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1: // C program to convert min Heap to max Heap
2:
3: #include <stdio.h>
4:
5: void swap(int* a, int* b)
6: {
7:     int temp = *a;
8:     *a = *b;
9:     *b = temp;
10: }
11:
12: // to heapify a subtree with root at given index
13: void MaxHeapify(int arr[], int i, int N)
14: {
15:     int l = 2 * i + 1;
16:     int r = 2 * i + 2;
17:     int largest = i;
18:
19:     if (l < N && arr[l] > arr[i])
20:         largest = l;
21:     if (r < N && arr[r] > arr[largest])
22:         largest = r;
23:     if (largest != i) {
24:         swap(&arr[i], &arr[largest]);
25:         MaxHeapify(arr, largest, N);
26:     }
27: }
28:
29: // This function basically builds max heap
30: void convertMaxHeap(int arr[], int N)
31: {
32:     // Start from bottommost and rightmost
33:     // internal node and heapify all internal
34:     // nodes in bottom up way
35:     for (int i = (N - 2) / 2; i >= 0; --i)
36:         MaxHeapify(arr, i, N);
37: }
38:
39: // A utility function to print a given array

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40: // of given size
41: void printArray(int* arr, int size)
42: {
43:     for (int i = 0; i < size; ++i)
44:         printf("%d ", arr[i]);
45: }
46:
47: // Driver's code
48: int main()
49: {
50:     // array representing Min Heap
51:     int arr[] = { 3, 5, 9, 6, 8, 20, 10, 12, 18, 9 };
52:     int N = sizeof(arr) / sizeof(arr[0]);
53:
54:     printf("Min Heap array : ");
55:     printArray(arr, N);
56:
57:     // Function call
58:     convertMaxHeap(arr, N);
59:
60:     printf("\nMax Heap array : ");
61:     printArray(arr, N);
62:
63:     return 0;
64: }
65:
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