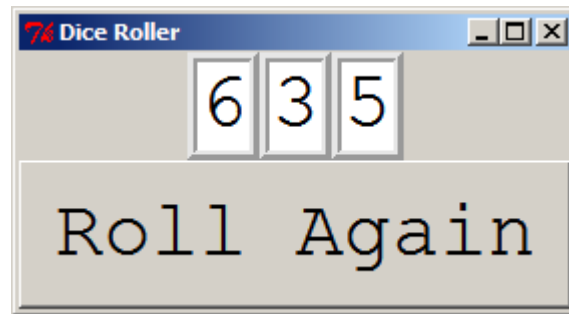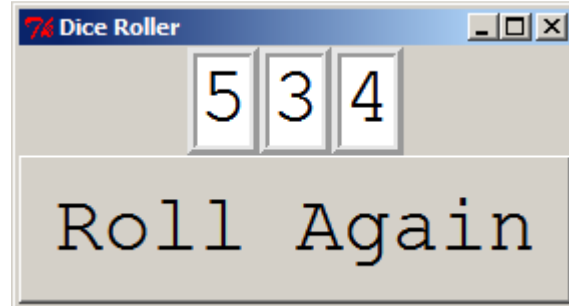# COS 125 Fall 2016 Lab #5
Due Weds Nov 2 EoD

The goal of this exercise is to build a very simple program using Tkinter that will roll three dice, displayed as text labels as illustrated below.

You can use the Tic-Tac-Toe game as a model for this program. TTT has a cell class, and a TTTgame class. This program will have a Die class and a DiceRoller class. This program is much simpler than TTT however; it should have fewer than 30 non-blank lines of code (if you put arguments to Tkinter functions on the same line); fewer than 40 lines otherwise.

Each time you hit the roll button, you will roll the three dice and the screen will change:

If you can't get the entire program written, then write as much as you can. You will receive points according to the following guidelines.

1. (10 points): Start the program with a docstring containing at least the text "COS 125 Fall 2016 Lab #5" and your name. Determine which packages that you need to import and write statements that import them.

2. (20 points): Define a class called Die that has two instance variables and one method.
   a) The instance variables should be called value (self.value) and display (self.display). Value is value of the die and display is a Tkinter label that displays the current value of the die. The constructor will assign a random value when the die is created
   b) The one method should be called roll and when it is invoked it randomly selects an integer from 1 to 6 ,and then changes the text in display to match the new value of the die.
   c) The Die constructor needs one arguments besides self: the parent for self.display (a Tkinter frame)

d) The die label in example above was created using the parameters relief='ridge', borderwidth=5 and bg='white'. You can of course experiment with other variations – be creative! if you are interested see http://infohost.nmt.edu/tcc/help/pubs/tkinter/web/label.html

e) Call pack(side='left') in the Die constructor after creating the label.

3. (30 points) Create a class called DiceRoller with a constructor (__init__) and one method: rollDice(). DiceRoller has only one instance variable:

        dice   a list of Die objects

The constructor should create a Tkinter window and change the title and then start mainloop. The rollDice method at this point can have a single statement: pass.

Because we do not need to refer to the game window again within the object code (there is no quit button, unlike Tic-Tac-Toe) it does not need to be an instance variable, although it certainly can be created as one.

The main program has only one line of code: varName = DiceRoller(). The program should be runnable at this point although it doesn't do anything except display a window with a title.

4. (30 points) In the DiceRoller constructor, create a frame to hold the three dice that you will create. Then create three dice with this frame as a parent. Then create a button with the text "Roll Again". Finally pack the frame and button.

Note that the button does not need a frame to contain it. The window can be its parent, and after packing the frame you can pack the button with the argument side='bottom'. Again neither the frame nor the button need to be instance variables.

5. (10 points) Implement the rollDice() method. You should now have the finished program.

Please submit your program as a .py file.