

30.

```
#include <stdio.h>
```

```
void heapify (int a[], int n, int i) {  
    int largest = i, left = 2*i+1, right = 2*i+2, temp;  
    if (left < n && a[left] > a[largest]) largest = left;  
    if (right < n && a[right] > a[largest]) largest = right;  
    if (largest != i) {  
        temp = a[i];  
        a[i] = a[largest];  
        a[largest] = temp;  
        heapify(a, n, largest);  
    }  
}
```

```
void heapSort(int a[], int n) {  
    for (int i = n/2 - 1; i >= 0; i--)  
        heapify(a, n, i);  
    for (int i = n - 1; i > 0; i--) {  
        int temp = a[0];  
        a[0] = a[i];  
        a[i] = temp;  
        heapify(a, i, 0);  
    }  
}
```

```
int main() {  
    int a[100], n;  
    printf("Enter number of elements: ");  
    scanf("%d", &n);  
    printf("Enter elements:\n");  
    for(int i = 0; i < n; i++)  
        scanf("%d", &a[i]);
```

```
Enter number of elements: 5  
Enter elements:  
21 54 65 32 98  
Sorted array:  
21 32 54 65 98
```

```
    heapSort(a, n);  
    printf("Sorted array:\n");  
    for(int i = 0; i < n; i++)  
        printf("%d ", a[i]);  
    return 0;  
}
```