

CALCULATOR

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from kivy.app import App
from kivy.uix.button import Button
from kivy.uix.boxlayout import BoxLayout
from kivy.uix.gridlayout import GridLayout
from kivy.uix.label import Label
from kivy.uix.scrollview import ScrollView
from kivy.core.window import Window

class MyApp(App):
    def build(self):
        self.expression = ""
        self.history_visible = False
        self.history_items = []

        self.root = BoxLayout(orientation='vertical', padding=10, spacing=10)

        # Display Area
        display = BoxLayout(orientation='vertical', size_hint_y=0.4)

        self.expression_label = Label(text="", font_size=30, halign="left", valign="top")
        self.expression_label.bind(size=self.expression_label.setter("text_size"))

        self.answer_label = Label(text="", font_size=40, halign="right", valign="bottom")
        self.answer_label.bind(size=self.answer_label.setter("text_size"))

        display.add_widget(self.expression_label)
        display.add_widget(self.answer_label)

        # Button Grid
        button_grid = GridLayout(cols=4, spacing=5, size_hint_y=1.2)
        buttons = (
            '7', '8', '9', '/',
            '4', '5', '6', '*',
            '1', '2', '3', '-',
            '0', '.', '=', '+'
        )
        for symbol in buttons:
            btn = Button(text=symbol, font_size=28)
            btn.bind(on_press=self.on_button_press)
            button_grid.add_widget(btn)
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# Controls: Clear, Delete, Show History
controls = BoxLayout(size_hint_y=None, height=70, spacing=10)
clear_btn = Button(text="Clear", font_size=20)
clear_btn.bind(on_press=self.clear_all)
del_btn = Button(text="⌫ Delete", font_size=20)
del_btn.bind(on_press=self.delete_last)
self.history_btn = Button(text="🔍 Show History", font_size=20)
self.history_btn.bind(on_press=self.toggle_history)

controls.add_widget(clear_btn)
controls.add_widget(del_btn)
controls.add_widget(self.history_btn)

# History Panel (Initially Hidden)
self.history_label = Label(text="🔍 History", font_size=20, size_hint_y=None, height=30)
self.history_layout = BoxLayout(orientation='vertical', size_hint_y=None)
self.history_layout.bind(minimum_height=self.history_layout.setter('height'))

self.scroll = ScrollView(size_hint=(1, 0.6))
self.scroll.add_widget(self.history_layout)

# Add widgets
self.root.add_widget(display)
self.root.add_widget(button_grid)
self.root.add_widget(controls)

# Keyboard input
Window.bind(on_key_down=self.on_key_down)

return self.root

def on_button_press(self, instance):
    symbol = instance.text
    if symbol == '=':
        self.evaluate()
    else:
        self.expression += symbol
        self.expression_label.text = self.expression
    def evaluate(self):
        if not self.expression.strip():
            return # Do nothing if empty

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try:
    result = str(eval(self.expression))
    self.answer_label.text = result
    self.add_to_history(self.expression, result)
    self.expression = result # Keep result for further use
    self.expression_label.text = self.expression
except Exception:
    self.answer_label.text = "Error"

def add_to_history(self, expr, result):
    history_text = f'{expr} = {result}'
    lbl = Label(text=history_text, font_size=18, size_hint_y=None, height=30, halign="left",
    valign="middle")
    lbl.bind(size=lbl.setter("text_size"))
    self.history_layout.add_widget(lbl)

def clear_all(self, instance):
    self.expression = ""
    self.expression_label.text = ""
    self.answer_label.text = ""

def delete_last(self, instance):
    self.expression = self.expression[:-1]
    self.expression_label.text = self.expression

def toggle_history(self, instance):
    if self.history_visible:
        self.root.remove_widget(self.history_label)
        self.root.remove_widget(self.scroll)
        self.history_btn.text = "?? Show History"
    else:
        self.root.add_widget(self.history_label)
        self.root.add_widget(self.scroll)
        self.history_btn.text = "?? Hide History"
    self.history_visible = not self.history_visible
    def on_key_down(self, window, key, scancode, codepoint, modifiers):
    if codepoint in '0123456789+-.*/.()':
        if codepoint == '=':
            self.evaluate()
        else:
            self.expression += codepoint

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self.expression_label.text = self.expression
elif key == 13: # Enter
    self.evaluate()
elif key == 8: # Backspace
    self.delete_last(None)
elif codepoint.lower() == 'c': # Clear shortcut
    self.clear_all(None)

# Run it!
MyApp().run()
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