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//C Program to sort an array based on heap sort algorithm(MAX heap)
#include <stdio.h>
void main()
{
int heap[10], no, i, j, c, root, temp;
printf("\n Enter no of elements :");
scanf("%d", &no);
printf("\n Enter the nos : ");
for (i = 0; i < no; i++)
scanf("%d", &heap[i]);
for (i = 1; i < no; i++)

{
c = i;
do
{
root = (c - 1) / 2;
if (heap[root] < heap[c]) /* to create MAX heap array */
{
temp = heap[root];
heap[root] = heap[c];
heap[c] = temp;
}
c = root;
} while (c != 0);
}

printf("Heap array : ");
for (i = 0; i < no; i++)
printf("%d\t ", heap[i]);
for (j = no - 1; j >= 0; j--)
{
temp = heap[0];
heap[0] = heap[j]; /* swap max element with rightmost leaf element */
heap[j] = temp;
root = 0;
do

{
c = 2 * root + 1; /* left node of root element */
if ((heap[c] < heap[c + 1]) && c < j-1)
c++;
if (heap[root]<heap[c] && c<j) /* again rearrange to max heap array */
{
temp = heap[root];
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heap[root] = heap[c];
heap[c] = temp;
}
root = c;
} while (c < j);
}
printf("\n The sorted array is : ");
for (i = 0; i < no; i++)
printf("\t %d", heap[i]);
printf("\n Complexity : \n Best case = Avg case = Worst case = O(n logn) \n");
}
```