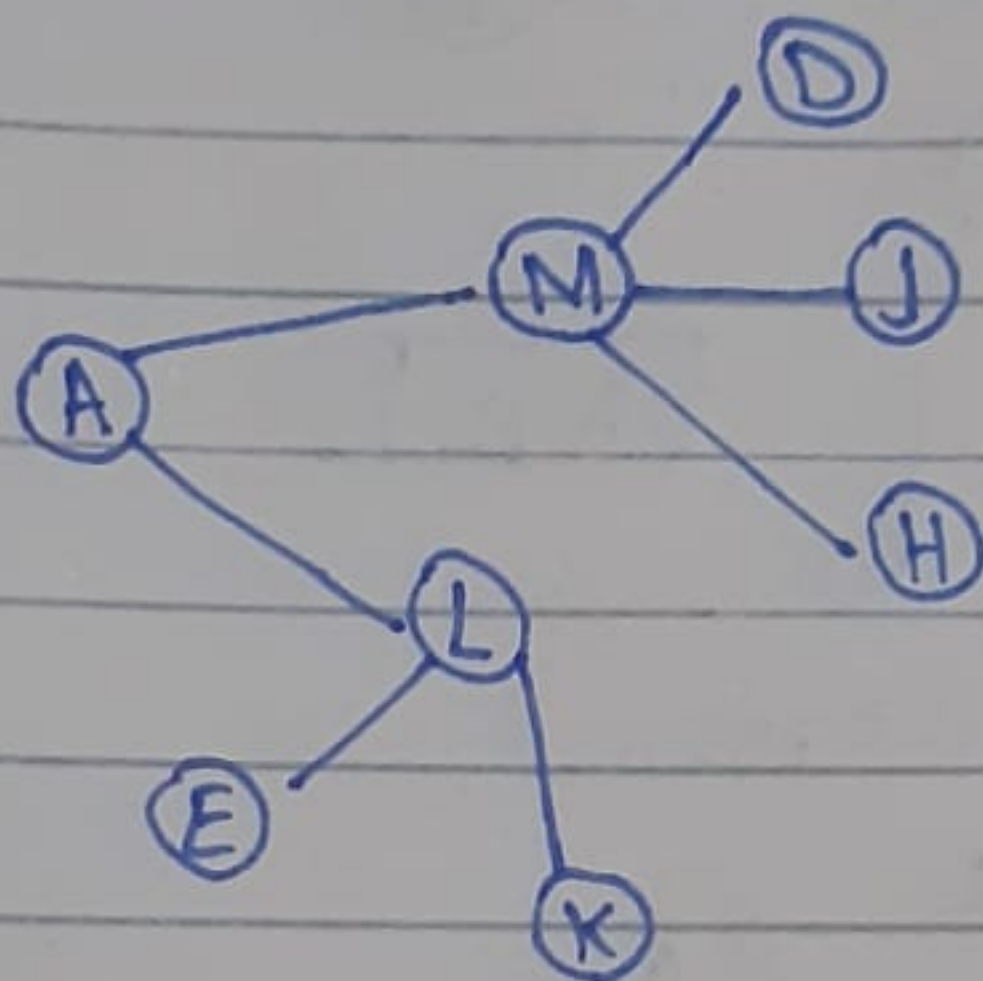
⑦  $P \leftarrow \text{getnode}(4500)(2320)(1980)$

⑧  $\text{Link}(q) \leftarrow P(4500)(2320)(1980)$

⑨ goto 3

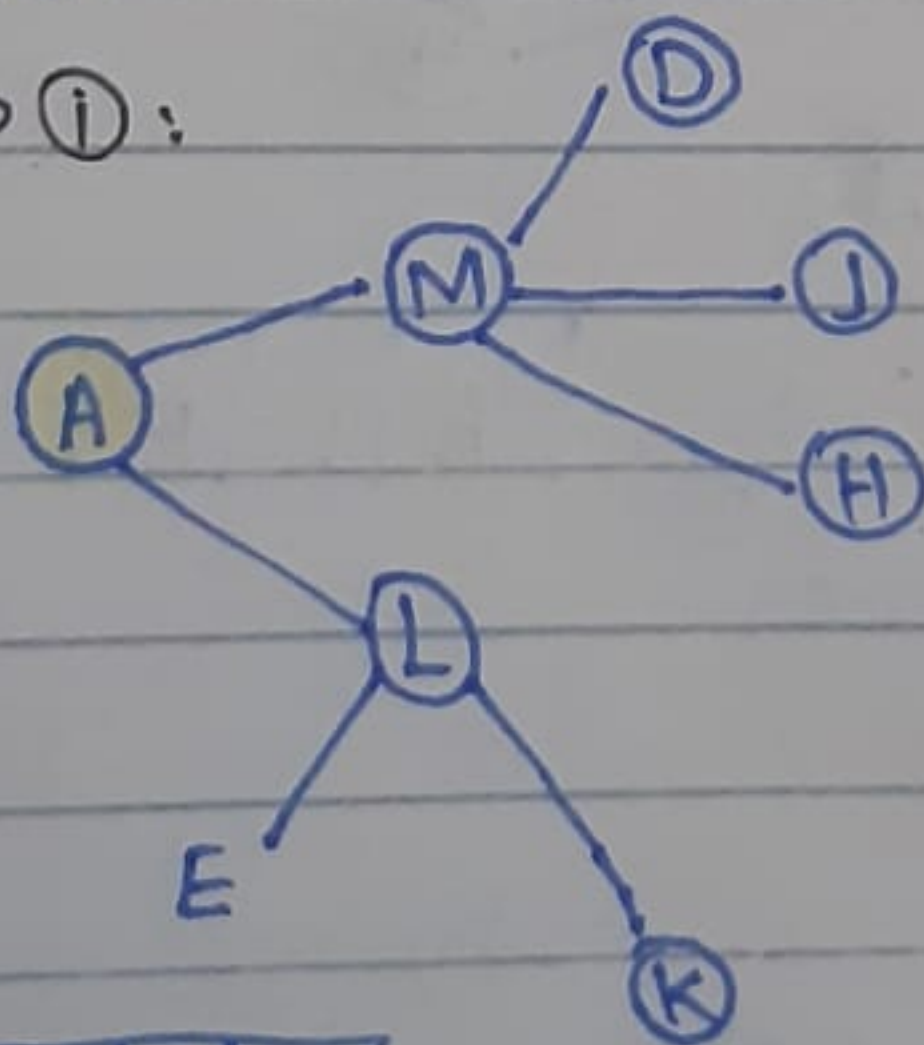
⑩ exit.

## Q 2 DEPTH-FIRST TECHNIQUE:-



Solution:-

step ①:

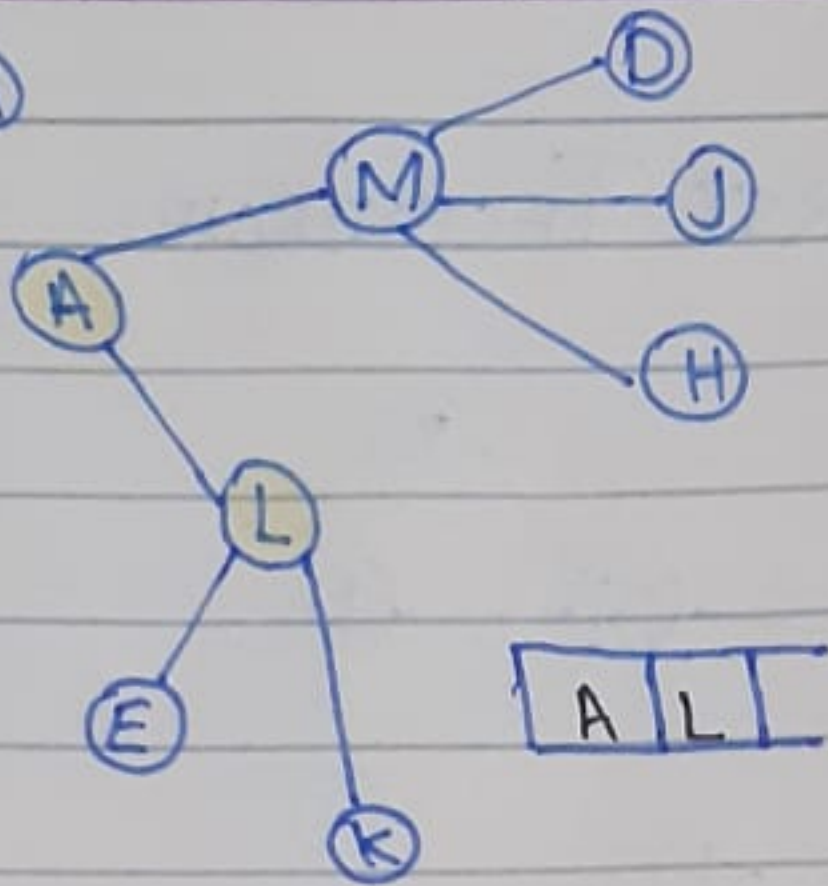


output sequence:-

A,



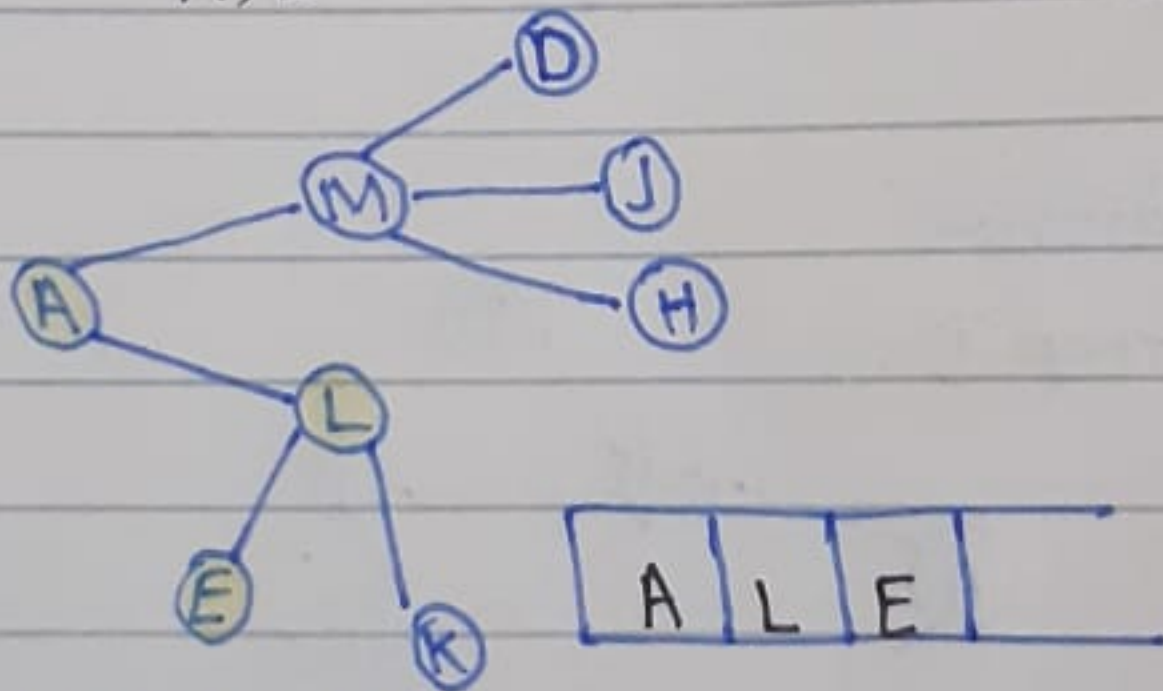
step (ii)



output sequence:-

A, L

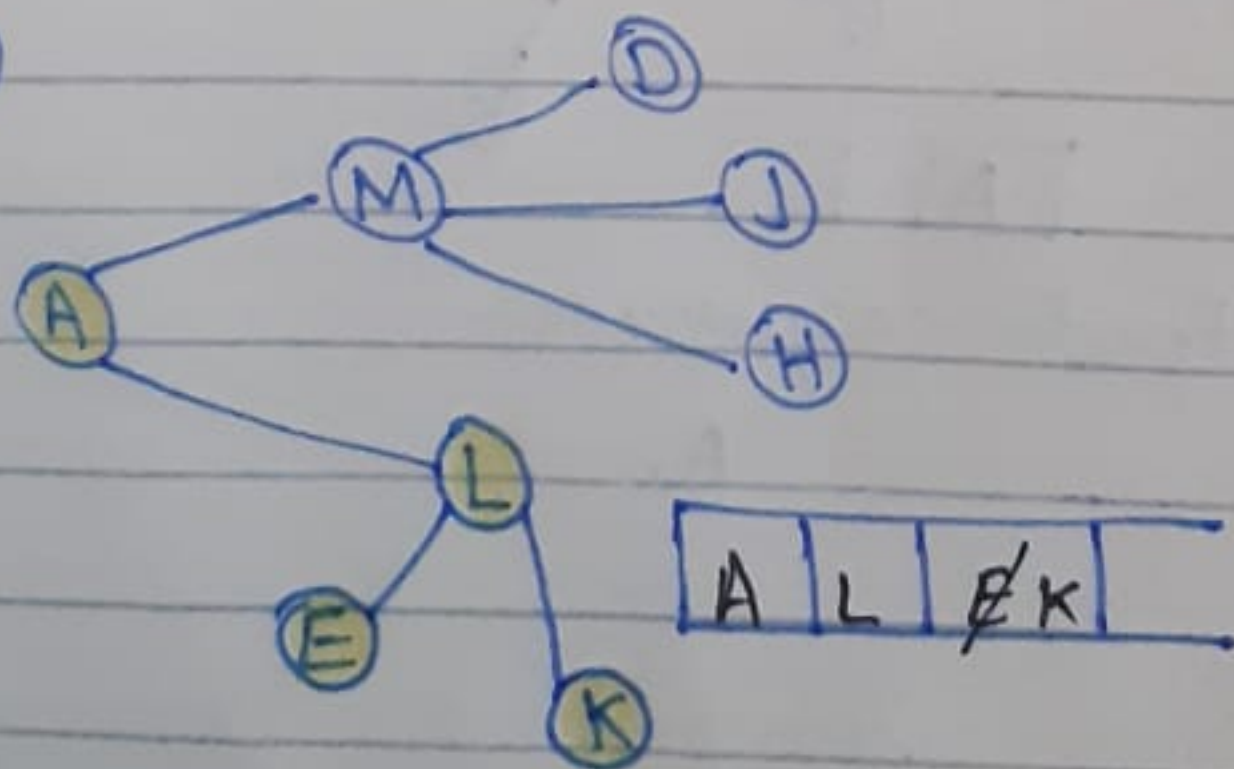
step (iii)



output sequence:-

A, L, E

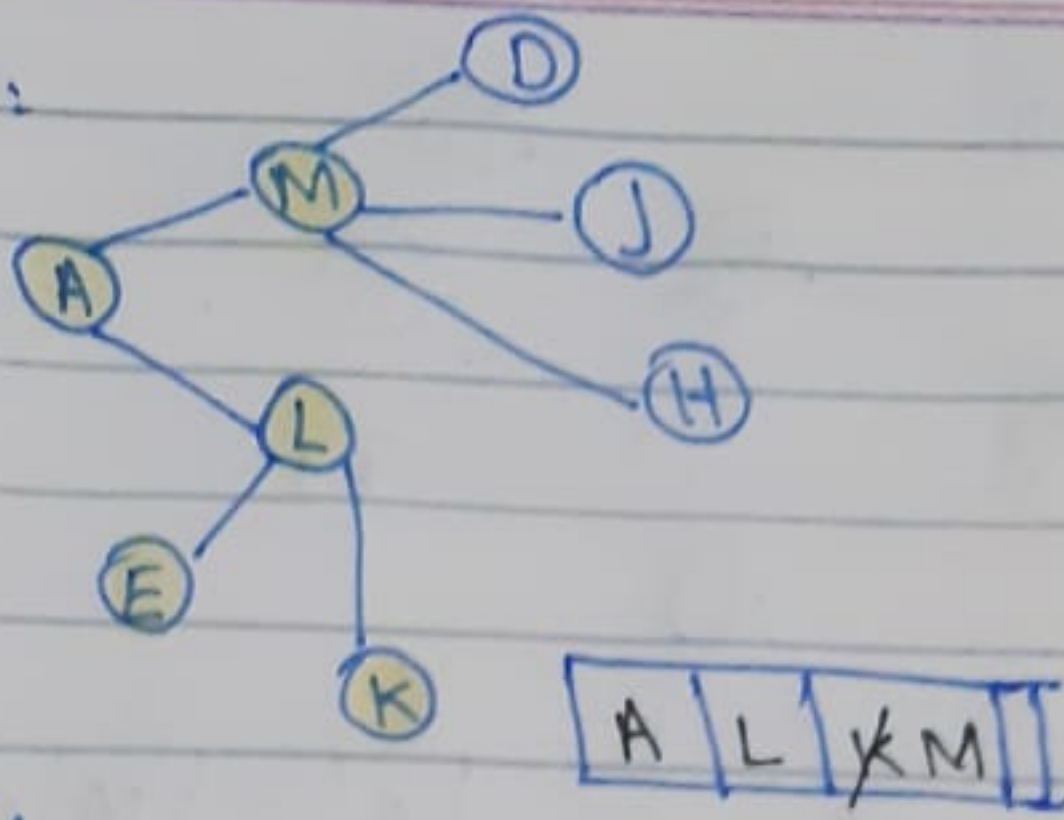
step (iv)



output sequence:-

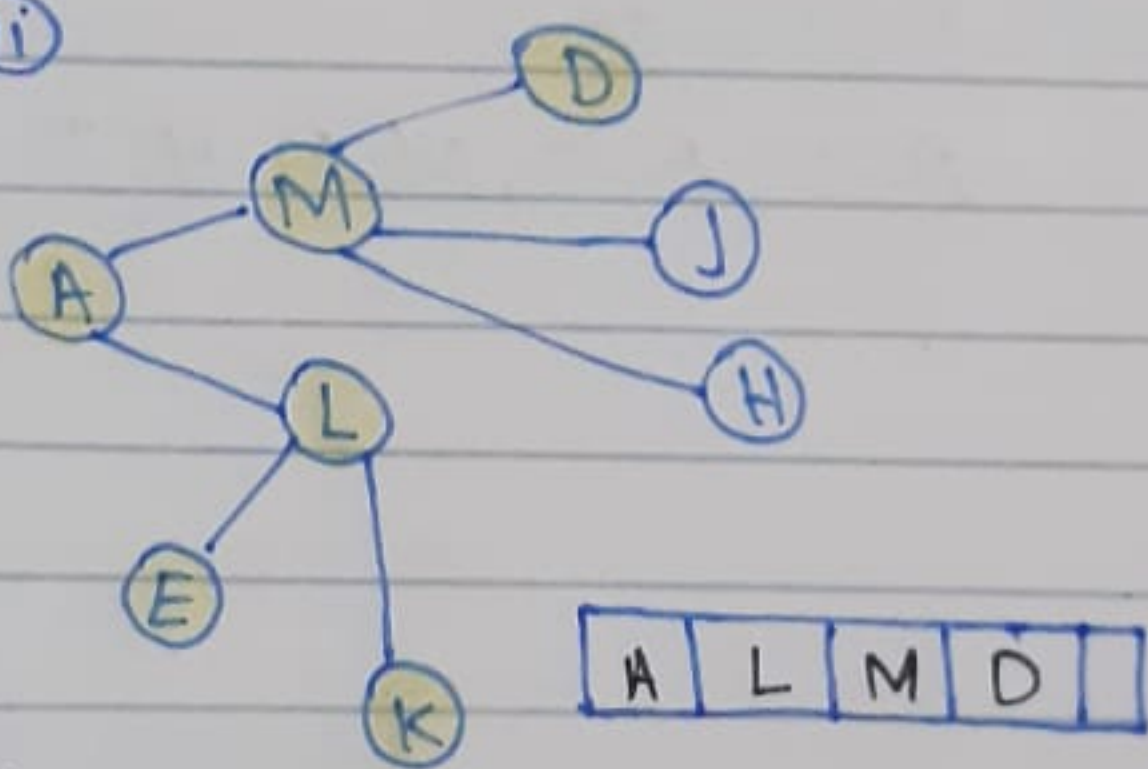
A, L, E, K

Step (v):



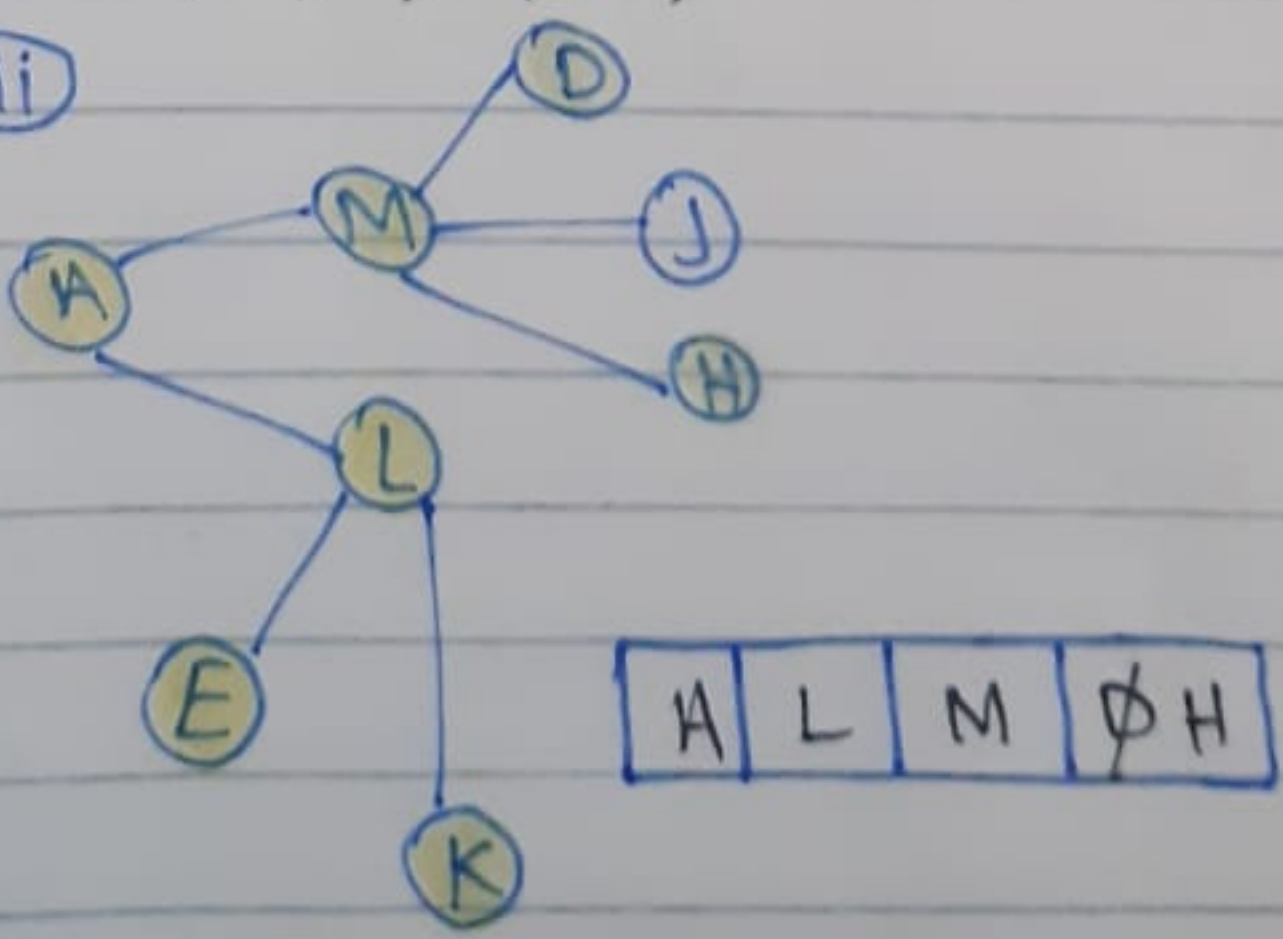
output sequence:-  
A, L, E, K, M

Step (vi)



output sequences:-  
A, L, E, K, M, D

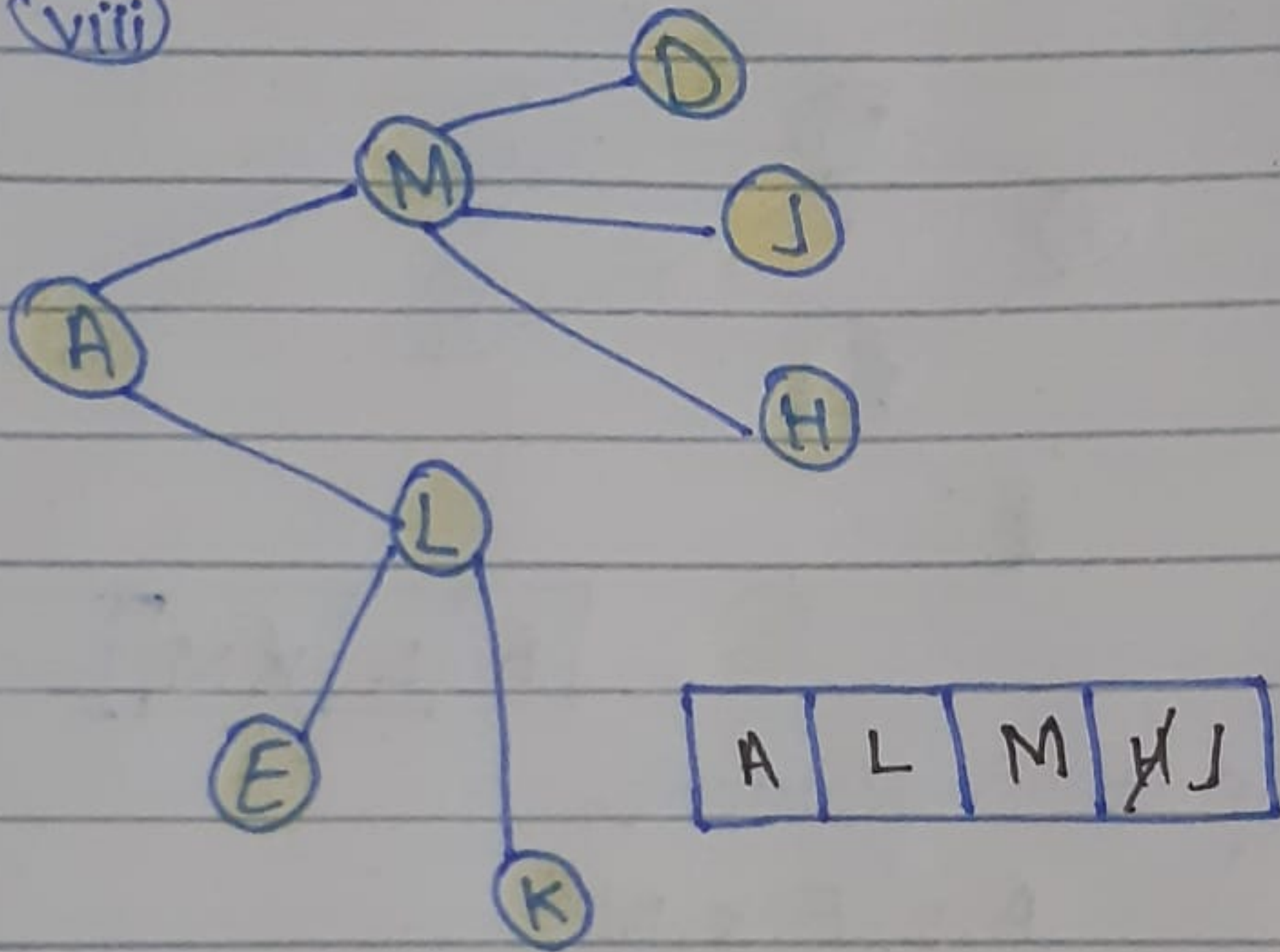
Step (vii)



output sequence:-  
A, L, E, K, M, D, H.



step (viii)



output sequence:-

A, L, E, K, M, D, H, J



### Q 3 Queue :-

A sequential list in which elements are inserted from one end and are deleted/retrieved from other end is called a queue.

- \* The end from where an element can be inserted is called Rear of the queue.
- \* The end from where an element can be retrieved is called front of the queue.
- \* "First in First out"

Examples:-

- \* A car is waiting to pass through a signal
- \* Peoples waiting to submit their bills at bank window.