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#include<stdio.h>
void heapify(int a[],int n,int i);
void heapsort(int a[],int n);
void display(int a[],int n);
int main(){
    int n;
    printf("How many elements:");
    scanf("%d",&n);
    int a[n];
    printf("Enter the elements");
    for(int i=0;i<n;i++){
        scanf("%d",&a[i]);
    }
    printf("Before Sorting\n");
    display(a,n);
    heapsort(a,n);
    printf("\nAfter Sorting\n");
    display(a,n);
    return 0;
}
void display(int a[],int n){
    for(int i=0;i<n;i++){
        printf("%d\t",a[i]);
    }
}
void heapsort(int a[],int n){
    int temp;
    int i=(n/2)-1;
    while(i>=0){
        heapify(a,n,i);
        i--;
    }
    for(i=n-1;i>=0;i--){
        temp = a[0];
        a[0] = a[i];
        a[i] = temp;
        heapify(a,i,0);
    }
}
void heapify(int a[],int n,int i){
    int temp;
    int largest = i ;
    int left = 2*i + 1;
    int right = 2*i + 2;

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    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);
    }
}
```