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"

CODE:

```python
from tkinter import *
from tkinter import messagebox


def compute():
    try:
        prelim = float(prelim_entry.get())
        midterm = float(midterm_entry.get())
        prefinal = float(prefinal_entry.get())
        final = float(final_entry.get())

        for value in [prelim, midterm, prefinal, final]:
            if value > 100:
                messagebox.showerror("Invalid Grade", "Grades must not exceed 100.")
                return
            if value < 0:
                messagebox.showerror("Invalid Grade", "Grades cannot be negative.")
                return

        gpa = (prelim + midterm + (0.5 * prefinal) + (0.5 * final)) / 3

        output.delete("1.0", END)
        output.insert(END, f"Prelim Grade: {prelim}\n")
        output.insert(END, f"Midterm Grade: {midterm}\n")
        output.insert(END, f"Pre-Final Grade: {prefinal}\n")
        output.insert(END, f"Final Grade: {final}\n")
        output.insert(END, f"GPA: {gpa:.2f}\n")

        if grade_type.get() == "letter":
            letter = compute_letter(gpa)
            remark = "Passed" if gpa >= 75 else "Failed"
            output.insert(END, f"Letter Grade: {letter}\n")
            output.insert(END, f"Remarks: {remark}\n")

        elif grade_type.get() == "numeric":
            remark = "Passed" if gpa >= 75 else "Failed"
            output.insert(END, f"Numeric Grade: {gpa:.2f}\n")
            output.insert(END, f"Remarks: {remark}\n")

    except ValueError:
        messagebox.showerror("Error", "Please enter valid numbers only.")
def compute_letter(g):
    if g >= 96:
        return "A"
    elif g >= 90:
        return "B"
    elif g >= 85:
```

```python
            return "C"
        elif g >= 80:
            return "D"
        elif g >= 75:
            return "E"
        else:
            return "F"


def reset():
    prelim_entry.delete(0, END)
    midterm_entry.delete(0, END)
    prefinal_entry.delete(0, END)
    final_entry.delete(0, END)
    grade_type.set("")
    output.delete("1.0", END)


def about():
    messagebox.showinfo("About", "Please to meet new People!\nHello! The name is Aron
Daniel B. Quiambao")


def on_closing():
    if messagebox.askyesno("Exit", "Are you sure you want to close the program?"):
        root.destroy()


root = Tk()
root.title("Grading Program")
root.geometry("450x620")
root.configure(bg="black")

root.protocol("WM_DELETE_WINDOW", on_closing)

retro_font = ("Courier New", 12)
retro_font_bold = ("Courier New", 12, "bold")
green = "#00FF00"


def retro_label(text):
    return Label(root, text=text, bg="black", fg=green, font=retro_font_bold)


def retro_entry():
    e = Entry(root, bg="black", fg=green, insertbackground=green,
              highlightbackground=green, highlightcolor=green, highlightthickness=1,
              font=retro_font, width=30)
    return e


def retro_button(text, cmd):
    return Button(root, text=text, command=cmd,
                  bg="black", fg=green, activebackground="black",
                  activeforeground=green, highlightbackground=green,
                  highlightthickness=1, font=retro_font_bold, width=20)


retro_label("PRELIM GRADE").pack(pady=3)
prelim_entry = retro_entry()
prelim_entry.pack()
retro_label("MIDTERM GRADE").pack(pady=3)
midterm_entry = retro_entry()
midterm_entry.pack()

retro_label("PRE-FINAL GRADE").pack(pady=3)
prefinal_entry = retro_entry()
prefinal_entry.pack()

retro_label("FINAL GRADE").pack(pady=3)
final_entry = retro_entry()
final_entry.pack()
```

```python
retro_label("Select Grade Type:").pack(pady=5)

grade_type = StringVar()
grade_type.set("")

Radiobutton(root, text="Letter Grade", variable=grade_type, value="letter",
    bg="black", fg=green, selectcolor="black", activebackground="black",
        activeforeground=green, font=retro_font).pack()

Radiobutton(root, text="Numeric Grade", variable=grade_type, value="numeric",
    bg="black", fg=green, selectcolor="black", activebackground="black",
        activeforeground=green, font=retro_font).pack()

retro_button("COMPUTE", compute).pack(pady=6)
retro_button("RESET", reset).pack(pady=6)
retro_button("ABOUT", about).pack(pady=6)
retro_button("CLOSE", lambda: on_closing()).pack(pady=6)

retro_label("OUTPUT:").pack(pady=5)

output = Text(root, height=12, width=50, bg="black", fg=green,
        insertbackground=green, highlightbackground=green,
        highlightcolor=green, highlightthickness=1, font=retro_font)
output.pack()

root.mainloop()
```
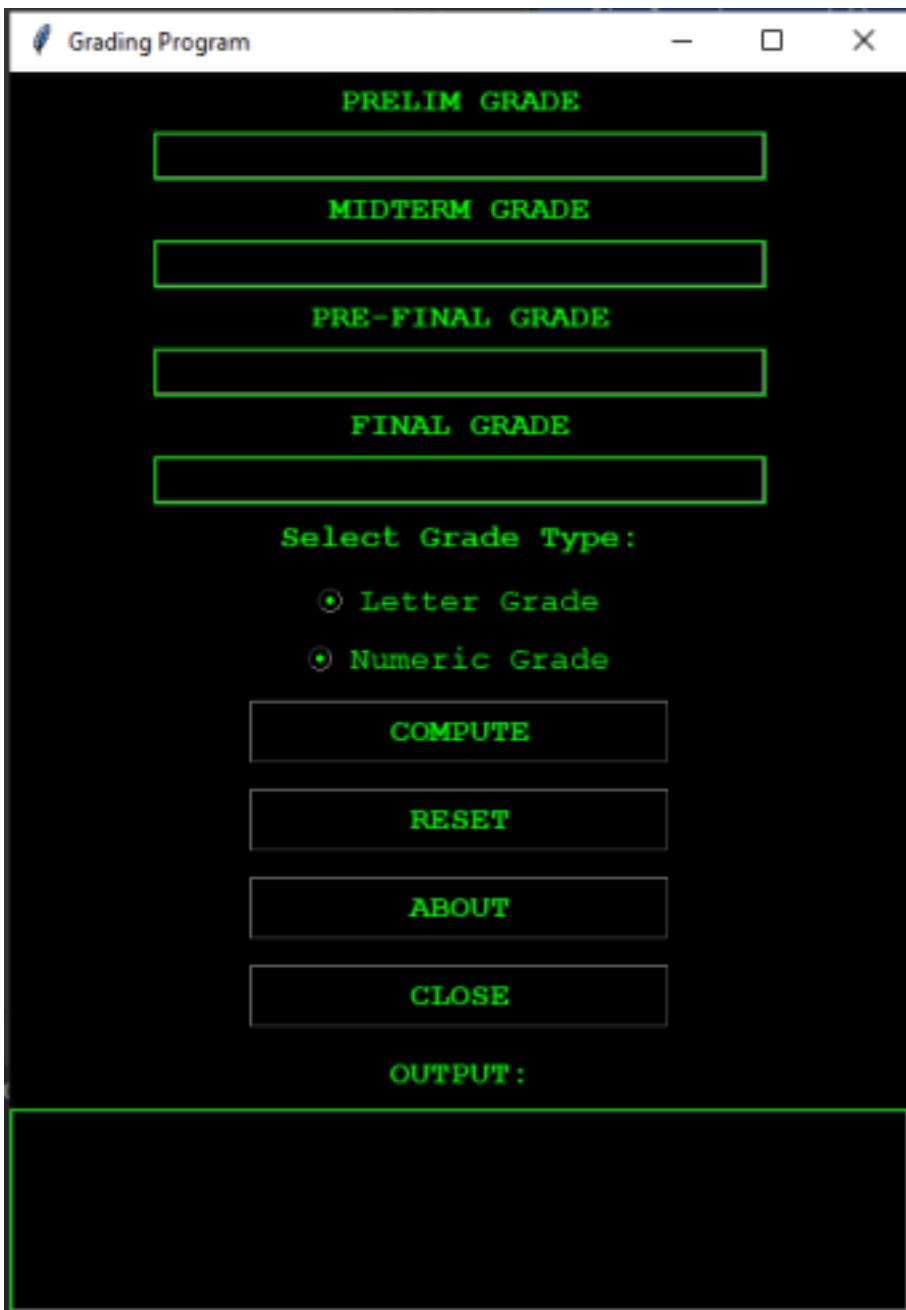
SAMPLE PROGRAM OUTPUTS:

Grading Program

PRELIM GRADE

77

MIDTERM GRADE

77

PRE-FINAL GRADE

77

FINAL GRADE

77

Select Grade Type:

⊙ Letter Grade

⊙ Numeric Grade

COMPUTE
RESET
ABOUT
CLOSE

OUTPUT:

```
Prelim Grade: 77.0
Midterm Grade: 77.0
Pre-Final Grade: 77.0
Final Grade: 77.0
GPA: 77.00
```

Grading Program

PRELIM GRADE

77

MIDTERM GRADE

77

PRE-FINAL GRADE

77

FINAL GRADE

77

Select Grade Type:

◉ Letter Grade

○ Numeric Grade

COMPUTE

RESET

ABOUT

CLOSE

OUTPUT:

Prelim Grade: 77.0
Midterm Grade: 77.0
Pre-Final Grade: 77.0
Final Grade: 77.0
GPA: 77.00
Letter Grade: E
Remarks: Passed

Grading Program

PRELIM GRADE
```
77
```

MIDTERM GRADE
```
77
```

PRE-FINAL GRADE
```
77
```

FINAL GRADE
```
77
```

Select Grade Type:

○ Letter Grade

◉ Numeric Grade

[COMPUTE]

[RESET]

[ABOUT]

[CLOSE]

OUTPUT:

```
Prelim Grade: 77.0
Midterm Grade: 77.0
Pre-Final Grade: 77.0
Final Grade: 77.0
GPA: 77.00
Numeric Grade: 77.00
Remarks: Passed
```

Grading Program — □ ✕

PRELIM GRADE
77

MIDTERM GRADE
77

PRE-FINAL GRADE
77

FINAL GRADE
77

Exit ✕

? Are you sure you want to close the program?

[Yes] [No]

RESET

ABOUT

CLOSE

OUTPUT:

```
Prelim Grade: 77.0
Midterm Grade: 77.0
Pre-Final Grade: 77.0
Final Grade: 77.0
GPA: 77.00
Numeric Grade: 77.00
Remarks: Passed
```

Grading Program

PRELIM GRADE

77

MIDTERM GRADE

77

PRE-FINAL GRADE

77
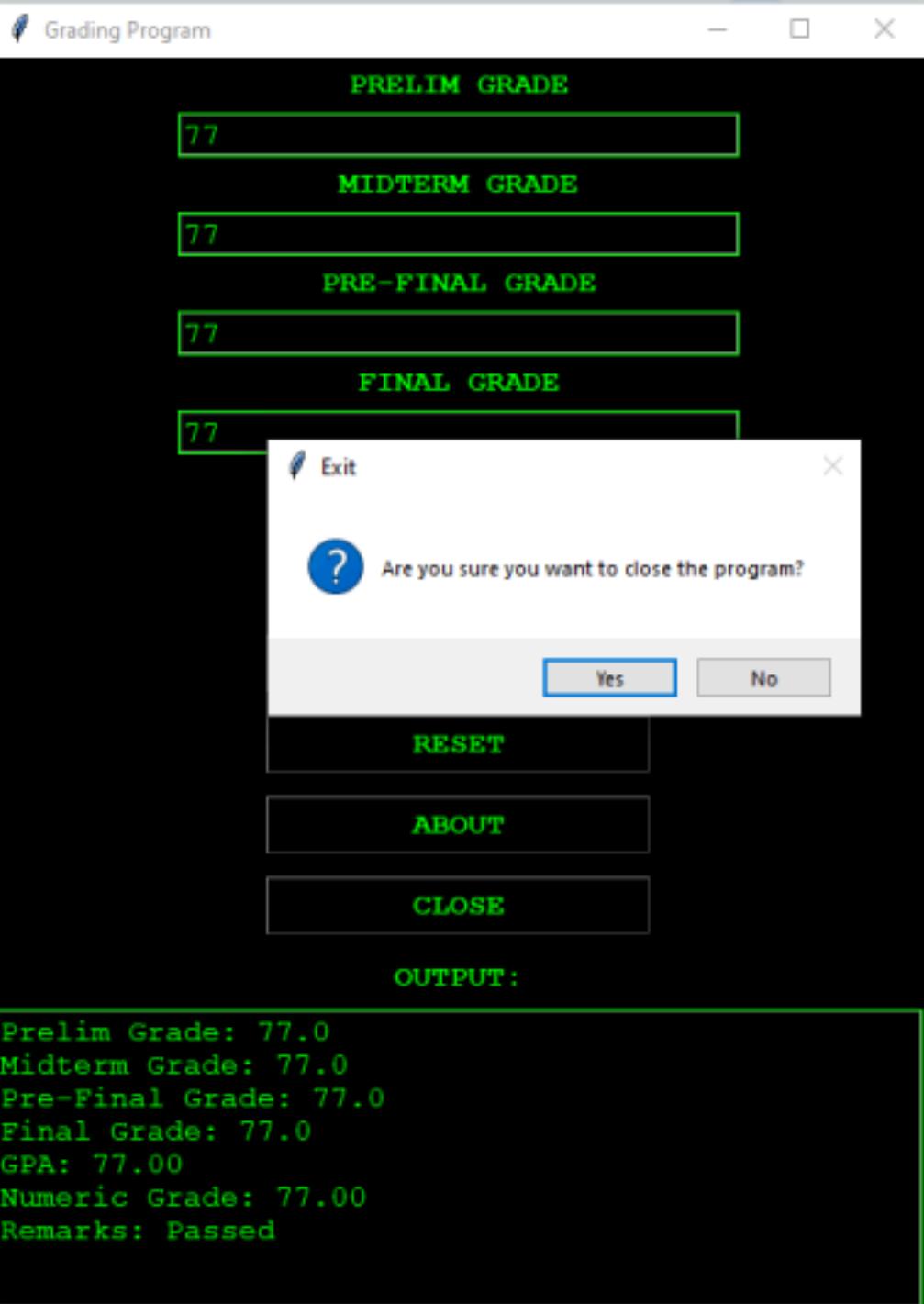
FINAL GRADE

About

Please to meet new People!
Hello! The name is Aron Daniel B. Quiambao

OK

RESET

ABOUT

CLOSE

OUTPUT:

Prelim Grade: 77.0
Midterm Grade: 77.0
Pre-Final Grade: 77.0
Final Grade: 77.0
GPA: 77.00
Numeric Grade: 77.00
Remarks: Passed