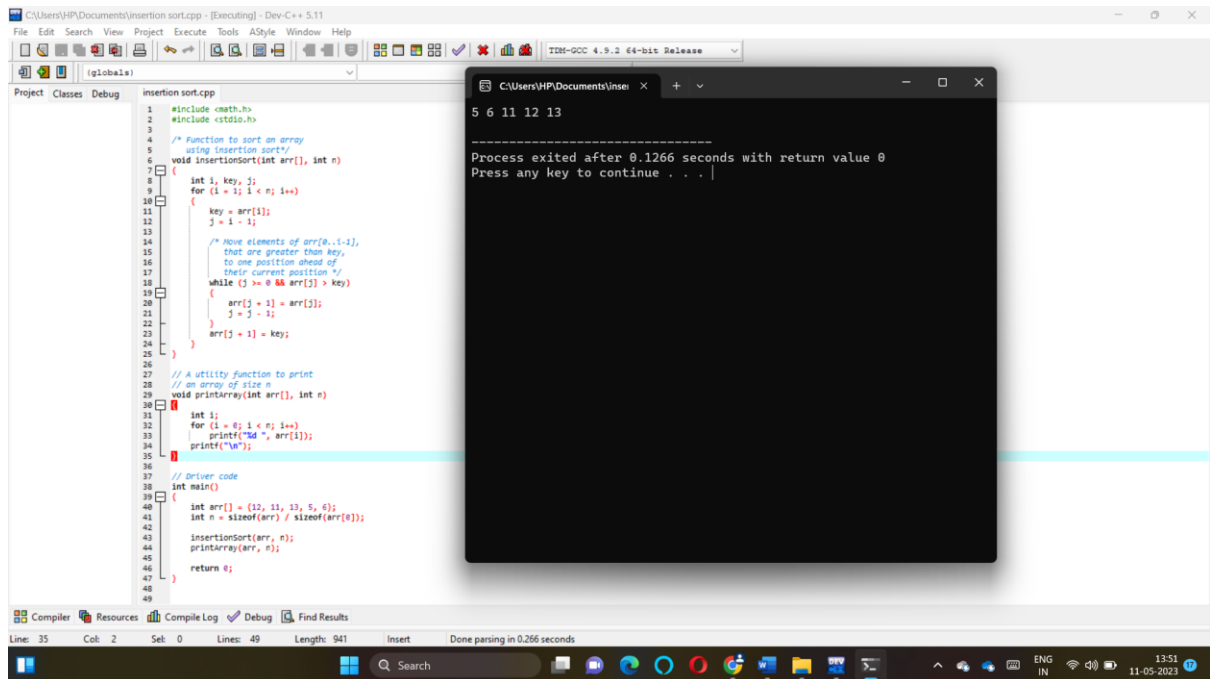


NAME:P.HARI HASSAN

REG:NO:192210633

DATE:11/05/23

## 1.C PROGRAMM FOR INSERTION SORT



The screenshot displays a C++ IDE with a source code editor on the left and a console window on the right. The source code implements an insertion sort algorithm. It includes headers for `<math>\sqrt{}</math>` and `<stdio.h>`. A function `insertionSort` is defined, which takes an array and its size as arguments. It iterates through the array, and for each element, it shifts elements greater than the current element one position ahead to insert the current element in its correct position. A utility function `printArray` is used to display the array before and after sorting. The `main` function initializes an array `arr` with values `{12, 11, 13, 5, 4}` and calls `insertionSort` to sort it. The console window shows the output of the program, displaying the array `5 6 11 12 13` and a message indicating the process exited after 0.1266 seconds.

```
1 #include <math.h>
2 #include <stdio.h>
3
4 /* Function to sort an array
5 using insertion sort */
6 void insertionSort(int arr[], int n)
7 {
8     int i, key, j;
9     for (i = 1; i < n; i++)
10     {
11         key = arr[i];
12         j = i - 1;
13
14         /* Move elements of arr[0..i-1],
15 that are greater than key,
16 to one position ahead of
17 their current position */
18         while (j >= 0 && arr[j] > key)
19         {
20             arr[j + 1] = arr[j];
21             j = j - 1;
22         }
23         arr[j + 1] = key;
24     }
25 }
26
27 // A utility function to print
28 // an array of size n
29 void printArray(int arr[], int n)
30 {
31     int i;
32     for (i = 0; i < n; i++)
33         printf("%d ", arr[i]);
34     printf("\n");
35 }
36
37 // Driver code
38 int main()
39 {
40     int arr[] = {12, 11, 13, 5, 4};
41     int n = sizeof(arr) / sizeof(arr[0]);
42     insertionSort(arr, n);
43     printArray(arr, n);
44     return 0;
45 }
46
47
48
49
```

```
5 6 11 12 13
-----
Process exited after 0.1266 seconds with return value 0
Press any key to continue . . .
```