Winter 2020 CS 32

Homework 1 FAQ

1. **For problem 3 (and 5), what's an easy way to flip my test routine between testing a Map from `std::string` to `double` and a Map from `int` to `std::string`?**

   Here's one technique that lets you flip by commenting out or uncommenting just one line in testMap.cpp:

   ```cpp
   #include "Map.h"
   #include <iostream>
   #include <cassert>
   using namespace std;

   // To test a Map from string to double, leave the following line commented out;
   // to test a Map from int to string, remove the "//".

   // #define INT_TO_STRING

   #ifdef INT_TO_STRING

   const KeyType DUMMY_KEY = 9876543;
   const ValueType DUMMY_VALUE = "Ouch";
   const KeyType NO_SUCH_KEY = 42;
   const KeyType KEY1 = 123456789;
   const ValueType VALUE1 = "Wow!";

   #else // assume string to double

   const KeyType DUMMY_KEY = "hello";
   const ValueType DUMMY_VALUE = -1234.5;
   const KeyType NO_SUCH_KEY = "abc";
   const KeyType KEY1 = "xyz";
   const ValueType VALUE1 = 9876.5;

   #endif

   int main()
   {
       Map m;
       assert(m.empty());
       ValueType v = DUMMY_VALUE;
       assert( !m.get(NO_SUCH_KEY, v)  &&  v == DUMMY_VALUE); // v unchanged by get failure
       m.insert(KEY1, VALUE1);
       assert(m.size() == 1);
       KeyType k = DUMMY_KEY;
       assert(m.get(0, k, v)  &&  k == KEY1  &&  v == VALUE1);
       cout << "Passed all tests" << endl;
   }
   ```

   When your Map.h has the type aliases specifying KeyType as int and ValueType as std::string, then by making the symbol INT_TO_STRING defined, the #ifdef will select the code that initializes the constants DUMMY_KEY, etc., in a way that is consistent with the Map. Similarly, if the type aliases specify a Map from string to double, you would comment out the #define of INT_TO_STRING; this would cause the #ifdef to select the #else part, which initializes the constants appropriately for that kind of Map.

2. **I have an egg carton with two rows of six eggs each. In the row nearer to the back of the carton, the eggs are white; in the other, they're brown. I'd like to exchange the rows, changing from**

   ```
   ======back=======
   W1 W2 W3 W4 W5 W6
   B1 B2 B3 B4 B5 B6
   ```

to

```
======back======
B1 B2 B3 B4 B5 B6
W1 W2 W3 W4 W5 W6
```

I have no extra egg cartons, and I can't set an egg on the table or it will roll off. Can I do it using just my two hands?

Yes.