NUST

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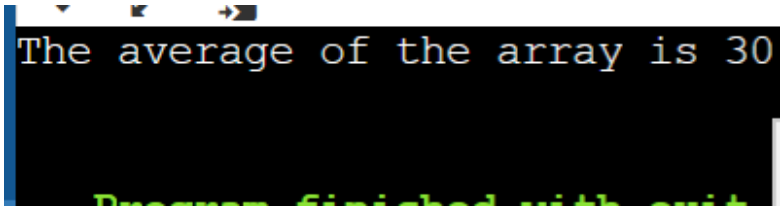
Task no:

```
#include <iostream>
using namespace std;

double average(int arr[], int n) {
  int sum = 0;
  for (int i = 0; i < n; i++) {
    sum += arr[i];
  }
  return (double)sum / n;
}

int main() {
  int numbers[5] = {10, 20, 30, 40, 50};
  double avg = average(numbers, 5);
  cout << "The average of the array is " << avg << endl;
  return 0;
}
```

OUTPUT:



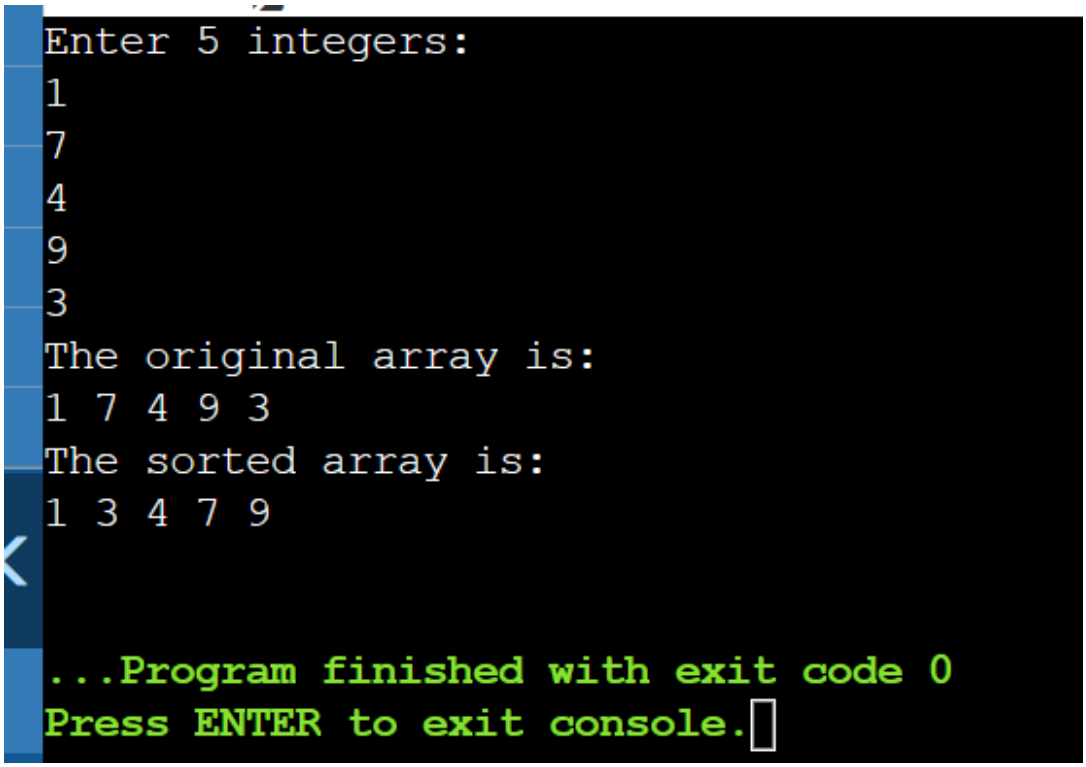
Task no:2

```
#include <iostream>
using namespace std;
```

```
// A function to swap two elements
void swap(int *a, int *b)
{
    int temp = *a;
    *a = *b;
    *b = temp;
}

// A function to implement bubble sort
void bubbleSort(int arr[], int n)
{
    // Loop through all elements
    for (int i = 0; i < n - 1; i++)
    {
        // Loop through the remaining unsorted elements
        for (int j = 0; j < n - i - 1; j++)
        {
            // If the current element is greater than the next element, swap them
            if (arr[j] > arr[j + 1])
            {
                swap(&arr[j], &arr[j + 1]);
            }
        }
    }
}
```

```
// A function to print an array
void printArray(int arr[], int n)
{
    for (int i = 0; i < n; i++)
    {
        cout << arr[i] << " ";
    }
    cout << endl;
}

// The main function
int main()
{
    // Declare an array of 5 integers
    int arr[5];

    // Take input from the user
    cout << "Enter 5 integers: " << endl;
    for (int i = 0; i < 5; i++)
    {
        cin >> arr[i];
    }

    // Print the original array
    cout << "The original array is: " << endl;
    printArray(arr, 5);
```

```
    // Sort the array using bubble sort
    bubbleSort(arr, 5);

    // Print the sorted array
    cout << "The sorted array is: " << endl;
    printArray(arr, 5);

    return 0;
}
```

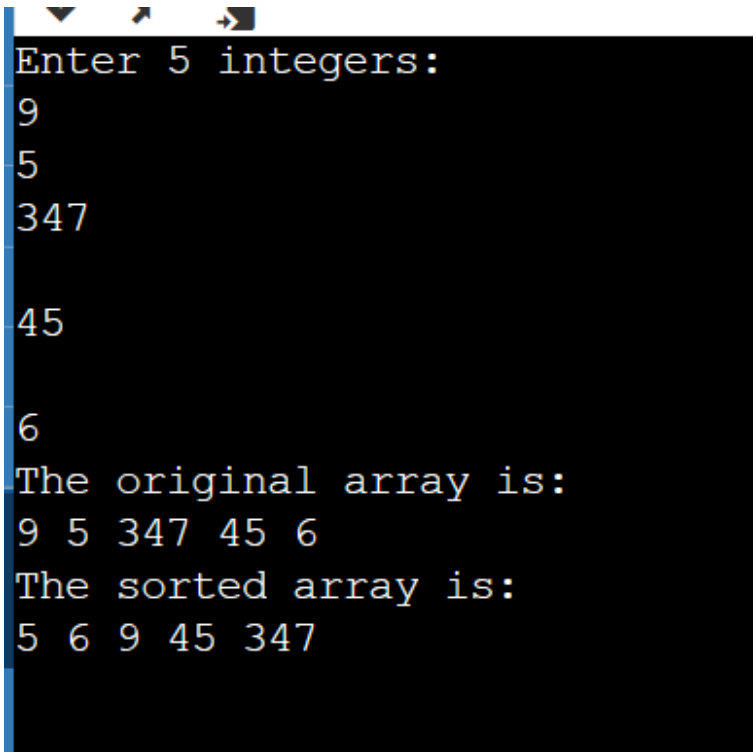


Task no :3

```
#include <iostream>
```

```
using namespace std;

// A function to swap two elements
void swap(int *a, int *b) {
  int temp = *a;
  *a = *b;
  *b = temp;
}

// A function to perform selection sort on an array
void selectionSort(int arr[], int n) {
  // Loop through the array from 0 to n-1
  for (int i = 0; i < n-1; i++) {
    // Find the minimum element in the unsorted part of the array
    int min_index = i;
    for (int j = i+1; j < n; j++) {
      if (arr[j] < arr[min_index]) {
        min_index = j;
      }
    }
    // Swap the minimum element with the first element of the unsorted part
    swap(&arr[min_index], &arr[i]);
  }
}

// A function to print an array
void printArray(int arr[], int n) {
  for (int i = 0; i < n; i++) {
    cout << arr[i] << " ";
```

```
  }
  cout << endl;
}

// The main function
int main() {

  int arr[5];

  cout << "Enter 5 integers: " << endl;
  for (int i = 0; i < 5; i++) {
    cin >> arr[i];
  }

  cout << "The original array is: " << endl;
  printArray(arr, 5);

  cout << "The sorted array is: " << endl;
  printArray(arr, 5);
  return 0;
}
```


Enter 5 integers:
9
5
347
45
6
The original array is:
9 5 347 45 6
The sorted array is:
5 6 9 45 347