

Prelab 12

The goal of this prelab is for you to implement a min-heap using an array. You will start with an array of 31 elements arranged in strictly descending order (from 31 down to 1). You will have two key heap operations:

- Building a min-heap from the given array.
- Removing the minimum element (the root) and updating the heap to maintain the min-heap property.

Key details:

- Initialize an array of integers from 31 down to 1 (i.e., `array[0] = 31`, `array[1] = 30`, ..., `array[30] = 1`).
- Implement a function to build a min-heap from this array:
`Heap * build_min_heap(int array[], int size);`
- Implement a function that removes (and returns) the minimum element (the element at the root) from the heap, replaces it with the last element, and re-heaps the array to maintain the min-heap property:
`int remove_min(Heap * heap);`
- Write a simple main function to:
 - Create the initial array (descending from 31 to 1).
 - Build the heap using `build_min_heap`.
 - Print the heap.
 - Remove the minimum element once using `remove_min`.
 - Print the updated heap array after removal.