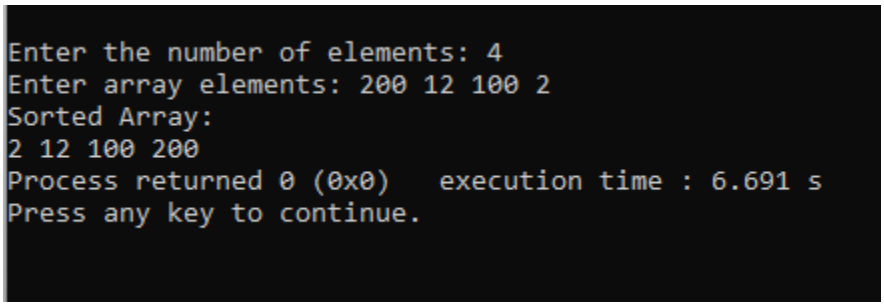
HEAPSORT

```
#include <stdio.h>

void heapify(int arr[], int i, int size)
{
    int left = 2 * i + 1;
    int right = 2 * i + 2;
    int maxIdx = i;

    if (left < size && arr[left] > arr[maxIdx])
    {
        maxIdx = left;
    }
    if (right < size && arr[right] > arr[maxIdx])
    {
        maxIdx = right;
    }

    if (maxIdx != i)
    {
        int temp = arr[maxIdx];
        arr[maxIdx] = arr[i];
        arr[i] = temp;
        heapify(arr, maxIdx, size);
    }
}

void heapSort(int arr[], int n)
{
    for (int i = n / 2; i >= 0; i--)
    {
        heapify(arr, i, n);
    }
```

```
    for (int i = n - 1; i >= 0; i--)
    {
        int temp = arr[0];
        arr[0] = arr[i];
        arr[i] = temp;
        heapify(arr, 0, i);
    }
}

int main()
{
    int n;
    printf("\nEnter the number of elements: ");
    scanf("%d", &n);

    int arr[n];

    printf("Enter array elements: ");
    for (int i = 0; i < n; i++)
    {
        scanf("%d", &arr[i]);
    }

    heapSort(arr, n);

    printf("Sorted Array:\n");
    for (int i = 0; i < n; i++)
    {
        printf("%d ", arr[i]);
    }

    return 0;
}
```

OUTPUT:


Enter the number of elements: 4
Enter array elements: 200 12 100 2
Sorted Array:
2 12 100 200
Process returned 0 (0x0)   execution time : 6.691 s
Press any key to continue.