

LINEAR ARRAY INSERTION

Write a C++ program to insert a given element in a linear array.

Steps to solve

1. Function insertElement:

- Shifts elements to the right from the given position.
- Inserts the new element at the specified position.
- Updates the array size.

2. Function displayArray:

- Prints the elements of the array.

3. Main function:

- Takes input for the array size and elements.
- Takes the element and position for insertion.
- Calls the insertElement function.
- Displays the updated array.

Code:-

```
1. #include <iostream>
2. using namespace std;
3.
4. void insertElement(int arr[], int &n, int element, int position)
5. {
6.     if (position < 0 || position > n) {
7.         cout << "Invalid position! Please enter a position between 0 and " << n <<
8.         "\n";
9.         return;
10.    }
11.    for (int i = n; i > position; i--)    // Shift elements to the right to create space
12.        arr[i] = arr[i - 1];
13.    arr[position] = element;    // Insert the new element
14.    n++; // Increase the size of the array
15. }
16. void displayArray(int arr[], int n)
17. {
18.     cout << "Array: ";
19.     for (int i = 0; i < n; i++)
20.     {
21.         cout << arr[i] << " ";
22.     }
23.     cout << "\n";
24. }
25.
26. int main()
27. {
28.     int arr[100], n, element, position;
```

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30.     cout << "Enter the number of elements in the array: ";
31.     cin >> n;
32.     cout << "Enter the elements of the array: ";
33.     for (int i = 0; i < n; i++)
34.     {
35.         cin >> arr[i];
36.     }
37.     cout << "Enter the element to insert: ";
38.     cin >> element;
39.
40.     cout << "Enter the position to insert the element (0 to " << n << "): ";
41.     cin >> position;
42.
43.     insertElement(arr, n, element, position);
44.     cout << "Array after insertion:\n";
45.     displayArray(arr, n);
46.     return 0;
47. }
48.
```