Homework 7: GUI Building

Comp 123

1 Overview

This assignment should be done **individually**. You will explore how to construct and debug GUI programs using `tkinter`. **There are three questions. Don't miss the third question!**

1.1 Preparing and handing in the assignment

Download the `hw7Files.zip` archive, which will contain `hw7Code.py` and `hw7Tests.py` files to use with this assignment. Put all your programming answers into the `hw7Code.py` file. Non-programming answers may be put in that file as well, or in a separate file.

Be sure that each function you write has a docstring inside it which serves as a one or two sentence description of the purpose of the function.

2 Homework questions

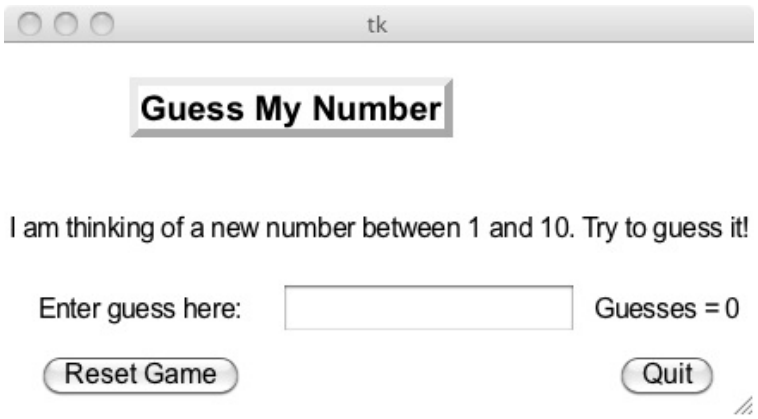
1. (15 pts) Create a GUI program using the `tkinter` module, and using a style similar to those you learned in the in-class activities. There is an outline of your program in the `hw6Code.py` file.

   This GUI program should include a quit button, and a Change Color button. When the Change Color button is pressed, the background color of the main GUI window should change to a randomly-chosen color. Note that the outline program I provided includes a method `makeRGBString` that takes in three integers between 0 and 255, and it creates the color string used by `tkinter` to specify colors. You can set the background color using the `bg` attribute, which you should change using the dictionary style syntax example: `self.mainwindow["bg"] = "#ff0000"` (this will set the window to red.)

   How to lay out the program is up to you. But do note that you can specify the minimum size of the main window using the `minsize` method of window widgets, and you can add empty space around widgets by using `padx` and `pady` as options to the `grid` method.

2. (10 pts) In the `hw7Code.py` file is a program to play a guessing game. The computer chooses a random number, and the user tries to guess it. The GUI displays a message responding to the user's input. If the user guesses the number correctly, then the game is over and the user cannot keep playing until they click the Reset button which starts the game over with a new random number.

   Here is what the program should look like when it first runs:



I have left unimplemented one of the callback methods for this function: `resetGame`. Implement this method to reset the game to its initial state. To do this correctly, you will need to reset a number of the instance variables to starting values. You will need to read and understand the program in order to determine what `resetGame` should do.

3. (5 pts) What is the difference between a function and a method?