HOMEWORK 0

NO SUBMISSION IS REQUIRED, PRACTICE PURPOSES ONLY
DUE DATE: NONE. TRY TO GET THIS DONE BEFORE HW1 POSTING!

Problem

This is Homework 0. It is not worth any points. However, it is a very valuable practice.

Learn how to upload your program and execute with a make file using Black/Arctic Servers at CSE MSU.

Since you will be using the servers to test your projects before you submit them to handin, this assignment encourages you to

1. Learn how to connect to our servers. Check out the link if you need to find out more on how to connect to Black or Arctic (those are the names of our servers for students) http://www.cse.msu.edu/Facility/Services/SSH.php
2. Use a make file to compile (in C++ 11) and create an executable of your code
3. Run your code on our servers.

Your job is really easy. You will be writing a simple **linear search** algorithm using C++ 11 for determining whether **an unsorted array** (i.e., an array with positive element values that are in no particular order) contains a specified search key. Dot not sort the array.

With your requirements document you are given:

1. LinearSearch.h
2. main.cpp
3. makefile And
4. an inputfile

Please do not modify: **main.cpp, make and inputfile**

Part 1

Use an IDE of your choice or use a text editor to complete LinearSearch.h and run it, test it
either using your IDE or on command line on your own machine prior to upload on our servers..

```
 1⊖ /*
 2   * LinearSearch.h
 3   *
 4   *  Created on: Today
 5   *       Author: onsayse
 6   */
 7⊖ #ifndef LINEARSEARCH_H_
 8  #define LINEARSEARCH_H_
 9  #include <vector>
10  using namespace std;
18⊕ bool linearSearch(vector<Comparable> &items, const int key)⬚
28
29
30  #endif /* LINEARSEARCH_H_ */
```

(LinearSearch.h)

Once you are done and you are ready to upload to our servers. (Assuming that you found out
how to connect to our servers by this step…)

1. It would be wise to create a directory such as HW in our servers under your user account
    (for organization purposes only to help you locate your files better), and create a
    subdirectory such as Hw0 and upload the following files onto this directory.
    a. LinearSearch.h (your completed work)
    b. main.cpp (your driver)
    c. makefile (this is the file we gave you to create your executable)
    d. inputfile (to read data from this file to check linear search)

2. Once the upload is complete and you placed all the listed files under a directory that you
    know where everything is… Go to that directory and run your make file. Below is screen
    shot of how to run your make file. Make file will compile your code and it create an
    executable. See below.

    1) Run make
    ```
    [<137 arctic:~/331S17/hw/hw0 >make
     g++ -std=c++11 -g -c main.cpp
     g++ -std=c++11 -q main.o -o search
    ```
    2) If you have few simple syntax errors fix them using Unix editor, or upload it back to
        your own machine fix them on your own computer and uploaded back to servers
        again. Run make again and again, and if there are errors fix them. **Make sure to get
        your code to compile and run on our servers to avoid point deductions, penalties**.
        Once that is accomplished an executable is created for you.

3) Below is the screen shot of the executable appearing under hw0 director named as search:

```
[<140 arctic:~/331S17/hw/hw0 >ls -l
 total 496
 -rwx------ 1 onsayse faculty 133142 Jan 12 18:52 input.in
 -rwx------ 1 onsayse faculty 133142 Jan 12 18:52 input.txt
 -rw------- 1 onsayse faculty    558 Jan 12 18:52 LinearSearch.h
 -rw------- 1 onsayse faculty   1513 Jan 12 18:52 main.cpp
 -rw------- 1 onsayse faculty 130224 Jan 12 18:53 main.o
 -rwx------ 1 onsayse faculty    142 Jan 12 18:52 Makefile
 -rwx------ 1 onsayse faculty  77608 Jan 12 18:53 search
```

4) Now execute!

```
[<139 arctic:~/331S17/hw/hw0 >./search
 test value 15680
 The key value --> 445393 was not found!
 Size of the vector : 20000
 Linear Search method  took 291663 nanoseconds
```

Homework Deliverables

1. None! For practice purposes only!