

```
1 - Enqueue
2 - Dequeue
3 - Front element
4 - Empty
5 - Exit
6 - Display
7 - Queue size
Enter choice : 1
Enter data : 14
```

```
Enter choice : 1
Enter data : 85
```

```
Enter choice : 1
Enter data : 38
```

```
Enter choice : 3
Front element : 14
Enter choice : 6
14 85 38
```

```
Enter choice : 7
```

```
Queue size : 3
Enter choice : 2
```

```
Dequeued value : 14
Enter choice : 6
85 38
```

```
Enter choice : 7
```

```
Queue size : 2
Enter choice : 4
```

```
Queue not empty
Enter choice : 5
```

```
Process returned 0 (0x0)   execution time : 141.063 s
```

```
Press any key to continue.
```

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 7

Printing the list from beginning

99 78 90

.....

Do you want to continue? (Y/N) : n

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 1

Inserting a node at beginning

Enter Data: 99

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 7

Printing the list from beginning

----- Circular Singly Linked List -----

- 1. Insert a node at beginning
- 2. Insert a node at end
- 3. Insert a node at given position
- 4. Delete a node from beginning
- 5. Delete a node from end
- 6. Delete a node from given position
- 7. Print list from beginning
- 8. Print list from end
- 9. Search a node data
- 10. Update a node data
- 11. Exit

Enter your choice: 1

Inserting a node at beginning

Enter Data: 90

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

- 1. Insert a node at beginning
- 2. Insert a node at end
- 3. Insert a node at given position
- 4. Delete a node from beginning
- 5. Delete a node from end
- 6. Delete a node from given position
- 7. Print list from beginning
- 8. Print list from end
- 9. Search a node data
- 10. Update a node data
- 11. Exit

Enter your choice: 1

Inserting a node at beginning

Enter Data: 78

```
6.Delete the node after the given data
7.Search
8.Show
9.Exit
```

Enter your choice?

7

Enter item which you want to search?

123

item found at location 1

*****Main Menu*****

Choose one option from the following list ...

=====

```
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete the node after the given data
7.Search
8.Show
9.Exit
```

Enter your choice?

6

Enter the data after which the node is to be deleted : 123

Can't delete

*****Main Menu*****

Choose one option from the following list ...

=====

```
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete the node after the given data
7.Search
8.Show
9.Exit
```

Enter your choice?

9

Process returned 0 (0x0) execution time : 244.702 s

Press any key to continue.

"C:\Users\OM\Desktop\2nd Sem\Subject\DS Lab Programs\Activity 16\Activity 16.exe

Preorder:

D A E B F

Postorder:

E B A F D

Inorder:

E A B D F

Process returned 0 (0x0) execution time : 0.051 s

Press any key to continue.

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in beginning
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete the node after the given data
- 7.Search
- 8.Show
- 9.Exit

Enter your choice?

6

Enter the data after which the node is to be deleted : 123

Can't delete

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in beginning
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete the node after the given data
- 7.Search
- 8.Show
- 9.Exit

Enter your choice?

8

printing values...

123

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in beginning
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last

Binary tree after insertion:

1

Binary tree after insertion:

2 1 3

Binary tree after insertion:

4 2 5 1 3

Binary tree after insertion:

4 2 5 1 6 3 7

Process returned 0 (0x0) execution time : 0.017 s

Press any key to continue.


```
7.Search
8.Show
9.Exit
```

Enter your choice?

```
8
printing values...
1234
123
12
89
```

*****Main Menu*****

Choose one option from the following list ...

=====

```
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete the node after the given data
7.Search
8.Show
9.Exit
```

Enter your choice?

```
4
node deleted
```

*****Main Menu*****

Choose one option from the following list ...

=====

```
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete the node after the given data
7.Search
8.Show
9.Exit
```

Enter your choice?

```
5
node deleted
```

*****Main Menu*****

OPERATIONS ---

- 1 - Insert an element into tree
- 2 - Delete an element from the tree
- 3 - Inorder Traversal
- 4 - Preorder Traversal
- 5 - Postorder Traversal
- 6 - Exit

Enter your choice : 1

Enter data of node to be inserted : 40

Enter your choice : 1

Enter data of node to be inserted : 20

Enter your choice : 1

Enter data of node to be inserted : 10

Enter your choice : 1

Enter data of node to be inserted : 30

Enter your choice : 1

Enter data of node to be inserted : 60

Enter your choice : 1

Enter data of node to be inserted : 80

Enter your choice : 1

Enter data of node to be inserted : 90

Enter your choice : 3

10 -> 20 -> 30 -> 40 -> 60 -> 80 -> 90 ->

Enter your choice : 4

40 -> 20 -> 10 -> 30 -> 60 -> 80 -> 90 ->

Enter your choice : 5

10 -> 30 -> 20 -> 90 -> 80 -> 60 -> 40 ->

Enter your choice : 1

Enter data of node to be inserted : 23

Enter your choice : 3

10 -> 20 -> 23 -> 30 -> 40 -> 60 -> 80 -> 90 ->

Enter your choice : 2

Enter the data to be deleted : 23

Enter your choice : 3

10 -> 20 -> 30 -> 40 -> 60 -> 80 -> 90 ->

Enter your choice :

*****Main Menu*****

Choose one option from the following list ...

- =====
- 1.Insert in begining
 - 2.Insert at last
 - 3.Insert at any random location
 - 4.Delete from Beginning
 - 5.Delete from last
 - 6.Delete the node after the given data
 - 7.Search
 - 8.Show
 - 9.Exit

Enter your choice?

2

Enter value89

node inserted

*****Main Menu*****

Choose one option from the following list ...

- =====
- 1.Insert in begining
 - 2.Insert at last
 - 3.Insert at any random location
 - 4.Delete from Beginning
 - 5.Delete from last
 - 6.Delete the node after the given data
 - 7.Search
 - 8.Show
 - 9.Exit

Enter your choice?

3

Enter the location12345

There are less than 12345 elements

*****Main Menu*****

Choose one option from the following list ...

- =====
- 1.Insert in begining
 - 2.Insert at last
 - 3.Insert at any random location
 - 4.Delete from Beginning
 - 5.Delete from last
 - 6.Delete the node after the given data

*C:\Users\OM\Desktop\2nd Sem\Subject\DS Lab Programs\Activity 13\Activity 13.exe

Pre Order Display

9

4

2

6

15

12

17

In Order Display

2

4

6

9

12

15

17

Post Order Display

2

6

4

12

17

15

9

Searched node=4

Process returned 1 (0x1) execution time : 0.038 s

Press any key to continue.

- 1 - Insert an element into queue
- 2 - Delete an element from queue
- 3 - Display queue elements
- 4 - Exit

Enter your choice : 1

Enter value to be inserted : 20

Enter your choice : 1

Enter value to be inserted : 45

Enter your choice : 1

Enter value to be inserted : 89

Enter your choice : 3

89 45 20

Enter your choice : 1

Enter value to be inserted : 56

Enter your choice : 3

89 56 45 20

Enter your choice : 2

Enter value to delete : 45

Enter your choice : 3

89 56 20

Enter your choice : 4

Process returned 0 (0x0) execution time : 54.446 s

Press any key to continue.

7.Search

8.Show

9.Exit

Enter your choice?

1

Enter Item value123

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

1.Insert in begining

2.Insert at last

3.Insert at any random location

4.Delete from Beginning

5.Delete from last

6.Delete the node after the given data

7.Search

8.Show

9.Exit

Enter your choice?

1

Enter Item value1234

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

1.Insert in begining

2.Insert at last

3.Insert at any random location

4.Delete from Beginning

5.Delete from last

6.Delete the node after the given data

7.Search

8.Show

9.Exit

Enter your choice?

8

printing values...

1234

123

12

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete the node after the given data
- 7.Search
- 8.Show
- 9.Exit

Enter your choice?

8

printing values...

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete the node after the given data
- 7.Search
- 8.Show
- 9.Exit

Enter your choice?

1

Enter Item value12

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete the node after the given data

```
1
1
*****Main Menu*****
Choose one option from the following list ...

=====

1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete node after specified location
7.Search for an element
8.Show
9.Exit

Enter your choice?
7

Enter item which you want to search?
1
item found at location 1 item found at location 2

*****Main Menu*****
Choose one option from the following list ...

=====

1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete node after specified location
7.Search for an element
8.Show
9.Exit

Enter your choice?
9

Process returned 0 (0x0)   execution time : 163.090 s
Press any key to continue.
```



```
"C:\Users\OM\Desktop\2nd Sem\Subject\DS Lab Programs\Activity 10\Activity 10.exe"
Enter your choice : 3
The stack is
56--->45--->12--->NULL

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 2
Popped element is :56

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 2
Popped element is :45

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 3
The stack is
12--->NULL

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 2
Popped element is :12

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 3
Stack Underflow

1. Push
2. Pop
3. Display
4. Exit

Enter your choice :
```

```
9.Exit
Enter your choice?
6
Enter the location of the node after which you want to perform deletion
1
Deleted node 2
```

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

8

printing values

1

1

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

7

Enter item which you want to search?

1

item found at location 1 item found at location 2

*****Main Menu*****

Choose one option from the following list ...

=====

Implementation of Stack using Linked List

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 1

Enter the value to insert: 12

Node is Inserted

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 1

Enter the value to insert: 45

Node is Inserted

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 1

Enter the value to insert: 56

Node is Inserted

1. Push
2. Pop
3. Display
4. Exit

Enter your choice : 3

The stack is

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

4

Node deleted from the begining ...

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

5

Deleted Node from the last ...

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 7

Printing the list from beginning

0 78 40

.....
Do you want to continue? (Y/N) :

```
"C:\Users\OM\Desktop\2nd Sem\Subject\DS Lab Programs\Activity 7\Activity 7.exe"
9.Exit
Enter your choice?
2
Enter value?
123
Node inserted
*****Main Menu*****
Choose one option from the following list ...
=====
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete node after specified location
7.Search for an element
8.Show
9.Exit
Enter your choice?
1
Enter value
1234
Node inserted
*****Main Menu*****
Choose one option from the following list ...
=====
1.Insert in begining
2.Insert at last
3.Insert at any random location
4.Delete from Beginning
5.Delete from last
6.Delete node after specified location
7.Search for an element
8.Show
9.Exit
Enter your choice?
8
printing values . . . . .
1234
1
2
1
123
*****Main Menu*****
```

Printing the list from beginning

90 78 12

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

- .. Insert a node at beginning
- .. Insert a node at end
- .. Insert a node at given position

- . Delete a node from beginning
- . Delete a node from end
- . Delete a node from given position

- . Print list from beginning
- . Print list from end
- . Search a node data
- 0. Update a node data
- 1. Exit

Enter your choice: 10

Updating the node data

Enter Data: 40

Enter Position: 1

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

3

Enter element value1

Enter the location after which you want to insert 1

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

8

printing values

1

2

1

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 9

Searching the node data

Enter Data: 74

Data not Found

.....

Do you want to continue? (Y/N) :

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

1

Enter value

1

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location
- 7.Search for an element
- 8.Show
- 9.Exit

Enter your choice?

2

Enter value?

2

Node inserted

*****Main Menu*****

Choose one option from the following list ...

=====

- 1.Insert in begining
- 2.Insert at last
- 3.Insert at any random location
- 4.Delete from Beginning
- 5.Delete from last
- 6.Delete node after specified location

Printing the list from beginning

90 78 12

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
0. Update a node data
1. Exit

Enter your choice: 9

Searching the node data

Enter Data: 78

Data Found

```
4.Quit
Enter your choice : 3
Queue is :
2 5
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 2
Element deleted from queue is : 2
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 2
Element deleted from queue is : 5
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 3
Queue is :

1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice :
```

Enter your choice: 6

Delete a node from given position

Enter Position: 1

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

- 1. Insert a node at beginning
- 2. Insert a node at end
- 3. Insert a node at given position
- 4. Delete a node from beginning
- 5. Delete a node from end
- 6. Delete a node from given position
- 7. Print list from beginning
- 8. Print list from end
- 9. Search a node data
- 10. Update a node data
- 11. Exit

Enter your choice: 7

Printing the list from beginning

78 90

.....

```
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Insert the element in queue : 2
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 1
Insert the element in queue : 5
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 3
Queue is :
2 5
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
Enter your choice : 2
Element deleted from queue is : 2
1.Enqueue
2.Dequeue
3.Display all elements of queue
4.Quit
```

Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 5

Deleting a node from end

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 7

Printing the list from beginning

78 90

Do you want to continue? (Y/N) : n

Printing the list from beginning

12 78 90 35

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 5

Deleting a node from end

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
0. Update a node data
1. Exit

Enter your choice: 7

Printing the list from beginning

2 78 90 35

.....

Do you want to continue? (Y/N) : n

Printing the list from beginning

99 12 78 90 35

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 4

Deleting a node from beginning

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data

Inserting a node at end

Enter Data: 35

.....

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

1. Insert a node at beginning
2. Insert a node at end
3. Insert a node at given position
4. Delete a node from beginning
5. Delete a node from end
6. Delete a node from given position
7. Print list from beginning
8. Print list from end
9. Search a node data
10. Update a node data
11. Exit

Enter your choice: 7

Printing the list from beginning

9 78 90 35

.....

Do you want to continue? (Y/N) : n

Printing the list from beginning

78 90

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

- 1. Insert a node at beginning
- 2. Insert a node at end
- 3. Insert a node at given position
- 4. Delete a node from beginning
- 5. Delete a node from end
- 6. Delete a node from given position
- 7. Print list from beginning
- 8. Print list from end
- 9. Search a node data
- 0. Update a node data
- 1. Exit

Enter your choice: 2

Inserting a node at end

Enter Data: 35

Do you want to continue? (Y/N) : y

----- Circular Singly Linked List -----

- 1. Insert a node at beginning
- 2. Insert a node at end