OOP, SS13, Lab1

* Handed out Sunday, April 12, 2015
* Hand in via FTP only!
* Any problem, contact TA
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In this lab, you should implement a tiny dictionary, which offers functions 'add', 'delete', 'update' and 'search'. You will get a better understanding of struct, reference and pointer in C++ when completing this lab.

**Release**

This lab is release on [ftp://10.132.141.33/classes/13/142 面向对象程序设计(陈辰)/LAB/Lab1/](ftp://10.132.141.33/classes/13/142%20面向对象程序设计(陈辰)/LAB/Lab1/) . The source file contains:

* lab1.cpp
* dict.h
* dict.cpp

**Logics**

You should complete four methods in file 'dict.cpp' to implement the tiny dictionary.

**Reference and Pointer**

Before starting your lab, you may want to know what the difference between reference and pointer is. Consider and run the following code.

**Qusetion1. What will be print out of the program? Why it has such output?**

#include <iostream>

using namespace std;

int main(int argc, char const \*argv[])

{

int a = 1;

int \*ap = &a;

int &ar = a;

cout << &a << endl;

cout << &ap << endl;

cout << &ar << endl;

return 0;

}

**Question2. Reference and pointer have the same performance in most condition, but they are different actually. Please list the differences. (***hint: Google is a good teacher***)**

**Code your dictionary**  
We have already give you some code in three files, where there is a class *Dict*. But you only need to code functions in file *dict.cpp* with comment "Your code here". **DON'T modify any given interface so that we test your code correctly, otherwise you may get 0 score**. We will test your code with a large amount of data (5000 words perhaps), please check robustness of your code.

We define a structure in this program:

typedef struct word

{

string key; /\* key with which the specified value is to be associated \*/

string value; /\* value to be associated with the specified key \*/

} word;

The methods you should implement are:

**bool add(const word &w);**

*In this function you should insert a word in your dictionary. If the dictionary previously contained a mapping for the key, the old one should be replaced.*

**string search(const string &key);**

*Returns the value to which the specified key is mapped, or "" if this map contains no mapping for the key.*

**string remove(const string &key);**

*Removes the mapping for the specified key from this map if present.*

string update(const word &w);

*Update an already existed word in your dictionary (NOTE: Do not insert the word to your dictionary if there was no such key)*

**Qustion3. Describe how you implement the four methods in dict.cpp.**

**Handin**

Package all your program files together with an answer.txt including all answers of questions, and upload your Lab1 “studentID\_name.zip” to the directory [ftp://10.132.141.33/classes/13/142 面向对象程序设计(陈辰)/WORK\_UPLOAD/Lab1/](ftp://10.132.141.33/classes/13/142%20面向对象程序设计(陈辰)/WORK_UPLOAD/Lab1/)

**Note:** Be sure all your files are encoding in UTF-8, otherwise we may get messy code.