

Graded Exercise 0

CSC131 The Beauty & Joy of Computing

31 August 2018

1. Psychologists have found that quizzes help students learn. If you are learning on your own (outside of a class and without the help of a teacher), how might you use this knowledge?
2. Look in Chapter 2 of *How We Learn* for the story about Phillip Boswood Ballard. His experiment involved a poem that Henry Wadsworth Longfellow had written and children in London. What did he discover?
3. Benedict Carey compares the memories of computers and people on the last page of Chapter 1 of *How We Learn*. What lesson does he share there?
4. Jack Kilby and Robert Noyce invented the integrated circuit. A few years later, Gordon Moore predicted a rapid rate of progress for this technology.
 - (a) What is an integrated circuit?
 - (b) How fast has industry succeeded in improving integrated circuits?
5. HTML and L^AT_EX give authors a means to separately specify the...
 - content of a document—the words and images a reader will see
 - organization of the document—its division into sections and the assignment of special significance to words that make up, for example, titles, captions, and elements of tables and lists
 - format of a document—its appearance, including typefaces and fonts, margins, and colors

This is an application of the principle of “separation of concerns.”

Read the Wikipedia article on the Separation of Concerns.

- (a) We are applying the principle in the creation of a book. What are some other undertakings in which the principle might find application?
- (b) How might the application of this principle help us in our work?

6. The commands in Linux are given in short sequence of characters (for example, `ls`, `cd`, and `cp`). The commands in Emacs are also given in short sequences of characters (for example, `C-X C-S`, `C-X C-C`, `C-K`, `C-Y`, `C-A`, and `C-E`).

These commands are not obvious!

Why did the authors of Linux and Emacs give us these kinds of commands?

7. Find a reference or tutorial for Emacs on the Web. How can you cut and paste a paragraph?
8. You will be more productive in Emacs if you learn commands for moving about within a document.

- (a) What is an Emacs command for moving to the top of a document?
- (b) What is an Emacs command for moving to the end of a line?

9. Markup languages give special meanings to some characters. These characters denote commands to the software that formats the document. An author who wants to make one of these characters visible to readers must somehow indicate that the formatting software should not interpret the character as a command.

For example, in \LaTeX the ampersand (`&`) is a special character. To make it visible to readers, an author must precede it with a backslash.

Identify two other characters that also have special meaning in \LaTeX .

10. We will use a text editor, typesetting software, the Linux operating system, software that allows us to connect to a remote computer and to move documents between computers, and software that will track changes in our documents.

How might you use some of the methods of learning that you are encountering in your reading to gain facility with these tools?