Programming Assignment 8

Due by Monday, November 16, 9:00 PM

1. For this assignment, you are supposed to write a C program called `binsearch` that performs the binary search on a data in the file `words.dat`, which contains 5757 five-letter words in the alphabetical order.

2. You are supposed to write a program from scratch. Just make sure to comply with file names in `Makefile` and the behavior shown in `test1.in` and `ch_test1.out`. That is,

   (a) you need to write a single C program file `binsearch.c`, and

   (b) your program waits for a five-letter input and prints out the index, between 0 and 5756, of the input if found in `words.dat`, or -1 if not found.

   (c) You can borrow the codes from the frontend of our Address Book programs and modify a little bit. Try `binsearch_demo` and note that your program prompts only for five-letter words and terminates if it ecounter an end-of-file (or `ctrl-D` from your keyboard input). To terminate your program, use `exit(0)`, a standard library function declared in `<stdlib.h>`. Try to find out the meaning of its argument '`0`' of `exit()` and its relationship with UNIX shell, which might give you a clue to the cause of error that you might get when you "`make test`."

3. Although you have the freedom to design your program with any search method, I recommend that you use the binary search discussed in the class. Your program will be tested not only for *correctness* but also for *preformance*. Your program is supposed to run `make time_test` within one second on our server. So, the sequential search probably would not pass. You might use hashing or binary search tree, but they are a bit more complicated to implement than binary search.