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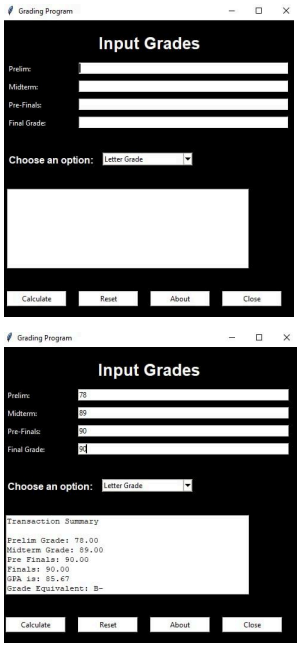
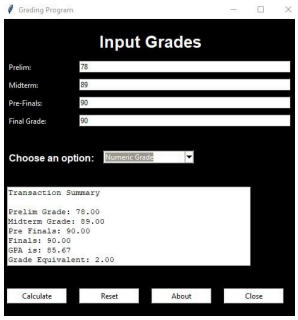
C203

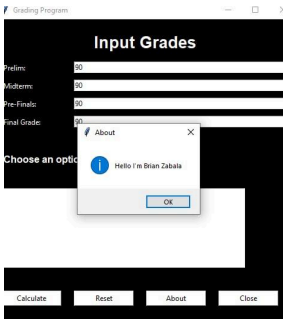
FINALS TASK 5. Designing a Tkinter Window and adding events

PART 1. Grading PROGRAM
1. Design the window below.
2. The program should allow the user to input Prelim, Midterm, Pre Finals and Final Grade (Compute GPA by adding the Prelim, Midterms, (50% of Pre-Finals and 50% of the Final Grade) then divide by 3) 3. The user should be able to select which equivalent grade to view using Combo Box: (Letter Grade or NUMERIC GRADE)
4. Compute Button should compute the GPA and display the appropriate grade equivalent and other info in a Textarea (Text) as shown in the sample output
5. The Reset Button should clear the Radio Button Selection and the Text field entries should be cleared as well
6. The About button should display a dialog with the message: “Hello I’m your Name”

Output:







Code:

```
import tkinter as tk
from tkinter import ttk, messagebox

class GradingProgram:
    def __init__(self, root):
        self.root = root
        self.root.title("Grading Program")
        self.root.geometry("500x500")


        self.root.configure(bg="black")


        self.main_frame = tk.Frame(self.root, width=480, height=480, bg="black")
        self.main_frame.place(x=10, y=20)

        tk.Label(self.main_frame,
                 text="Input Grades",
                 font=("Arial", 20, "bold"),
                 bg="black",
                 fg="white"
                 ).place(x=150, y=0)
```

```
        self.input_frame = tk.Frame(self.main_frame, width=480, height=130, bg="black")
        self.input_frame.place(x=0, y=50)


        tk.Label(self.input_frame, text="Prelim:", bg="black", fg="white").place(x=0, y=0)
        tk.Label(self.input_frame, text="Midterm:", bg="black", fg="white").place(x=0, y=30)
        tk.Label(self.input_frame, text="Pre-Finals:", bg="black", fg="white").place(x=0, y=60)
        tk.Label(self.input_frame, text="Final Grade:", bg="black", fg="white").place(x=0, y=90)


        self.prelim_entry = tk.Entry(self.input_frame, bg="white", fg="black")
        self.prelim_entry.place(x=120, y=0, width=350)

        self.midterm_entry = tk.Entry(self.input_frame, bg="white", fg="black")
        self.midterm_entry.place(x=120, y=30, width=350)

        self.pre_finals_entry = tk.Entry(self.input_frame, bg="white", fg="black")
        self.pre_finals_entry.place(x=120, y=60, width=350)

        self.final_grade_entry = tk.Entry(self.input_frame, bg="white", fg="black")
        self.final_grade_entry.place(x=120, y=90, width=350)


        self.grade_type_frame = tk.Frame(self.main_frame, width=480, height=60, bg="black")
        self.grade_type_frame.place(x=0, y=190)

        tk.Label(self.grade_type_frame, text="Choose an option:",
                font=("Arial", 12, "bold"), bg="black", fg="white").place(x=0, y=10)

        self.grade_type = tk.StringVar(value="Letter Grade")


        style = ttk.Style()
        style.theme_use("clam")
        style.configure("TCombobox",
                        fieldbackground="white",
                        background="white",
                        foreground="black")

        self.grade_type_combo = ttk.Combobox(self.grade_type_frame,
textvariable=self.grade_type)
        self.grade_type_combo['values'] = ('Letter Grade', 'Numeric Grade')
        self.grade_type_combo.place(x=160, y=10, width=150)
```

```
    self.output_frame = tk.Frame(self.main_frame, width=480, height=150, bg="black")
    self.output_frame.place(x=0, y=260)

    self.output_text = tk.Text(self.output_frame,
                               height=8,
                               width=50,
                               bg="white",
                               fg="black")
    self.output_text.place(x=0, y=0)


    self.button_frame = tk.Frame(self.main_frame, width=480, height=60, bg="black")
    self.button_frame.place(x=0, y=420)


    self.compute_button = tk.Button(self.button_frame, text="Calculate",
                                    command=self.compute_grade,
                                    bg="white", fg="black")
    self.compute_button.place(x=0, y=10, width=100)

    self.reset_button = tk.Button(self.button_frame, text="Reset",
                                  command=self.reset_fields,
                                  bg="white", fg="black")
    self.reset_button.place(x=120, y=10, width=100)

    self.about_button = tk.Button(self.button_frame, text="About",
                                  command=self.about,
                                  bg="white", fg="black")
    self.about_button.place(x=240, y=10, width=100)

    self.close_button = tk.Button(self.button_frame, text="Close",
                                  command=self.close,
                                  bg="white", fg="black")
    self.close_button.place(x=360, y=10, width=100)

def compute_grade(self):
    try:
        prelim = float(self.prelim_entry.get())
        midterm = float(self.midterm_entry.get())
        pre_finals = float(self.pre_finals_entry.get())
        final_grade = float(self.final_grade_entry.get())
```

```
            gpa = (prelim + midterm + (0.5 * pre_finals) + (0.5 * final_grade)) / 3

            if self.grade_type.get() == "Letter Grade":
                if gpa >= 96: grade = "A+"
                elif gpa >= 93: grade = "A"
                elif gpa >= 88: grade = "B"
                elif gpa >= 83: grade = "B-"
                elif gpa >= 78: grade = "C"
                elif gpa >= 76: grade = "D"
                elif gpa >= 75: grade = "E"
                else: grade = "F"
            else:
                if gpa >= 97: grade = "1.00"
                elif gpa >= 94: grade = "1.25"
                elif gpa >= 90: grade = "1.50"
                elif gpa >= 87: grade = "1.75"
                elif gpa >= 84: grade = "2.00"
                elif gpa >= 81: grade = "2.25"
                elif gpa >= 78: grade = "2.50"
                elif gpa >= 76: grade = "2.75"
                elif gpa >= 75: grade = "3.00"
                else: grade = "5.00"

            self.output_text.delete(1.0, "end")
            self.output_text.insert("end", "Transaction Summary\n\n")
            self.output_text.insert("end", f"Prelim Grade: {prelim:.2f}\n")
            self.output_text.insert("end", f"Midterm Grade: {midterm:.2f}\n")
            self.output_text.insert("end", f"Pre Finals: {pre_finals:.2f}\n")
            self.output_text.insert("end", f"Finals: {final_grade:.2f}\n")
            self.output_text.insert("end", f"GPA is: {gpa:.2f}\n")
            self.output_text.insert("end", f"Grade Equivalent: {grade}\n")
            self.output_text.insert("end", "Remarks: Passed\n" if gpa >= 75 else "Remarks:
Failed\n")

        except ValueError:
            messagebox.showerror("Error", "Invalid input")

    def reset_fields(self):
        self.prelim_entry.delete(0, "end")
        self.midterm_entry.delete(0, "end")
        self.pre_finals_entry.delete(0, "end")
        self.final_grade_entry.delete(0, "end")
        self.output_text.delete(1.0, "end")
        self.grade_type.set("Letter Grade")
```

```
    def about(self):
        messagebox.showinfo("About", "Hello I'm Brian Zabala")

    def close(self):
        self.root.destroy()

if __name__ == "__main__":
    root = tk.Tk()
    app = GradingProgram(root)
    root.mainloop()
```