

## HW 3

### PROGRAM SPECIFICS

Write a program that reads a series of strings from a file

- The filename will be specified by the user
- The strings will be stored in dynamically allocated arrays.
- The program will read in the strings store them in the dynamically allocated array, and then the program will create a random string.
- The format of the file will be:
  - type of the word
  - the words
  - #

```
article
the
a
one
some
any
#
noun
boy
girl
dog
#
verb
drove
jumped
walked
skipped
#
preposition
to
from
over
under
on
#
```

- A random sentence is made from noun verb preposition article noun and will be stored in a new dynamically allocated array
- The maximum string size to read a word from the file is 100.
- The first character in the random string may not be a letter, in which case you don't have to capitalize it. If it is a letter make it uppercase. If it already is an uppercase letter you don't have to do anything.
- You will read until you reach the end of file.
- There will be at least one of each type of word.

- Use a 3 file format
- The main function will not contain any real processing, just function calls, and a do while or some kind of loop.
- You will display a menu options below
- The arrays will be sorted. You may use any sort you would like, just ensure the strings are sorted in alphabetical ascending order.
- You must ensure that all dynamically allocated memory is returned to the operating system.
- Appropriate error checking for menu choices is a must (you will get an int but not necessarily in range)
- The user will be presented with a menu that contains the following choices:
  - 1) Generate a Sentence
  - 2) Display all words
  - 3) Add a word
  - 4) Delete a word – Extra Credit
  - 5) Display all words sorted
  - 6) Exit the program

## **SAMPLE RUN**

Welcome to the Random Sentence Generator (Stu really needs to get a life)

Please enter the name of the input file: input.txt

Processed:

5 Articles

3 Nouns

4 Verbs

5 Prepositions

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 1

Dog jumped over some girl

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 2

Articles: a any one some the

Nouns: boy dog girl

Verbs: drove jumped skipped walked

Prepositions: from on over to under

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 3

Add a word to:

- 1) Articles
- 2) Nouns
- 3) Verbs
- 4) Prepositions

Choice --> 3

What word would you like to add: ran

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 2

Articles: a any one some the

Nouns: boy dog girl

Verbs: drove jumped ran skipped walked

Prepositions: from on over to under

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 1

Boy ran to some girl

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 4

Add a word to:

- 1) Articles
- 2) Nouns
- 3) Verbs
- 4) Prepositions

Choice --> 3

What word would you like to delete: ran

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 2

Articles: a any one some the

Nouns: boy dog girl

Verbs: drove jumped skipped walked

Prepositions: from on over to under

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 5

a any boy dog drove from girl jumped on one over skipped some the to under walked

Please choose from the following:

- 1) Generate a Sentence
- 2) Display all words
- 3) Add a word
- 4) Delete a word
- 5) Display all words sorted
- 6) Exit the program

Choice --> 6

Have a nice day!:-)

NOTE: If you choose NOT to do the Extra Credit – You still need choice 4 – just print out that the choice is not implemented.

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### **TO TURN IN:**

A zip file containing:

- All C files – at least 3 but word of warning here you should start building your own set of files such as FileUtil from the Java world
  - Name the file that contains main: cscd240hw3.c
- All header files
- A valgrind run to prove you are “leak” free named cscd240hw3val.txt
- A makefile with a target of hw3

Naming scheme last name first letter of first name hw3.zip (ex: steinershw3.zip)

**GET STARTED ASAP**