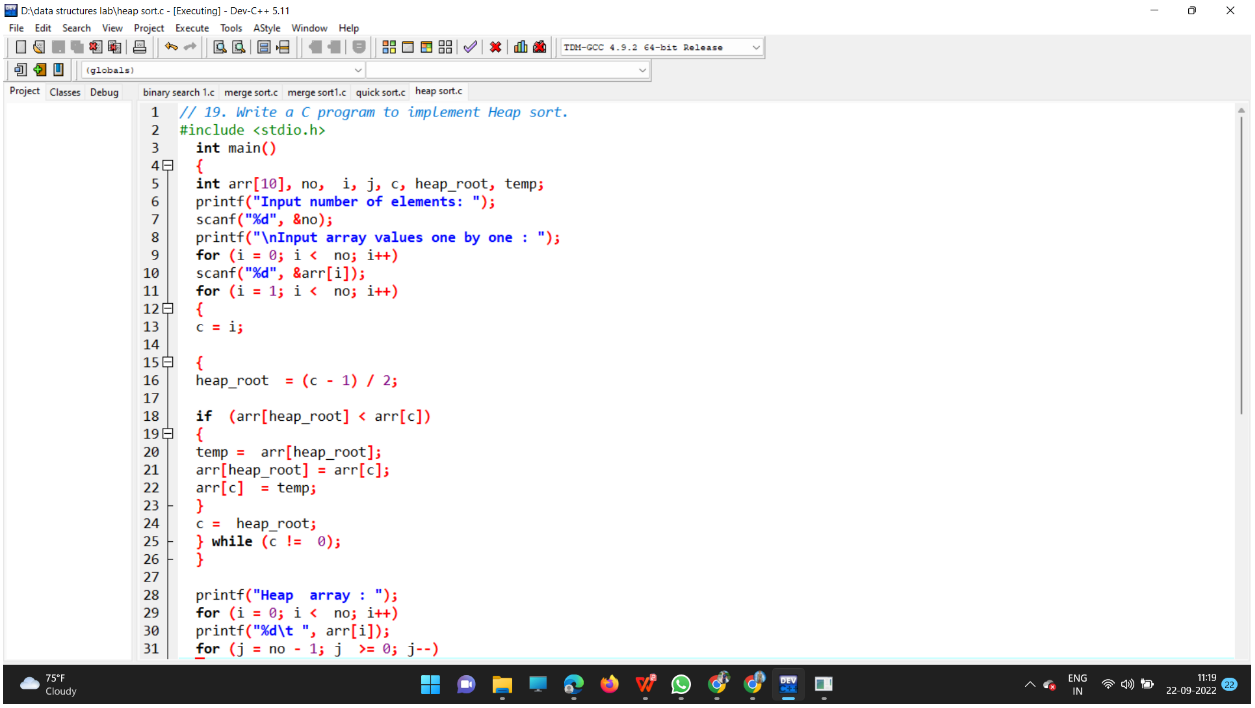
```
// 19. Write a C program to implement Heap sort.
#include <stdio.h>
  int main()
  {
  int arr[10], no,  i, j, c, heap_root, temp;
  printf("Input number of elements: ");
  scanf("%d", &no);
  printf("\nInput array values one by one : ");
  for (i = 0; i <  no; i++)
  scanf("%d", &arr[i]);
  for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

  printf("Heap  array : ");
  for (i = 0; i <  no; i++)
  printf("%d\t ", arr[i]);
  for (j = no - 1; j  >= 0; j--)
```

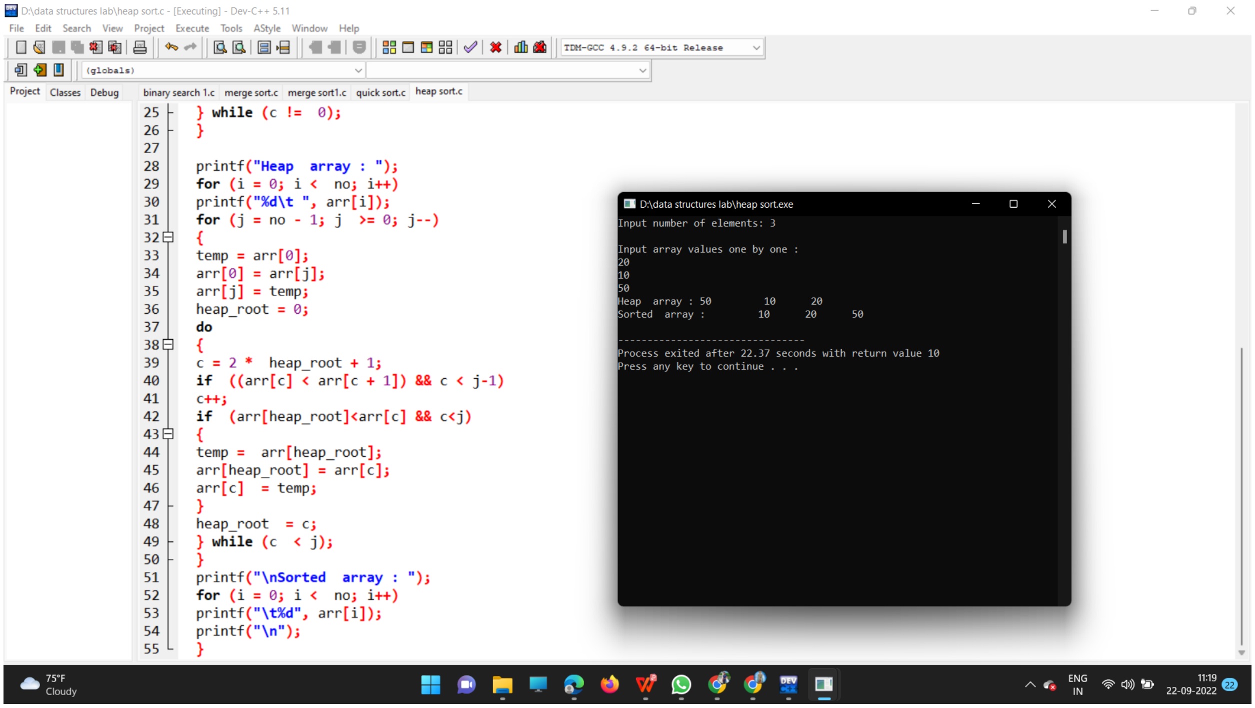
D:\data structures lab\heap sort.c - [Executing] - Dev-C++ 5.11
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binary search 1.c merge sort.c merge sort1.c quick sort.c heap sort.c
D:\data structures lab\heap sort.exe
75°F
Cloudy
ENG
IN
11:19
22-09-2022

```c
} 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];
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");
}
```

```
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 . . .
```