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HW#2 Written Part:

1. The problem with the code is that there is no copy constructor specified.

2.

- (a) $O(\log(n))$
- (b) $O(n \cdot \log(n))$
- (c) $O(n)$
- (d) $O(n^2)$
- (e) $O(n^2)$
- (f) $O(n)$

3. The difference is that the first ("delete []") is deleting an entire array of objects but the second ("delete") is just deleting one object.

4.

- (a) the copy constructor takes $O(n)$ because it has to copy over every element
- (b) the move constructor takes $O(1)$ because it simply "steals the resources of the temporary object."

5.

- (a) $O(n)$
- (b) $O(1)$

6.

- (a) function 3
- (b) function 2
- (c) function 3
- (d) function 1

7.

`int x = 3; //x is a lvalue`

`char* ptr = new char [3]; //new char[3] is a rvalue`

`int f() return 1; // the return value of function f is rvalue`

`string&& sRef = string("what") ; // sRef is rvalue`

8. It doesn't compile because the return in getName() is passed by reference but once the function finishes the variable name is gone.