```
Command Prompt

icrosoft Windows [Version 10.0.19045.3324]
c) Microsoft Corporation. All rights reserved.

:\Users\Admin>cd downloads

:\Users\Admin\Downloads>g++ exp_1.cpp -o exp_1

:\Users\Admin\Downloads>exp_1

nter the size of the array -> 5
nter 5 elements of the array ->
1
2
3
4
5
he Array is -> {11,22,33,44,55}
nter the Element to search -> 44
------Press 1 for Linear_Search--------
------Press 2 for Binary_Search------
nter your choice :: 2
he Element 44 is found at INDEX -> 3
```

```
Command Prompt

Microsoft Windows [Version 10.0.19045.3324]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd downloads

C:\Users\Admin\Downloads>g++ exp_2.cpp -o exp_2

C:\Users\Admin\Downloads>exp_2

Original Sparse_Matrix is ->
0 0 2 0 4 0 7
0 0 0 0 5 1 0
3 0 0 0 6 7 8
0 0 0 0 0 1 0

The New Compacted_Matrix is ->
1 1 2 2 3 3 3 3 4 4
6 8 6 7 2 6 7 8 1 7
4 7 5 1 3 6 7 8 1 1
```

```
PROBLEMS    OUTPUT    TERMINAL    PORTS    DEBUG CONSOLE                    >_ powershell  +

PS C:\Users\Admin\Downloads\B.Tech\Semester-3\#DSA> g++ prg_3.cpp -o prg_3
PS C:\Users\Admin\Downloads\B.Tech\Semester-3\#DSA> ./prg_3
------Stack-------
The Stack is: 1  <- TOP
The Stack is: 1 2  <- TOP
The Stack is: 1 2 3  <- TOP
The Stack is: 1 2  <- TOP
The Stack is: 1 2 4  <- TOP
The Stack is: 1 2 4 5  <- TOP
The Stack is: 1 2 4  <- TOP
The Stack is: 1 2  <- TOP
------Queue-------
The Queue is: FRONT -> 1 <- REAR
The Queue is: FRONT -> 1 2 <- REAR
The Queue is: FRONT -> 1 2 3 <- REAR
The Queue is: FRONT -> 2 3 <- REAR
The Queue is: FRONT -> 2 3 4 <- REAR
The Queue is: FRONT -> 2 3 4 5 <- REAR
The Queue is: FRONT -> 3 4 5 <- REAR
The Queue is: FRONT -> 4 5 <- REAR
PS C:\Users\Admin\Downloads\B.Tech\Semester-3\#DSA> []
```

```
Microsoft Windows [Version 10.0.19045.3448]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd Amit

C:\Users\Admin\Amit>g++ prg_4.cpp -o prg_4

C:\Users\Admin\Amit>prg_4
Adding Nodes in the List
1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> NULL
Reversing above List
7 -> 6 -> 5 -> 4 -> 3 -> 2 -> 1 -> NULL
Deleting Nodes in the List
6 -> 4 -> 2 -> NULL
Reversing above List
2 -> 4 -> 6 -> NULL
```

```
Microsoft Windows [Version 10.0.19045.3570]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd Amit

C:\Users\Admin\Amit>g++ prg_5.cpp -o prg_5

C:\Users\Admin\Amit>prg_5

------------------- Doubly LinkedList -------------------
NULL <-> 5 <-> 6 <-> 7 <-> 8 <-> 9 <-> 10 <-> NULL
Removed Node is :: 10
------------------- Doubly LinkedList -------------------
NULL <-> 5 <-> 6 <-> 7 <-> 8 <-> 9 <-> NULL
------------------- Doubly LinkedList -------------------
NULL <-> 0 <-> 1 <-> 2 <-> 3 <-> 4 <-> 5 <-> 6 <-> 7 <-> 8 <-> 9 <-> NULL
Removed Node is :: 9
------------------- Doubly LinkedList -------------------
NULL <-> 0 <-> 1 <-> 2 <-> 3 <-> 4 <-> 5 <-> 6 <-> 7 <-> 8 <-> NULL
```

```
C:\Users\Admin\Amit>g++ prg_6.cpp -o prg_6

C:\Users\Admin\Amit>prg_6

Circular Linked List: 3 -> 4 -> 5 -> 3 (back to head)
Circular Linked List: 3 -> 4 -> 3 (back to head)
Circular Linked List: 0 -> 1 -> 2 -> 3 -> 4 -> 0 (back to head)
Circular Linked List: 0 -> 1 -> 2 -> 3 -> 0 (back to head)
Circular Linked List: 0 -> 1 -> 2 -> 0 (back to head)
```

```
C:\Users\Admin\Amit>g++ prg_7.cpp -o prg_7

C:\Users\Admin\Amit>prg_7
TOP ---> 1 -> 2 -> 3 -> 4 -> 5
TOP ---> 4 -> 5
Top element: 4
Is the stack empty? No
```

```
C:\Users\Admin\Amit_Singhal>g++ prg_8.cpp -o prg_8

C:\Users\Admin\Amit_Singhal>prg_8
Inserted 10 into the queue.
Inserted 20 into the queue.
Inserted 30 into the queue.
Queue elements: 10 20 30
Deleted element from the queue.
Queue elements: 20 30
```

```
C:\Users\Admin\Amit_Singhal>g++ prg_9.cpp -o prg_9

C:\Users\Admin\Amit_Singhal>prg_9

Preorder Traversal: 50 30 20 40 70 60 80
Inorder Traversal: 20 30 40 50 60 70 80
Postorder Traversal: 20 40 30 60 80 70 50
```

```
C:\Users\Admin\Amit_Singhal>g++ prg_10.cpp -o prg_10

C:\Users\Admin\Amit_Singhal>prg_10

Inorder traversal: 20 30 40 50 60 70 80
Preorder traversal: 50 30 20 40 70 60 80
Postorder traversal: 20 40 30 60 80 70 50
Inorder traversal (after deletion): 40 50 60 70 80
Preorder traversal (after deletion): 50 40 70 60 80
Postorder traversal (after deletion): 40 60 80 70 50
```

```
C:\Users\Admin\Amit_Singhal>g++ prg_11.cpp -o prg_11

C:\Users\Admin\Amit_Singhal>prg_11

------------ Original array ------------
12 11 13 5 6 7
Insertion Sort => 5 6 7 11 12 13
Merge Sort => 5 6 7 11 12 13
Quick Sort => 5 6 7 11 12 13
Bubble Sort => 5 6 7 11 12 13
Radix Sort => 5 6 7 11 12 13
Shell Sort => 5 6 7 11 12 13
Selection Sort => 5 6 7 11 12 13
Heap Sort => 5 6 7 11 12 13
----------- Original float array ---------
0.897 0.565 0.656 0.1234 0.665 0.3434
Bucket Sort (on float array) => 0.1234 0.3434 0.565 0.656 0.665 0.897
```

```
Command Prompt

Microsoft Windows [Version 10.0.19045.3693]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Admin>cd Amit_116

C:\Users\Admin\Amit_116>g++ prg_11.5.cpp -o a

C:\Users\Admin\Amit_116>a
Unsorted array: 64 25 12 22 11
Sorted array: 11 12 22 25 64
```