**When might you, as a Python programmer use widgets? Describe one of the widgets mentioned in chapter 8 an provide an example of how it might be used to solve a specific problem.**

Widgets are used in programs with a graphical user interface (GUI). They are used for programs that are made to allow for more user interaction as opposed to the text-based user interface (TUI) we have been using so far in class. I would imagine, with Python, that a GUI would be used where human interaction is required, whereas a TUI would be used to handle things “in the background” without much input from the user.

The ReadOnly Entry widget only got a brief mention in the book, but I think it’s an important and often overlooked way to output data. ReadOnly Entry widgets look like an Entry Widget that accepts user input, but it is grayed out and cannot be typed into. They provide a place where the user knows to look for the results of whatever is being inputted in the program. An example would be a calculator program. A programmer could make the results of calculations appear in a Label widget at the top of the screen. Depending on the size and number of buttons on the “calculator” it may be easy to spot. However, if the results appear in a ReadOnly Entry widget, the user will naturally look there for the results of the calculation.

**Describe how a programmer would write a GUI program?**

GUI programs can be written in either an object-oriented or a direct coding style. Many TUI programs can also be converted into GUI programs. Of the three general pieces of a program (input, processing, and output) processing will for the most part remain the same. Input and output would then be converted to their respective widgets: Entry and Lists for input, and Labels for output. Buttons would also be added to begin the processing, and the programmer would then address the layout of the widgets in the program window.