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Q.1

a) Linked list :-

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

Example :-

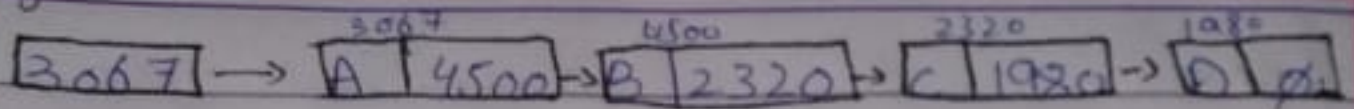
consider the history section of web browsers, where it creates a linked list of webpages visited. So that when you check history or press ok button, the previous nodes data is fetched.

b)

One way linked list :-

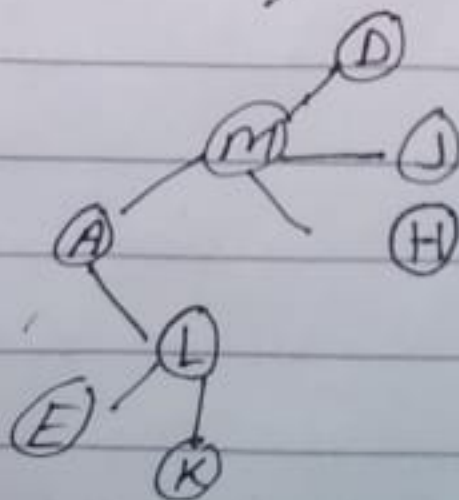
Execution :-

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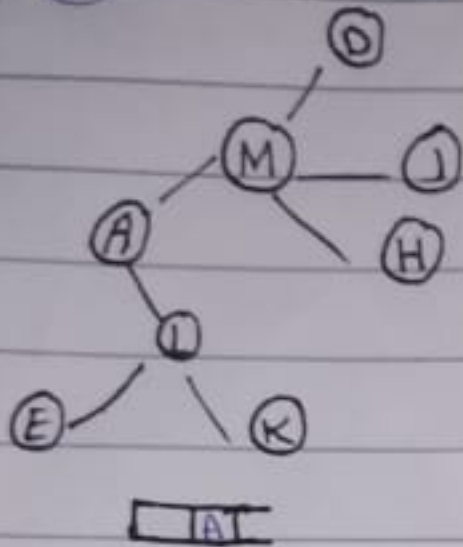
- ①  $P \rightarrow \text{getnode } (3067)$
- ②  $\text{Head} \leftrightarrow P$
- ③  $\text{info}(P) \leftarrow \text{data}$   
 $3067 \leftarrow A$   
 $4500 \leftarrow B$   
 $2320 \leftarrow C$   
 $1980 \leftarrow D$
- ④  $\text{Link}(P) \leftarrow \phi$   
 $(3067) (4500) (2320) (1980)$
- ⑤  $q \leftarrow P (3067) (4500) (2320) (1980)$
- ⑥  $Y \cdot Y \cdot Y \cdot Y \cdot N$
- ⑦  $P \leftarrow \text{getnode } (4500) (2320) (1980)$
- ⑧  $\text{Link}(q) (4500) (2320) (1980)$
- ⑨ goto
- ⑩ exit

Q.2 Depth-First Technique :-



Solution :-

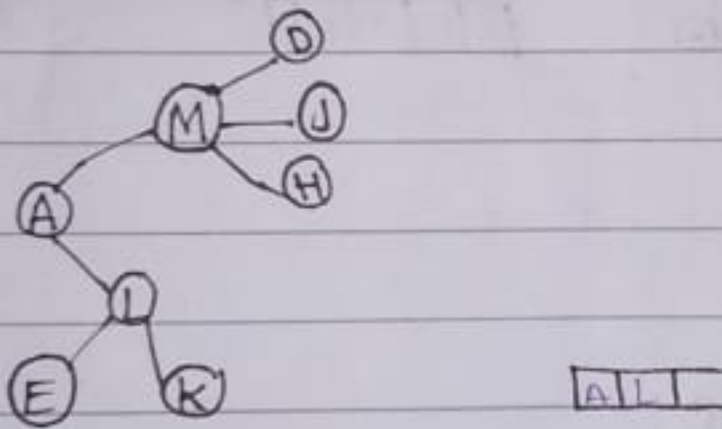
Step (i)



output sequences :-

A,

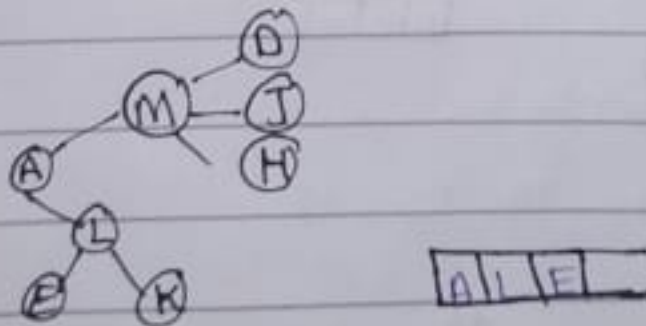
Step (ii)



output sequence :-

A, L

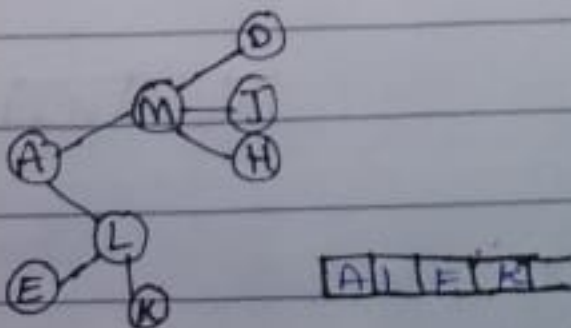
Step (iii)



output sequence :-

A, L, E

Step (iv)

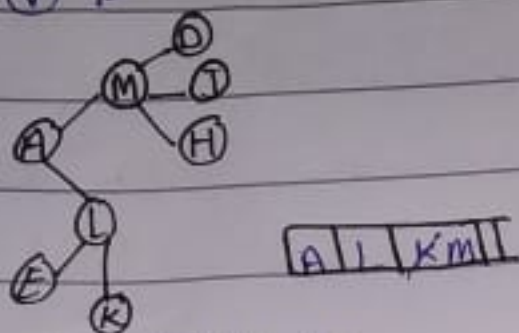


output sequence

A, L, E, K

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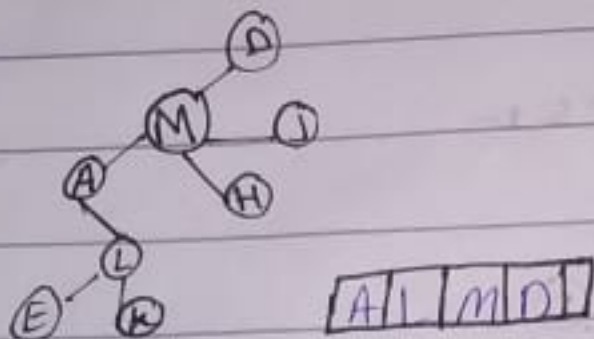
Step (v) -



output sequence :-

A, L, E, K, M

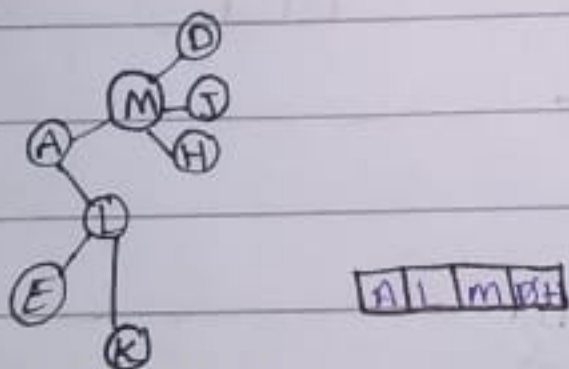
step (iv)



output sequence :-

A, L, E, K, M, D

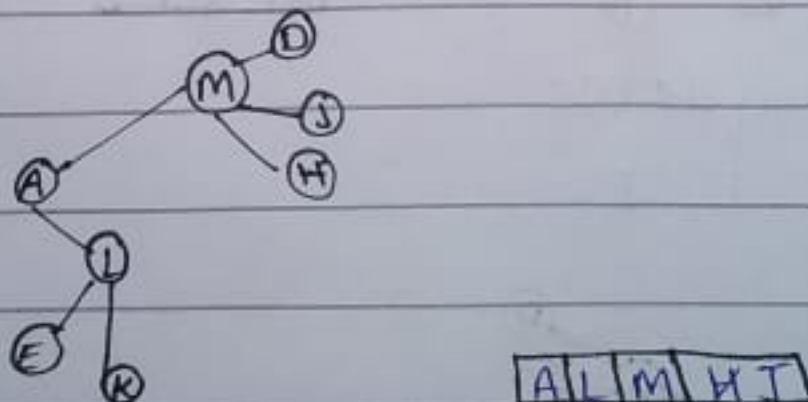
Step (vii)



output sequence :-

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

Step (viii)



output sequences :-

A, L, E, K, M, D, H ; M, T

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.