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PRACTICAL 10

10	GUI Programming with Tkinter Build a basic calculator with a graphical interface. • Use Tkinter to create buttons for digits and operations (+, -, *, /). • Use an Entry widget to display input and output. • Arrange widgets using grid () layout.

```
import tkinter as tk


# Global variables
first_num = None
operation = None


# Function to handle number button click
def button_click(number):
    current = entry.get()
    entry.delete(0, tk.END)
    entry.insert(0, current + str(number))


# Function to clear entry
def clear():
    entry.delete(0, tk.END)


# Function to store the operation
def set_operation(op):
    global first_num, operation
    first_num = float(entry.get())
    operation = op
    entry.delete(0, tk.END)
```

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```
# Function to calculate result
def calculate():
    global first_num, operation
    second_num = float(entry.get())
    result = 0

    if operation == "+":
        result = first_num + second_num
    elif operation == "-":
        result = first_num - second_num
    elif operation == "*":
        result = first_num * second_num
    elif operation == "/":
        if second_num != 0:
            result = first_num / second_num
        else:
            result = "Error"

    entry.delete(0, tk.END)
    entry.insert(0, str(result))

# Main Window
root = tk.Tk()
root.title("Basic Calculator")

# Entry widget
```

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```
entry = tk.Entry(root, width=20, font=("Arial", 16), borderwidth=5, relief="ridge", justify="right")

entry.grid(row=0, column=0, columnspan=4, padx=10, pady=10)


# Buttons

buttons = [

   ("7",1,0), ("8",1,1), ("9",1,2), ("/",1,3),

   ("4",2,0), ("5",2,1), ("6",2,2), ("*",2,3),

   ("1",3,0), ("2",3,1), ("3",3,2), ("-",3,3),

   ("0",4,0), (".",4,1), ("+",4,2), ("=",4,3)

]


for (text, row, col) in buttons:

   if text in {"+", "-", "*", "/"}:

      btn = tk.Button(root, text=text, width=5, height=2, command=lambda t=text: set_operation(t))

   elif text == "=":

      btn = tk.Button(root, text=text, width=5, height=2, command=calculate)

   else:

      btn = tk.Button(root, text=text, width=5, height=2, command=lambda t=text: button_click(t))

   btn.grid(row=row, column=col, padx=5, pady=5)


# Clear button

clear_btn = tk.Button(root, text="C", width=22, height=2, command=clear)

clear_btn.grid(row=5, column=0, columnspan=4, padx=5, pady=5)


# Run loop

root.mainloop()
```

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