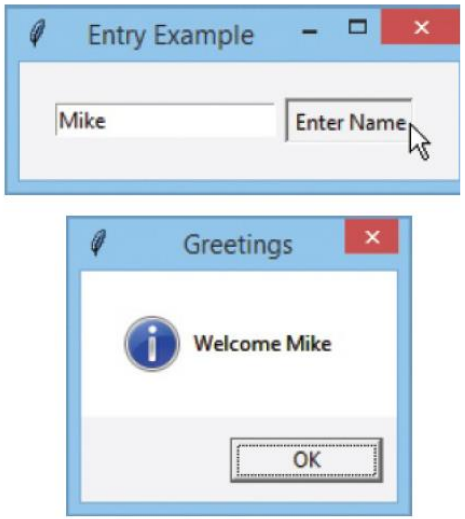
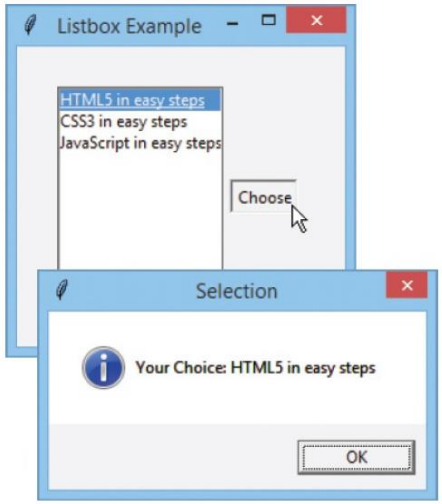
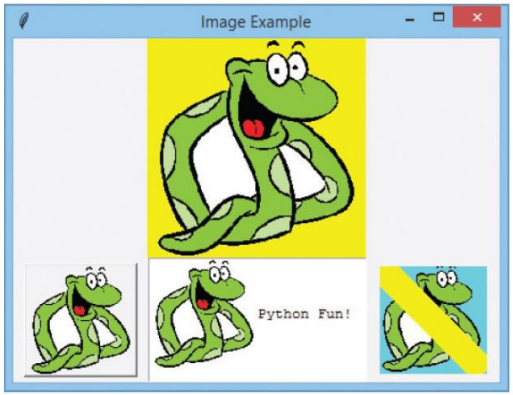
Creating a simple game

Python tkinter module

- tkinter is a standard python module for developing user graphic interface (GUI)
  - tkinter stands for a **t**ool**k**it for **inter**face
  - Examples of GUI developed using tkinter



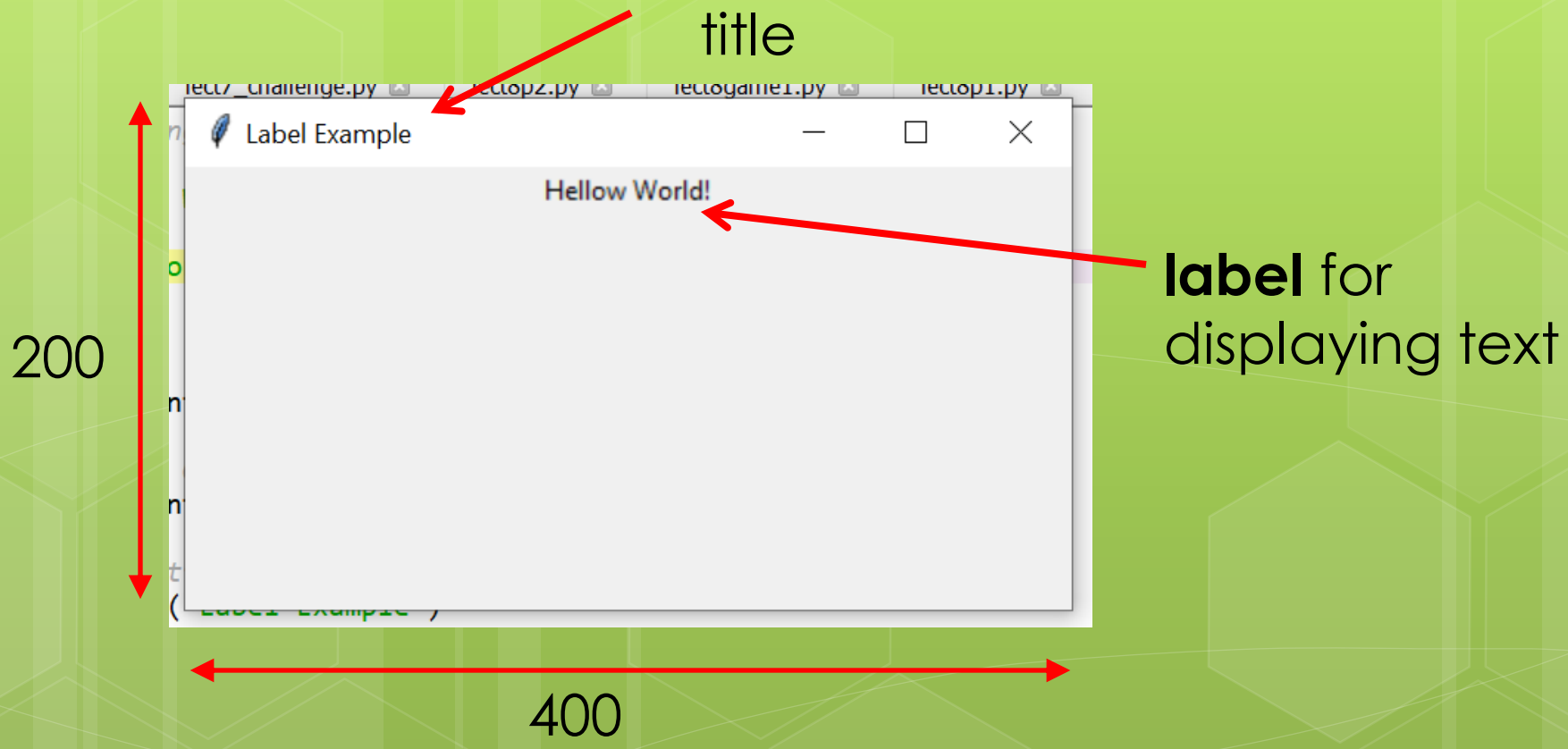




A simple window with label

```
import tkinter

# create a GUI window
root = tkinter.Tk()

# set the title
root.title("Label Example")

# set the size
root.geometry("400x200")


# add an instructions label
label = tkinter.Label(root, text = "Hellow World!")
label.pack()

# start the GUI
root.mainloop()
```

A simple window with label



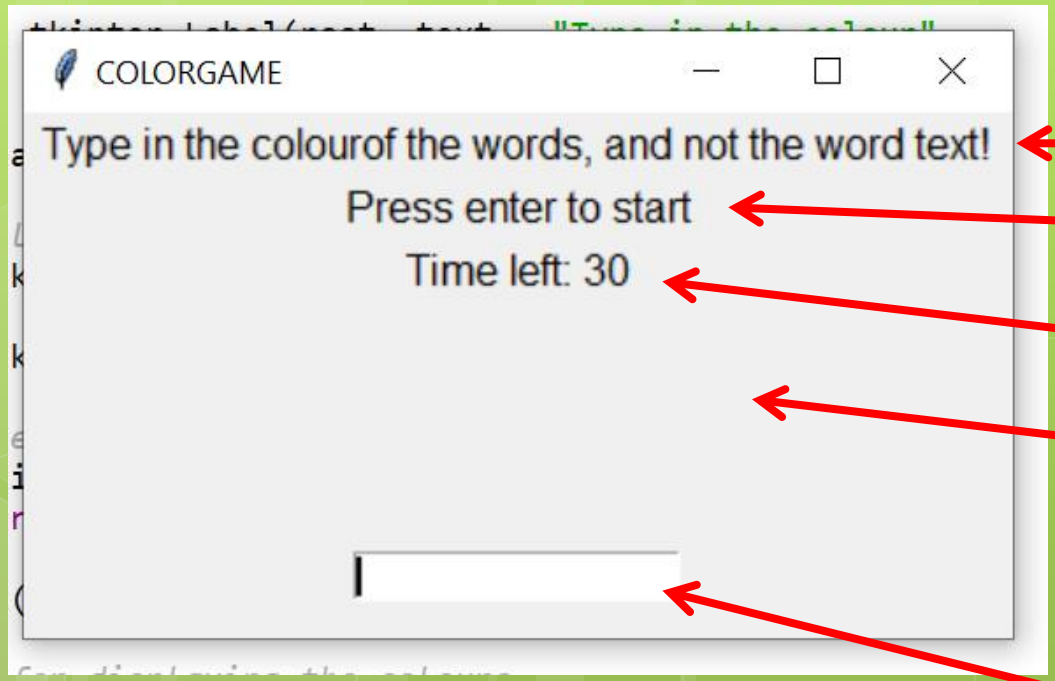
Adding more labels for the game

```
# import the modules
import tkinter
import random

# the game time left, initially 30 seconds.
timeleft = 30

# create a GUI window
root = tkinter.Tk()

# set the title
root.title("COLORGAME")

# set the size
root.geometry("375x200")


# add an instructions label
instructions = tkinter.Label(root, text = "Type in the colour"
                             "of the words, and not the word text!",
                                        font = ('Helvetica', 12))
instructions.pack()

# add a score label
scoreLabel = tkinter.Label(root, text = "Press enter to start",
                                        font = ('Helvetica', 12))
scoreLabel.pack()
```

Adding more labels for the game

```
# add a time left label
timeLabel = tkinter.Label(root, text = "Time left: " +
            str(timeleft), font = ('Helvetica', 12))

timeLabel.pack()

# add a label for displaying the colours
label = tkinter.Label(root, font = ('Helvetica', 60))
label.pack()

# add a text entry box for
# typing in colours
e = tkinter.Entry(root)

e.pack()

# start the GUI
root.mainloop()
```

The game GUI



Instructions label

scoreLabel

timeLabel

label for displaying text

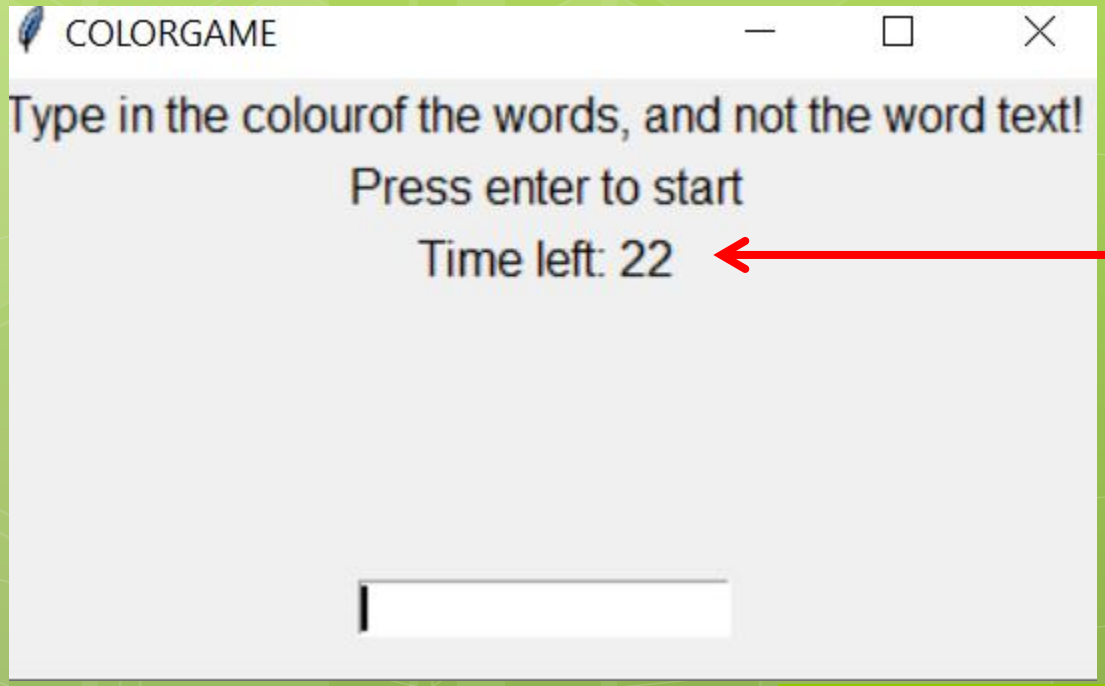
e for typing text

Adding timer

```
timeleft = 30

# function that will start the game.
def startGame(event):

    if timeleft == 30:
        # start the countdown timer.
        countdown()

# Countdown timer function
def countdown():

    global timeleft

    # if a game is in play
    if timeleft > 0:

        # decrement the timer.
        timeleft -= 1

        # update the time left label
        timeLabel.config(text = "Time left: "
                                + str(timeleft))

        # run the function again after 1 second.
        timeLabel.after(1000, countdown)
```

Adding timer

```
# run the 'startGame' function
# when the enter key is pressed
root.bind('<Return>', startGame)
```



Timer starts to count after type enter

Adding function to display text and check answer

```
def startGame(event):

    if timeleft == 30:
        # start the countdown timer.
        countdown()

    # run the function to
    # choose the next colour.
    nextColour()
```

```
# Function to choose and
# display the next colour.
def nextColour():

    # use the globally declared 'score'
    # and 'play' variables above.
    global score
    global timeleft

    # if a game is currently in play
    if timeleft > 0:

        # make the text entry box active.
        e.focus_set()

        # if the colour typed is equal
        # to the colour of the text
        if e.get().lower() == colours[1].lower():

            score += 1

        # clear the text entry box.
        e.delete(0, tkinter.END)

        random.shuffle(colours)

        # change the colour to type, by changing the
        # text _and_ the colour to a random colour value
        label.config(fg = str(colours[1]), text = str(colours[0]))

        # update the score.
        scoreLabel.config(text = "Score: " + str(score))
```

Playing the game