

CECS 326: Programming project¹ (individual)

Objectives: Creation and inheritance of child processes with *fork* and *wait*

Implement a string parsing software and count the number of times the words in a plain text document has a certain length. Hyphenated words may be considered as a single word. Other punctuations may or may not be included in the calculation of the word length (student's choice).

Software components:

- The *UI* (not GUI) program is the interface with the user. Prompt your user to enter a length of the word to search. Count all words in the document with this length. Here, the *UI* spawns a child process to perform the counting task. Allow the child process to finish and output the number of words found (if any), before prompting the user for the next length. If the user enters zero for the length, terminate the program.
To simplify the programming, a lengthy (300 words minimum) plain text document (e.g. excerpt of some web article) can be hard coded in the program as a string object (or equivalent).
- The child process is spawned by the *UI* process to count the words of a certain length in the document. Output the count and terminate (if count isn't zero.)

Injected bug to be included in your code purposely: When a string of a certain length cannot be found (i.e. count is zero), program your child process to redo and repeat the count over and over (indefinitely). This bug would require user's intervention at a separate terminal/shell to terminate the child process gracefully via command console (w/o terminating the parent process). To denote its eternal execution, the child process prints a dot (.) prior to each repeated attempt.

Submit a hard copy of the program listing with a cover page (name, date, course #, email address, program description & optional critique). Also, document and submit your test cases which you used to test your program. For this assignment, it can be a simple table that lists each test case, its expected result, and the purpose of each test case. Show your instructor the program execution of your test cases & discuss the details of your implementation when necessary.

¹ This project can be completed after the discussion of the sample programs on *fork*.