CS 124 Lab 1
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Dictionary program

This program works as an online dictionary. It reads a word and shows its translation. The program loads the dictionary data from the "dict.dat" file. (Visible on next page.)

The objective of the lab is to review the programming techniques learned in cs102.
The sections in parenthesis suggest where in "C++ for You++" to review.
- Building programs from source code (**compile and link**)(1.5)
- Communicating with the user using the console (**cin** and **cout**)(2.10)
- Creating and using **const** for data that will not change as program is running(3.6)
- Using boolean values(6.3)
- Reading data from a file into an array (or vector)(7.8)
- Using the 3 control structures: **sequence, selection, and iteration**(9.1)
- Searching an array (or vector) for a value(9.3)
- Using **pass-by-reference** in order to have a function "return" more than one value(11.3)
- Using **std::string** and **std::vector**(Appendix B, and 21.1)
  - The textbook shows us how to create these ourselves, but will use the built-in versions at first
- Create documentation using LATEX(not in textbook)

Chapter 2 may be enough to get you started, but as soon and as much as you can, you should read all of *Part One : chapters 1-13*.
The focus of this semester is *Part Two : chapters 14-28*.

Dictionary program

This program works as an online dictionary. It reads a word and shows its translation. The program loads the dictionary data from the "dict.dat" file.

```
English-Punjabi Dictionary
I Mai
This Ah
Love Piyar
You Tusi
Us Usi
Mouse Chooya
Dog Kootha
Cat Billi
Tomorrow Kalnu
Overmorrow Parso
```

lab.h

```
#include <iostream>
#include <fstream>
#include <vector>
struct Entry {
    std::string word;
    std::string translation;

};
bool loadDictionary(std::string,std::vector<Entry>&);
bool foundWord(std::string, const std::vector<Entry>& d, std::string& t);
```

Contains all the header files and shared functions. Entry is a struct made to hold the dictionary info. So that we can store all the entries in a single array.

lab.cpp

```cpp
#include "lab.h"
int main ()
{
    bool ok,found;
    std::string translation;
    std::vector<Entry> dict;
    ok = loadDictionary("dict.dat",dict);
    if (not ok)
        std::cout << "I didn't get the file!" << std::endl;
    std::string q;
    std::cin >> q;
    found = foundWord(q,dict,translation);
    if (found)
        std::cout << translation << " is the translation of " <<
        q << " in Punjabi" << std::endl;
}
```

- Load the dictionary from the file
- Translate words

loadDictionary.cpp

```cpp
#include "lab.h"
bool loadDictionary(std::string f,std::vector<Entry>& d)
{
    std::ifstream ifs(f);
    if(not ifs) return false;
    std::string s,w,t;
    getline(ifs,s);
    std::cout << s << std::endl;
    while(ifs >> w >> t)
    {
        Entry e; e.word = w; e.translation = t;
        d.push_back(e);
    }
    std::cout << "There are " << d.size() << " in your dictionary."
    <<std::endl;
    std::cout << "Please enter the word you want to translate. Don't" <<
    " forget to capitalize!!!" << std::endl;
    return true;

}
```

- Reads dictionary entries from a file.
- Returns true if successful, false if cannot open the file.
- Open dictionary file
- Read and display the header line
- Read words and translations into the dictionary array
- Report the number of entries

foundWord.cpp

```cpp
#include "lab.h"
bool foundWord(std::string s, const std::vector<Entry>& d, std::string& t)
{
    for(Entry e : d)
    {
        if(e.word == s) {
            t = e.translation;
            return true;
        }
    }
    return false;
}
```

- Searches dictionary for word
  - If found it returns true
  - If not found it returns false

TEST of Program

```
debian@debian:~/cs124/lab1$ ./lab
English-Punjabi Dictionary
There are 10 in your dictionary.
Please enter the word you want to translate. Don't forget to capitalize!!!
Dog
Kootha is the translation of Dog in Punjabi
debian@debian:~/cs124/lab1$ ./lab
English-Punjabi Dictionary
There are 10 in your dictionary.
Please enter the word you want to translate. Don't forget to capitalize!!!
Cat
Billi is the translation of Cat in Punjabi
debian@debian:~/cs124/lab1$ ./lab
English-Punjabi Dictionary
There are 10 in your dictionary.
Please enter the word you want to translate. Don't forget to capitalize!!!
I
Mai is the translation of I in Punjabi
debian@debian:~/cs124/lab1$ ./lab
English-Punjabi Dictionary
There are 10 in your dictionary.
Please enter the word you want to translate. Don't forget to capitalize!!!
We
debian@debian:~/cs124/lab1$ import lab.eps
█
```

- The program turns Dog to Kootha
- The program turns Cat to Billi
- The program turns I to Mai
- The program closes for words it does not know such as "We"