

_1_Search_Element.cpp

```
1  #include <iostream>
2  using namespace std;
3
4  int search(int arr[], int n, int x)
5  {
6      for(int i = 0; i < n; i++)
7      {
8          if(arr[i] == x)
9              return i;
10     }
11
12     return -1;
13 }
14
15 int main()
16 {
17     int arr[] = {20, 5, 7, 25}, x = 5;
18     cout<<"Searched Index = "<<search(arr, 4, x)<<endl;;
19 }
20
```

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Searched Index = 1

Process returned 0 (0x0) execution time : 0.166 s
Press any key to continue.

_2)_Insert_Element.cpp

```
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  int insert(int arr[], int n, int x, int cap, int pos)
6  {
7      if(n == cap)
8          return n;
9      int idx = pos - 1;
10     for(int i = n - 1; i >= idx; i--)
11     {
12         arr[i + 1] = arr[i];
13     }
14     arr[idx] = x;
15     return n + 1;
16 }
17
18 int main()
19 {
20     int arr[5], cap = 5, n = 3;
21     arr[0] = 5; arr[1] = 10; arr[2] = 20;
22     cout<<"Before Insertion"<<endl;
23     for(int i=0; i < n; i++)
24     {
25         cout<<arr[i]<<" ";
26     }
27     cout<<endl;
28     int x = 7, pos = 2;
29     n = insert(arr, n, x, cap, pos);
30     cout<<"After Insertion"<<endl;
31     for(int i=0; i < n; i++)
32     {
33         cout<<arr[i]<<" ";
34     }
35 }
```

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Before Insertion

5 10 20

After Insertion

5 7 10 20

Process returned 0 (0x0) execution time : 0.286 s

Press any key to continue.

```

_3)_Delete_Element.cpp X
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  int deleteEle(int arr[], int n, int x)
6  {
7      int i = 0;
8      for(i = 0; i < n; i++)
9      {
10         if(arr[i] == x)
11             break;
12     }
13     if(i == n)
14         return n;
15     for(int j = i; j < n - 1; j++)
16     {
17         arr[j] = arr[j + 1];
18     }
19     return n-1;
20 }
21
22 int main()
23 {
24     int arr[] = {3, 8, 12, 5, 6}, x = 12, n = 5;
25     cout<<"Before Deletion"<<endl;
26     for(int i=0; i < n; i++)
27     {
28         cout<<arr[i]<<" ";
29     }
30     cout<<endl;
31     n = deleteEle(arr, n, x);
32     cout<<"After Deletion"<<endl;
33     for(int i=0; i < n; i++)
34     {
35         cout<<arr[i]<<" ";
36     }
37 }

```

```

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Before Deletion
3 8 12 5 6
After Deletion
3 8 5 6
Process returned 0 (0x0)    execution time : 0.130 s
Press any key to continue.

```

_4)_Reverse_Array.cpp

```
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  void reverse(int arr[], int n)
6  {
7      int low = 0, high = n - 1;
8      while(low < high)
9      {
10         int temp = arr[low];
11         arr[low] = arr[high];
12         arr[high] = temp;
13
14         low++;
15         high--;
16     }
17 }
18
19 int main()
20 {
21     int arr[] = {10, 5, 7, 30}, n = 4;
22     cout<<"Before Reverse"<<endl;
23     for(int i = 0; i < n; i++)
24     {
25         cout<<arr[i]<<" ";
26     }
27     cout<<endl;
28     reverse(arr, n);
29     cout<<"After Reverse"<<endl;
30     for(int i = 0; i < n; i++)
31     {
32         cout<<arr[i]<<" ";
33     }
34 }
35
```

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Before Reverse

10 5 7 30

After Reverse

30 7 5 10

Process returned 0 (0x0) execution time : 0.231 s

Press any key to continue.

_5)_Left_Rotate_Array_by_1.cpp

```
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  void lRotateOne(int arr[], int n)
6  {
7      int temp = arr[0];
8      for(int i = 1; i < n; i++)
9      {
10         arr[i - 1] = arr[i];
11     }
12     arr[n - 1] = temp;
13 }
14
15 int main()
16 {
17     int arr[] = {1, 2, 3, 4, 5}, n = 5;
18     cout<<"Before Left Rotation"<<endl;
19     for(int i = 0; i < n; i++)
20     {
21         cout<<arr[i]<<" ";
22     }
23     cout<<endl;
24     lRotateOne(arr, n);
25     cout<<"After '1' Left Rotation"<<endl;
26     for(int i = 0; i < n; i++)
27     {
28         cout<<arr[i]<<" ";
29     }
30 }
31
```

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Before Left Rotation

1 2 3 4 5

After '1' Left Rotation

2 3 4 5 1

Process returned 0 (0x0) execution time : 0.130 s

Press any key to continue.

_6_Left_Rotate_Array_by_d_(Time_dN).cpp

```
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  void lRotateOne(int arr[], int n)
6  {
7      int temp = arr[0];
8      for(int i = 1; i < n; i++)
9      {
10         arr[i - 1] = arr[i];
11     }
12     arr[n - 1] = temp;
13 }
14 void leftRotate(int arr[], int d, int n)
15 {
16     for(int i = 0; i < d; i++)
17     {
18         lRotateOne(arr, n);
19     }
20 }
21 int main()
22 {
23     int arr[] = {1, 2, 3, 4, 5}, n = 5, d = 2;
24     cout<<"Before Left Rotation"<<endl;
25     for(int i = 0; i < n; i++)
26     {
27         cout<<arr[i]<<" ";
28     }
29     cout<<endl;
30     leftRotate(arr, d, n);
31     cout<<"After '2' Left Rotation"<<endl;
32     for(int i = 0; i < n; i++)
33     {
34         cout<<arr[i]<<" ";
35     }
36 }
37
```

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Before Left Rotation

1 2 3 4 5

After '2' Left Rotation

3 4 5 1 2

Process returned 0 (0x0) execution time : 0.207 s

Press any key to continue.

_7)_Left_Rotate_Array_by_d_(Time_N).cpp

```
1  #include <iostream>
2  #include <cmath>
3  using namespace std;
4
5  void leftRotate(int arr[], int d, int n)
6  {
7      int temp[d];
8      for(int i = 0; i < d; i++)
9      {
10         temp[i] = arr[i];
11     }
12     for(int i = d; i < n; i++)
13     {
14         arr[i - d] = arr[i];
15     }
16     for(int i = 0; i < d; i++)
17     {
18         arr[n - d + i] = temp[i];
19     }
20 }
21
22 int main()
23 {
24     int arr[] = {1, 2, 3, 4, 5}, n = 5, d = 2;
25     cout<<"Before Left Rotation"<<endl;
26     for(int i = 0; i < n; i++)
27     {
28         cout<<arr[i]<<" ";
29     }
30     cout<<endl;
31     leftRotate(arr, d, n);
32     cout<<"After '2' Left Rotation"<<endl;
33     for(int i = 0; i < n; i++)
34     {
35         cout<<arr[i]<<" ";
36     }
37 }
```

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Before Left Rotation

1 2 3 4 5

After '2' Left Rotation

3 4 5 1 2

Process returned 0 (0x0) execution time : 0.094 s

Press any key to continue.

_8)_Left_Rotate_Array_by_d_(Time_N).cpp

```
1  #include <iostream>
2  using namespace std;
3
4  void reverse(int arr[], int low, int high)
5  {
6      while(low < high)
7      {
8          swap(arr[high], arr[low]);
9          low++;
10         high--;
11     }
12 }
13
14 void leftRotate(int arr[], int d, int n)
15 {
16     reverse(arr, 0, d - 1);
17     reverse(arr, d, n - 1);
18     reverse(arr, 0, n - 1);
19 }
20
21 int main()
22 {
23     int arr[] = {1, 2, 3, 4, 5}, n = 5, d = 4;
24     cout<<"Before Left Rotation"<<endl;
25     for(int i = 0; i < n; i++)
26     {
27         cout<<arr[i]<<" ";
28     }
29     cout<<endl;
30     leftRotate(arr, d, n);
31     cout<<"After '4' Left Rotation"<<endl;
32     for(int i = 0; i < n; i++)
33     {
34         cout<<arr[i]<<" ";
35     }
36 }
37
```

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Before Left Rotation

1 2 3 4 5

After '4' Left Rotation

5 1 2 3 4

Process returned 0 (0x0) execution time : 0.150 s

Press any key to continue.