```c
// 19. Write a C program to implement Heap sort.
#include <stdio.h>
 int main()
 {
 int arr[10], no,  i, j, c, heap_root, temp;
 printf("Input number of elements: ");
 scanf("%d", &no);
 printf("\nInput array values one by one : ");
 for (i = 0; i <  no; i++)
 scanf("%d", &arr[i]);
 for (i = 1; i <  no; i++)
 {
 c = i;

 {
 heap_root  = (c - 1) / 2;

 if  (arr[heap_root] < arr[c])
 {
 temp =  arr[heap_root];
 arr[heap_root] = arr[c];
 arr[c]  = temp;
 }
 c =  heap_root;
 } while (c !=  0);
 }

 printf("Heap  array : ");
 for (i = 0; i <  no; i++)
 printf("%d\t ", arr[i]);
 for (j = no - 1; j  >= 0; j--)
 {
 temp = arr[0];
 arr[0] = arr[j];
 arr[j] = temp;
 heap_root = 0;
 do
 {
 c = 2 *  heap_root + 1;
 if  ((arr[c] < arr[c + 1]) && c < j-1)
 c++;
 if  (arr[heap_root]<arr[c] && c<j)
 {
 temp =  arr[heap_root];
```

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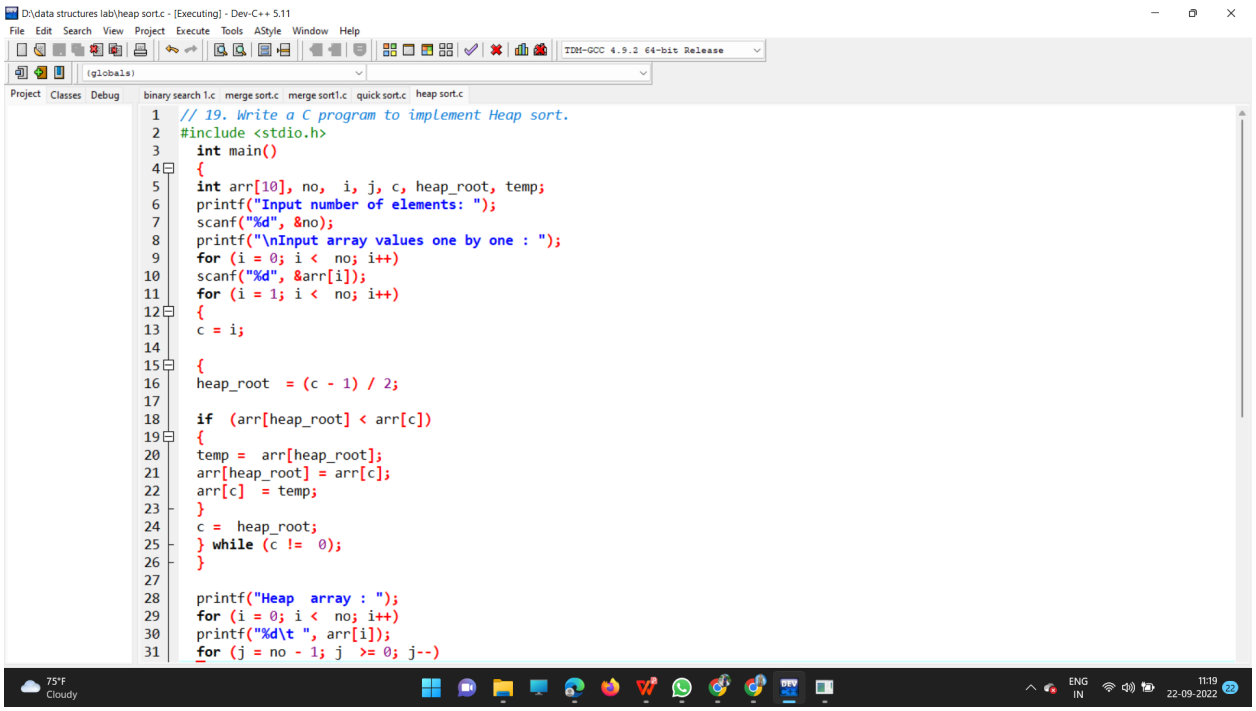
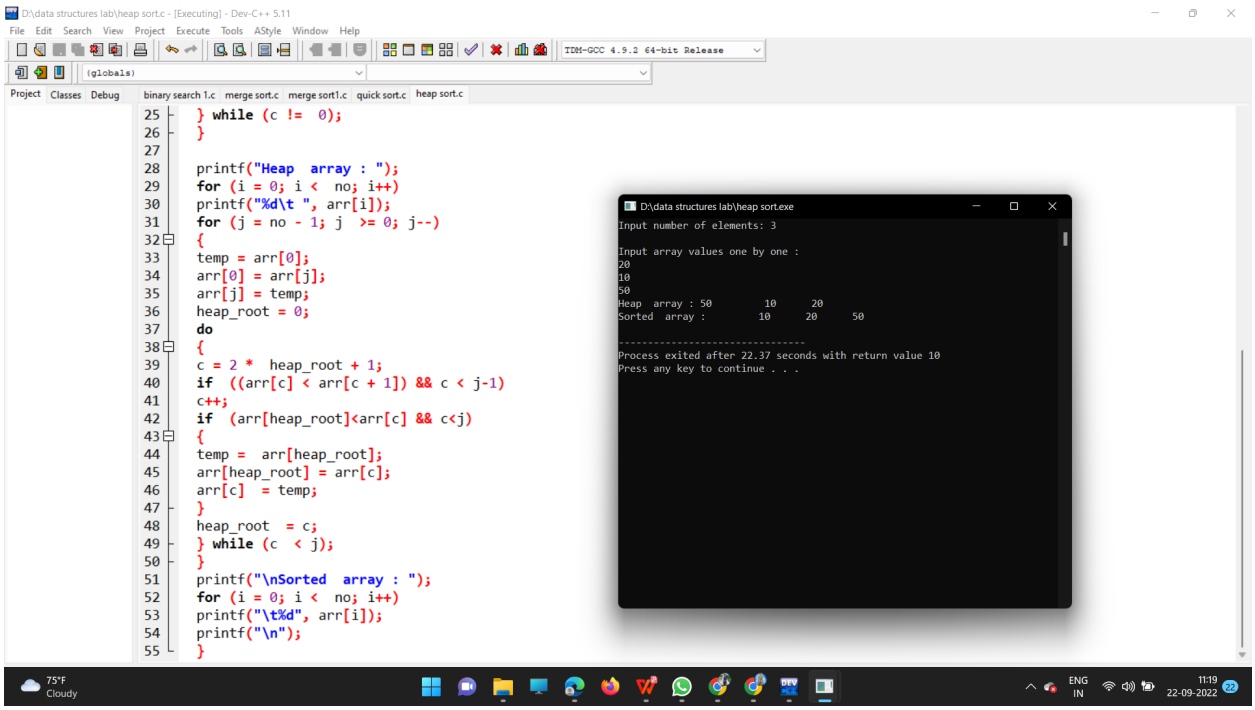
arr[heap_root] = arr[c];
arr[c]  = temp;
}
heap_root  = c;
} while (c  < j);
}
printf("\nSorted  array : ");
for (i = 0; i <  no; i++)
printf("\t%d", arr[i]);
printf("\n");
}
```




D:\data structures lab\heap sort.c - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 64-bit Release
(globals)
Project Classes Debug
binary search 1.c merge sort.c merge sort1.c quick sort.c heap sort.c
25 } while (c != 0);
26 }
27
28 printf("Heap array : ");
29 for (i = 0; i < no; i++)
30 printf("%d\t ", arr[i]);
31 for (j = no - 1; j >= 0; j--)
32 {
33 temp = arr[0];
34 arr[0] = arr[j];
35 arr[j] = temp;
36 heap_root = 0;
37 do
38 {
39 c = 2 * heap_root + 1;
40 if ((arr[c] < arr[c + 1]) && c < j-1)
41 c++;
42 if (arr[heap_root]<arr[c] && c<j)
43 {
44 temp = arr[heap_root];
45 arr[heap_root] = arr[c];
46 arr[c] = temp;
47 }
48 heap_root = c;
49 } while (c < j);
50 }
51 printf("\nSorted array : ");
52 for (i = 0; i < no; i++)
53 printf("\t%d", arr[i]);
54 printf("\n");
55 }
D:\data structures lab\heap sort.exe
Input number of elements: 3
Input array values one by one :
20
10
50
Heap array : 50 10 20
Sorted array : 10 20 50
Process exited after 22.37 seconds with return value 10
Press any key to continue . . .
75°F Cloudy
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