Project 4

Write a C++ program that compares the execution times of Heap, Insertion Sort and Merge Sorts for inputs of different size. The time, in seconds, must be formatted with at least two decimal numbers.

The implementation of Heap, Insertion and Merge Sorts are the same as we discussed in class.

First, we must randomly generate inputs of different size, but the "same input" generated, must be applied to the three sorts. However, the random inputs must be copied to three different arrays, one for each sort, to make sure that they are not previously sorted by another sorting technique.

The output of your program should look like:

Input Length	**Heap Sort (seconds)**	**Insertion Sort (seconds)**	**Merge Sort (seconds)**	**Best time**
1,000	xx.xx	xx.xx	xx.xx	Heap
10,000	xx.xx	xx.xx	xx.xx	Merge
25,000	xx.xx	xx.xx	xx.xx	….
50,000	xx.xx	xx.xx	xx.xx	…..
150,000	xx.xx	xx.xx	xx.xx	
250,000	xx.xx	xx.xx	xx.xx