

Lab 1. Reading and Modifying Code

Due Date: 14 January, 2002

Please complete this assignment in pairs.

In this assignment, you will carefully read the source code listings for a “typing tutor” program named TuxType. You will describe how the source code is structured and how the program operates as it is being run. You will describe how to modify the program to add a new feature (Dvorak support) based upon your reading of the code.

Audience: Write for an audience of junior software engineers at a company. These peers are *not* familiar with the TuxType program and they will not have source code in front of them when they read your report.

Main Point and Purpose: The purpose of this assignment is for you to demonstrate your ability to read and comprehend written source code. You will also show competency in designing a modification to a program and the ability to determine what changes are needed to implement the modification.

Procedures: The source for tuxtype that you are to use to complete this assignment has been linked to this webpage as `tuxtype.tar`.

Please submit a report with the following components:

1. Description of the source code as it is statically structured. Be sure to summarize and only mention things that are important.
2. Description of the how the program operates when it is run. Use the source code listing, not practice runs of the executable, to generate this description. This means you must be able to take notes about the program and simulate how the program executes in your mind. Be sure to summarize and only mention things that are important.
3. Description of how to add a new feature, Dvorak support, to the TuxType program. Dvorak is a keyboard layout that is an alternative to QWERTY. For more information, see <http://www.mwbrooks.com/dvorak/>. Describe how to change TuxType so that it offers “full” Dvorak support to users with QWERTY keyboards. Such support includes:
 - Allowing the user to choose between Dvorak tutoring or QWERTY tutoring at appropriate times
 - Modification of the “instructional games” offered by TuxType to support the Dvorak keyboard layout. Do not assume that the user will have additional support from the operating system or other software. Assume that the user will have a QWERTY keyboard. This means that TuxType will be responsible for determining which QWERTY key maps to which Dvorak key.

Give a detailed description of the modification in English.

Write in terms of the code (variable names, function names etc.), but do not include direct excerpts of the code. Instead, describe the functionality of code in English. Introduce variables and functions (and their purpose) before writing about them. Remember, your audience has not seen the program before and does not have the source code in front of them.

TuxType uses the Simple DirectMedia Layer library. More information can be found at <http://www.libsdl.org> if you need it.

You do not need to describe any of the non-code components of `tuxtype.tar`.

You are welcome to try to build and run the program. You will still be expected to show that you used the knowledge you gained from *reading* the source code listing to complete the assignment. It is *not* necessary that you build and run this program to complete this assignment. (But if you really want to, look for the Tuxtype project on sourceforge.net for makefiles and executables.)

Images of TuxType will also be on the course web page.

Standards and Criteria: In completing this assignment, demonstrate that you can read and comprehend source code well. Your work will be evaluated by its effectiveness as a guide to a reader who does not know the TuxType program but is considering a modification to it.

Make 3 copies of your work. One will be turned in and the other 2 will go into your respective binders.