

## Output -

1.

- 1. Insertion at begining
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of a specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 1

Enter item to be inserted at beginning

10

2.

- 1. Insertion at begining
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 2

Enter item to be inserted at end

20

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of a specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 2

Enter item to be inserted at end 30

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of a specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 3

Enter item to be inserted

40

Enter location

3

5.

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of a specific node
7. Display all items
8. Search any item
9. Exit

Enter your choice 4

Item deleted is : 10

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of a specific node
7. Display all items
8. Search any item
9. Exit

Enter your choice 6

Enter location to be deleted

2

Item deleted is : 40

- 7.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific node
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 7

20      30

- 8.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific node
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 8

Enter item to be searched 30

Element found at location 1001

9.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of a specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice

q

## Output

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of specific item
7. Display all items
8. Search any item
9. Exit

Enter your choice 1

Enter item to be inserted at beginning

10

2.

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of specific item
7. Display all items
8. Search any item
9. Exit

Enter your choice 2

Enter item to be inserted at end

20

3.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific item
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 2

Enter item to be inserted at end 30

4.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific item
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 3

Enter item to be inserted 40

Enter location 3

- 6.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 4

Item deleted is : 10

- 6.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice

6

Enter item to be deleted

40

- 7.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 7

20 30

- 8.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of a specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 8

Enter item to be searched  
30

Item found at location 1001.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of a specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 9

## Output

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of a specific item
7. Display all items
8. Search any item
9. Exit

Enter your choice 1

Enter item to be inserted at beginning

10

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of specific item
7. Display all items
8. Search any item
9. Exit

Enter your choice 2

Enter item to be inserted at end

20

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific item
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 2

Enter item to be inserted at end

30

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific node
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 3

Enter item to be inserted

40

Enter location

3

6.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific item
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice 4

Item deleted is : 10

6.

- 1. Insertion at beginning
- 2. Insertion at end
- 3. Insertion at specific location
- 4. Deletion at beginning
- 5. Deletion at end
- 6. Deletion of specific item
- 7. Display all items
- 8. Search any item
- 9. Exit

Enter your choice

6

Enter item to be deleted

40

- 7.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 7

20 30

- 8.
- 1. Insertion at beginning
  - 2. Insertion at end
  - 3. Insertion at specific location
  - 4. Deletion at beginning
  - 5. Deletion at end
  - 6. Deletion of specific item
  - 7. Display all items
  - 8. Search any item
  - 9. Exit

Enter your choice 8

Enter item to be searched

30

Item found at location 1001.

9.

1. Insertion at beginning
2. Insertion at end
3. Insertion at specific location
4. Deletion at beginning
5. Deletion at end
6. Deletion of specific item
7. Display all items
8. Search any item
9. Exit

Enter your choice

# Output

1. Insert  
2. Preorder Traversal  
3. Postorder Traversal  
4. Inorder Traversal  
5. Delete  
6. Search  
7. Exit

Enter your choice :  
Enter item to be inserted  
22

2.

1. Insert  
2. Preorder Traversal  
3. Postorder Traversal  
4. Inorder Traversal  
5. Delete  
6. Search  
7. Exit

Enter your choice :  
Enter item to be inserted

40

- 3.
- 1. Insert
  - 2. Preorder Traversal
  - 3. Postorder Traversal
  - 4. Inorder Traversal
  - 5. Delete
  - 6. Search
  - 7. Exit

Enter your choice 1

Enter item to be inserted

20

4.

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 5. Delete
- 6. Search
- 7. Exit

Enter your choice 1

Enter item to be inserted

45

5.

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 5. Delete
- 6. Search

Enter your choice 1

Enter item to be inserted

85

- 6.
- 1. Insert
  - 2. Preorder Traversal
  - 3. Postorder Traversal
  - 4. Inorder Traversal
  - 5. Delete
  - 6. Search
  - 7. Exit

Enter your choice 2

22 20 15 40 85

- 7.
- 1. Insert
  - 2. Preorder Traversal
  - 3. Postorder Traversal
  - 4. Inorder Traversal
  - 5. Delete
  - 6. Search
  - 7. Exit

Enter your choice 3

15 20 22 85 40 22

- 8.
- 1. Insert
  - 2. Preorder Traversal
  - 3. Postorder Traversal
  - 4. Inorder Traversal
  - 5. Delete
  - 6. Search
- Enter your choice 4
- 15 20 22 40 85

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 9. Delete
- 6. Search
- 7. Exit

Enter your choice 6

Enter item to be searched 85

Element found

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 10. Delete
- 6. Search
- 7. Exit

Enter your choice 5

Enter item to be deleted

11.

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 5. Delete
- 6. Search
- 7. Exit

Enter your choice 2

22      15      40      85

12.

- 1. Insert
- 2. Preorder Traversal
- 3. Postorder Traversal
- 4. Inorder Traversal
- 5. Delete
- 6. Search
- 7. Exit

Enter your choice

7.

## Output

Enter no. of edges and vertices ( $\lambda=10$ )

4 6

Enter source and destination vertices

1 2

2 3

3 4

4 1

1 3

4 2

0	1	1	0
0	0	1	0
0	0	0	1
1	1	0	0

## Output

Enter no. of vertices ( $v=10$ ) and edges

4 6

Enter source and destination vertices

1 2

2 3

3 4

4 1

1 3

4 2

0 1 1 0

0 0 1 0

0 0 0 1

1 1 0 0

Enter Starting Vertex

2

Breadth first Search of Graph is

2 1 4 3

## Output

Enter no. of vertices ( $\leq 10$ ) and edges

4 6

Enter Source and destination of vertices

1 2

2 3

3 4

4 1

1 3

4 2

Adjacency matrix is:

0	1	1	0
0	0	1	0
0	0	0	1
1	1	0	0

Enter Starting Vertex

3

Depth first Search of Graph is :

3 2 4 1

# Output

1. Push

2. Pop

3. Display

4. Peek

5. Exit

1.

Enter your choice

1

Enter item to be inserted

10

1. Push

2. Pop

3. Display

4. Peek

2.

Enter your choice

1

Enter item to be inserted

20

1. Push

2. Pop

3. Display

4. Exit

3.

Enter your choice

1

Enter item to be inserted

30

1. Push

2. Pop

3. Display

4. Peek

5. Exit

Enter your choice

3

10

20

30

1. Push

2. Pop

3. Display

4. Peek

Enter your choice

2

Item deleted is : 30

1. Push

2. Pop

3. Display

4. Peek

5. Exit

Enter your choice

4

Item at the top is : 20

- 7.
- 1. Push
  - 2. Pop
  - 3. Display
  - 4. Peek
  - 5. Exit

Enter your choice  
3

10      20

- 8.
- 1. Push
  - 2. Pop
  - 3. Display
  - 4. Peek
  - 5. Exit

Enter your choice  
5

## Output

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice

1

Enter item to be inserted

10

1. Insert
2. Delete
3. Display
4. Exit

Enter your choice

1

Enter item to be inserted

20

1. Insert
2. Delete
3. Display
4. Exit

3.

Enter your choice

1

Enter item to be inserted

30

4.

- 1. Insert
- 2. Delete
- 3. Display
- 4. Exit

Enter your choice  
3

Elements are :

10      20      30

5.

- 1. Insert
- 2. Delete
- 3. Display
- 4. Exit

Enter your choice  
2

Item deleted = 10

6.

- 1. Insert
- 2. Delete
- 3. Display
- 4. Exit

Enter your choice  
3

Elements are :

20      30

7.

- 1. Insert
- 2. Delete
- 3. Display
- 4. Exit

Enter your choice

4