Cs352 — Homework #4

February 23, 2004

Turnin files: StructSortExample.c StructSortExample2.c

(PS: For example, you may turnin multiple files by UNIX command "turnin *cs*352_*assg*4 yourfile1 yourfile2 yourfile3 yourfile4". You may also turnin one file at a time by "turnin *cs*352_*assg*4 *file_you_want_to_turnin*". Later turnin file will overwrite the old file which has the same filename. So if you turnin the same file multiple times, we only receive the last version you turned in. To see a list of the files you turned in, you may use the command "turnin -ls *cs*352_*assg*4". For help information about turnin program, please use the command "turnin -h". If you still have questions about turnin, please either stop by TA's office hours or email TA's.

Your code should follow the instructions in the "C coding guidelines". In particular, pay attention to proper documentations)

Due Time: 2/26/03 (9:00PM).

1. Write a program called `StructSort` that sort an array of structs, of the type showed in page 11 of the slides *struct_union.ppt* — on the array `keytab`. The prototype of the function is `void StructSort(struct key keytab[], int size)`. Here size specifies the number of elements in the array. After the function is called, the words in the array should appear in lexicographically decreasing order. This can be done by replacing the elements (=struct) of the arrays. Make sure to use a variant of the function `swap` presented in class. Demonstrate the correctness of this function using a program called `StructSortExample` (in the file `StructSortExample.c`), and initial the array in the way it is initialized in the slides. (For your convince, these slides can be retrieved from *www.cs.arizona.edu/classes/cs352/spring04/slides/* .

   Make sure in this question to replace the whole struct - not only the pointers. You can use the function `strcmp` defined in `string.h`.

2. Same like previous question, but here only replace the pointers to the "word" fields, (do not replace the "count" fields, and do not replace the content of the strings, only the pointers to them). Submit your program on `StructSortExample2` (in the file `StructSortExample2.c`)