

## Quiz #1A

Name:

**READ THE QUESTIONS CAREFULLY!!! DO NOT WASTE TIME DOING MORE THAN IS ASKED FOR. DO NOT IMPLEMENT MEMBER FUNCTIONS UNLESS IT IS SPECIFICALLY REQUESTED. YOU DO NOT NEED TO COMMENT THE CODE.**

1. Write a template `MedianHeap` class interface with the public methods below. (This is a different class than what you wrote for program 1, but the principles are identical. You do not need to know what a `MedianHeap` is; for the purpose of this quiz, it is simply the name of the class template and it will have some of the functionality described below.) Represent the `MedianHeap` internally as a `vector`. You may add a `currentSize` data member if you did so in your program. Include any preprocessor directives (i.e. things that start with a `#`).
  - A zero-parameter constructor. Provide an implementation of the constructor as part of the interface.
  - Three accessors: One returns the  $K$ th smallest item ( $K$  is a parameter of the function); the second tests if the `MedianHeap` is empty; the third, `getSize`, returns the number of elements currently stored in the `MedianHeap` container. Provide an implementation of `getSize` as part of the interface.
  - Four mutators: One makes the `MedianHeap` empty; another removes the  $K$ th smallest item ( $K$  is a parameter of the function); and one inserts a new item. Provide for two forms of removal; one that sends the removed value back to the caller, and one that does not.
2. Implement `makeEmpty` **SEPARATELY**.