from kivy.app import App

from kivy.uix.boxlayout import BoxLayout

from kivy.uix.button import Button

from kivy.uix.textinput import TextInput

from kivy.uix.label import Label

from kivy.uix.image import Image

from kivy.uix.popup import Popup

from kivy.uix.gridlayout import GridLayout

from skimage import io, img\_as\_float

import numpy as np

class ImageComparisonApp(App):

    def build(self):

        layout = BoxLayout(orientation='vertical')

        self.image1\_path\_input = TextInput(hint\_text="Input path image 1")

        self.image2\_path\_input = TextInput(hint\_text="Input path image 2")

        compare\_btn = Button(text='Cetak')

        compare\_btn.bind(on\_press=self.compare\_images)

        self.result\_label = Label(text="Hasil: ")

        # Widget BoxLayout untuk menampilkan gambar dalam satu baris

        image\_row = BoxLayout(orientation='horizontal')

        # Widget Image untuk gambar 1

        self.image1 = Image()  # Atur ukuran gambar di sini

        image\_row.add\_widget(self.image1)

        # Widget Image untuk gambar 2

        self.image2 = Image()  # Atur ukuran gambar di sini

        image\_row.add\_widget(self.image2)

        layout.add\_widget(self.image1\_path\_input)

        layout.add\_widget(self.image2\_path\_input)

        layout.add\_widget(compare\_btn)

        layout.add\_widget(self.result\_label)

        layout.add\_widget(image\_row)  # Tambahkan widget BoxLayout dengan kedua gambar

        return layout

    def compare\_images(self, instance):

        image1\_path = self.image1\_path\_input.text

        image2\_path = self.image2\_path\_input.text

        if not image1\_path or not image2\_path:

            return

        image1 = img\_as\_float(io.imread(image1\_path))

        image2 = img\_as\_float(io.imread(image2\_path))

        # Pemeriksaan jumlah piksel

        if image1.shape != image2.shape:

            # Buat pesan kesalahan yang mencakup jumlah piksel

            error\_message = f'Error: Jumlah piksel gambar 1 = {image1.shape[1]}x{image1.shape[0]}, gambar 2 = {image2.shape[1]}x{image2.shape[0]} berbeda.'

            # Buat popup dengan pesan kesalahan

            error\_popup = Popup(title='Error', content=GridLayout(rows=2), auto\_dismiss=False, size\_hint=(None, None), size=(600, 150))

            error\_popup.content.add\_widget(Label(text=error\_message))

            # Tambahkan tombol "Kembali" ke dalam popup

            back\_button = Button(text='Kembali')

            back\_button.bind(on\_press=error\_popup.dismiss)

            error\_popup.content.add\_widget(back\_button)

            # Tampilkan popup

            error\_popup.open()

            return

        mse = np.mean((image1 - image2) \*\* 2)

        uaci = np.sum(np.abs(image1 - image2)) / np.sum(image1 + image2)

        psnr = -10 \* np.log10(mse)

        npcr = np.sum(image1 != image2) / (image1.shape[0] \* image1.shape[1])

        result\_text = f"Hasil:\nMSE: {mse:.4f}\nUACI: {uaci:.4f}\nPSNR: {psnr:.4f} dB\nNPCR: {npcr:.4f}"

        self.result\_label.text = result\_text

        self.image1.source = image1\_path  # Tampilkan gambar pertama

        self.image2.source = image2\_path  # Tampilkan gambar kedua

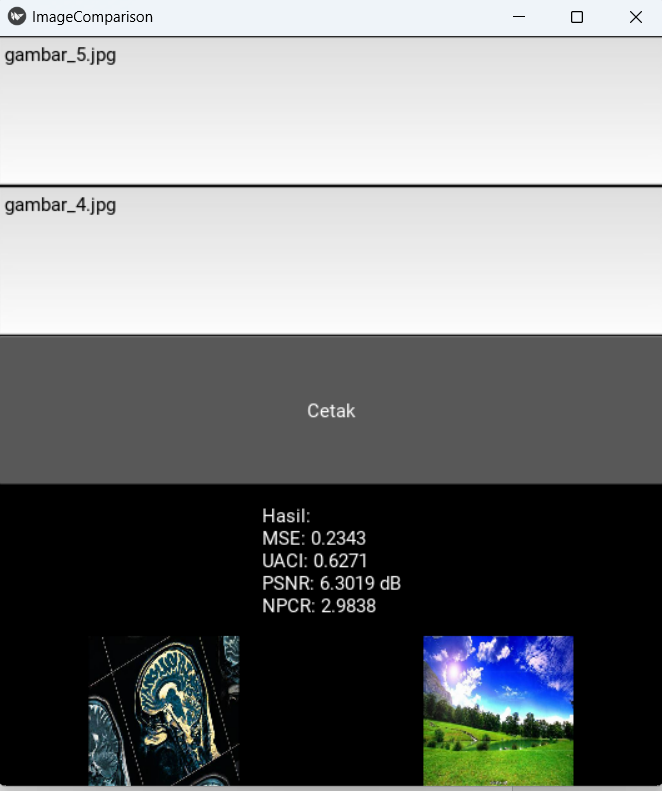
if \_\_name\_\_ == '\_\_main\_\_':

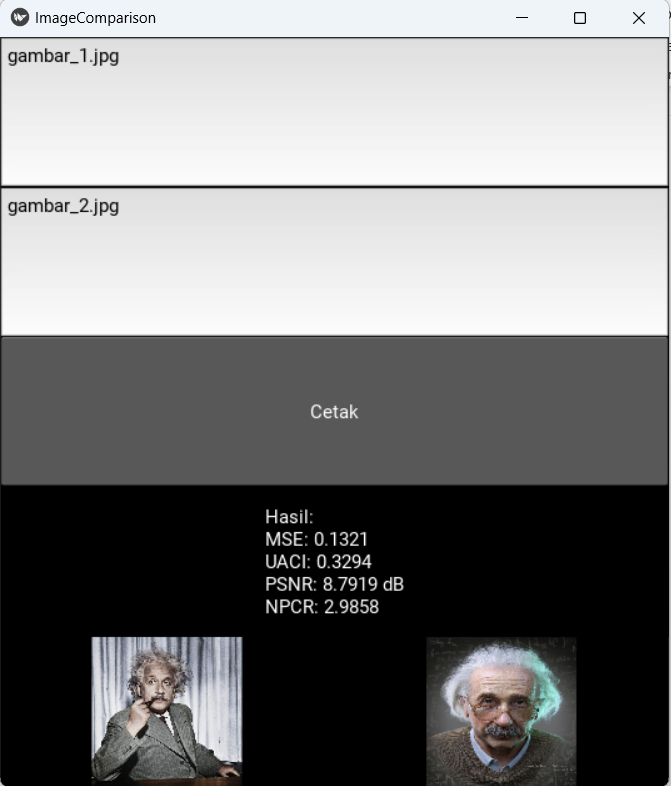
    ImageComparisonApp().run()

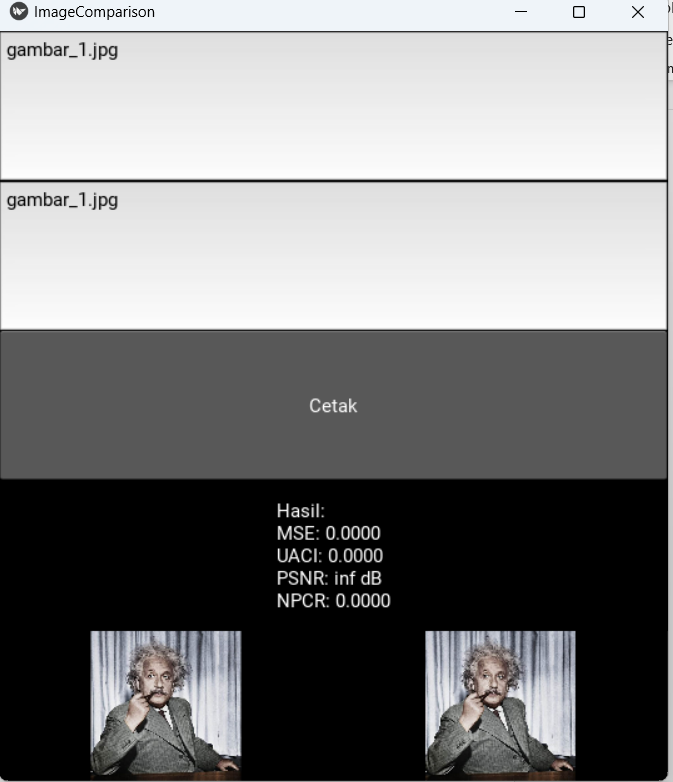
211110419 – DAVID

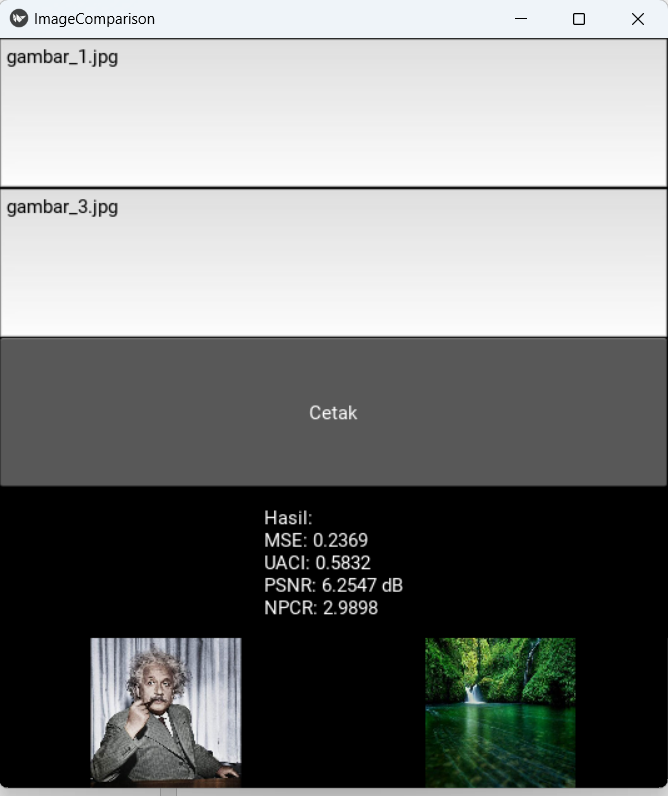
REVISI ERROR JIKA UKURAN KEDUA GAMBAR TIDAK SAMA.

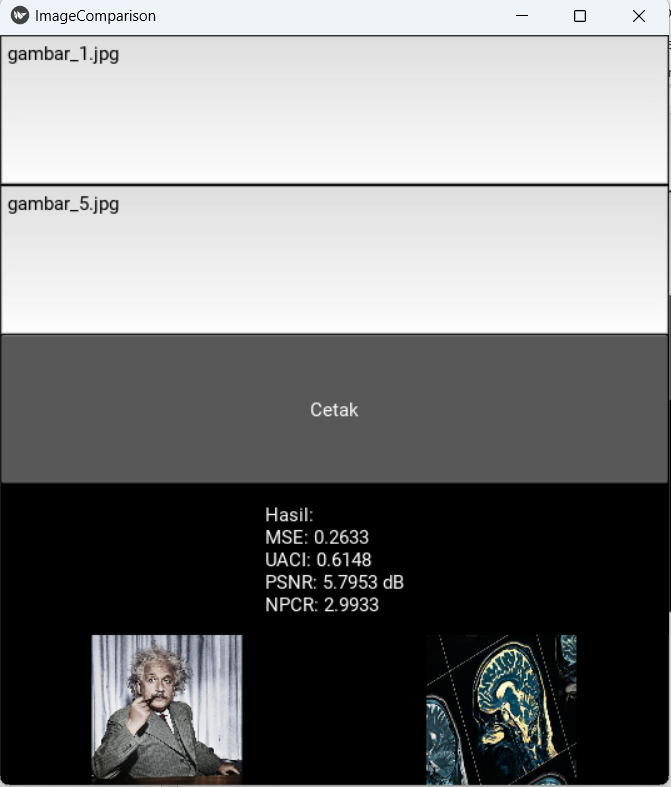
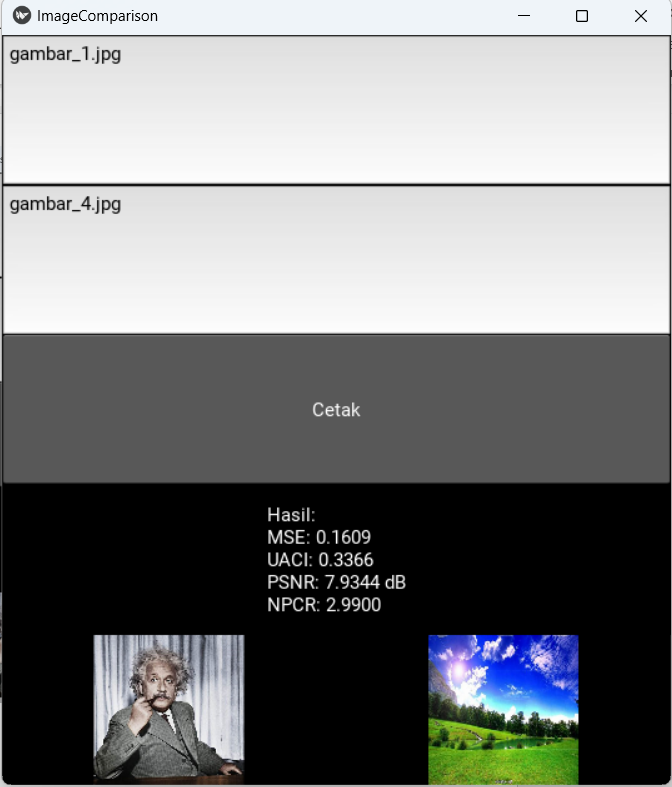
**PERCOBAAN -PERCOBAAN**

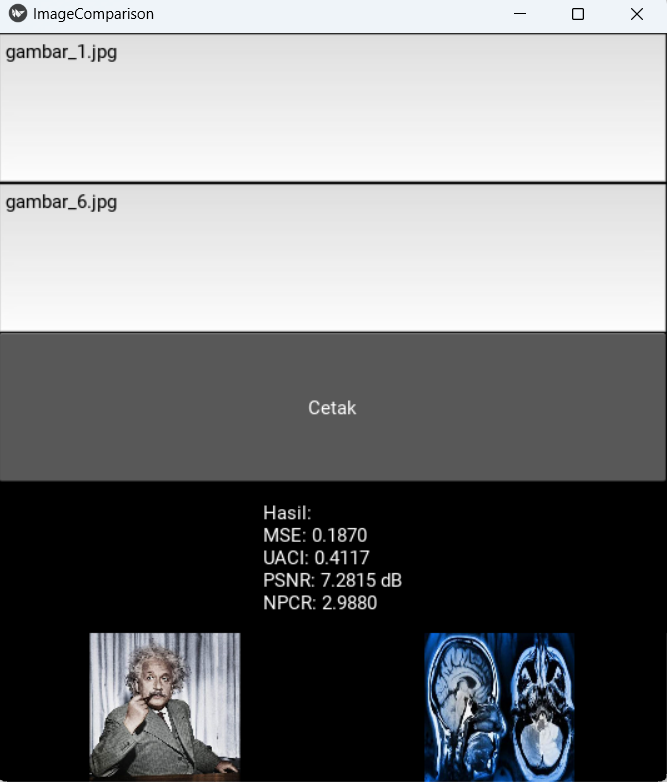


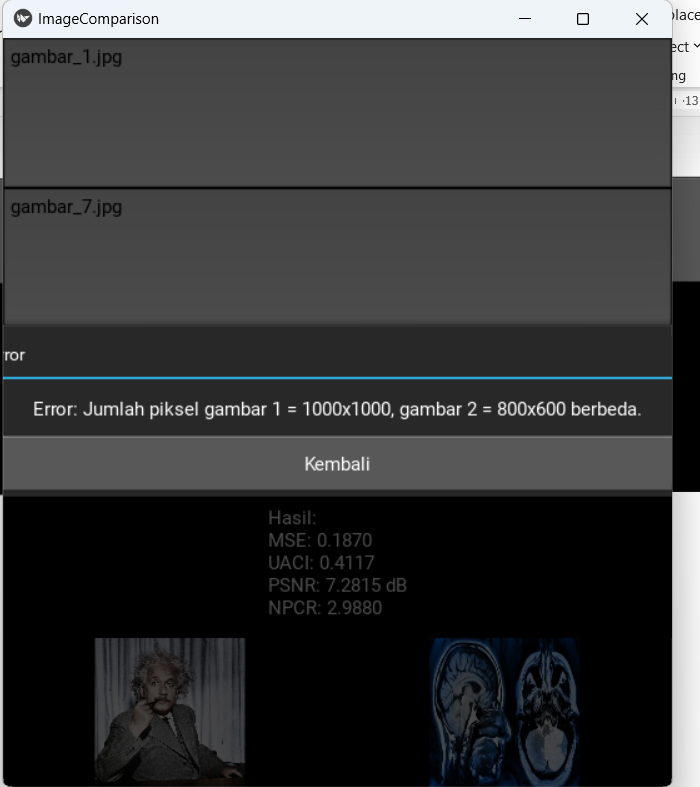
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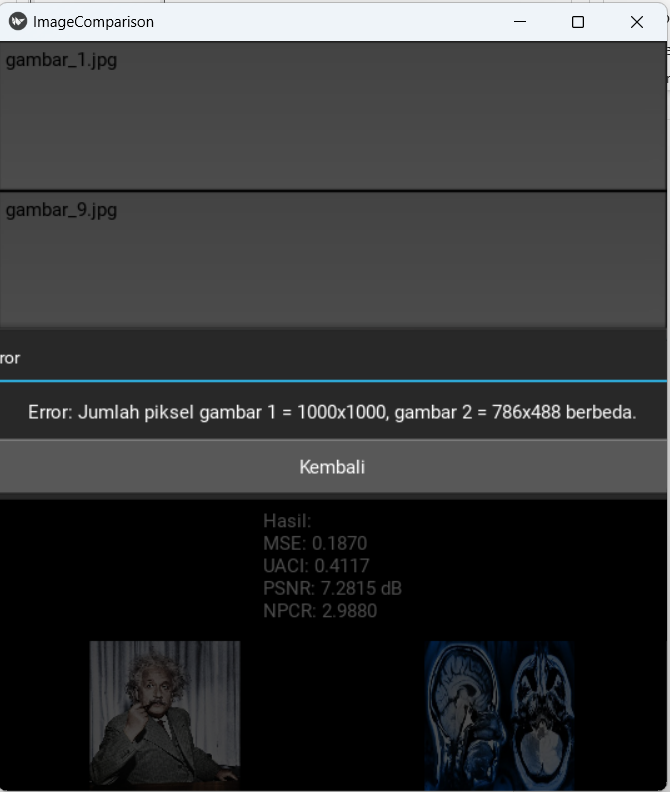
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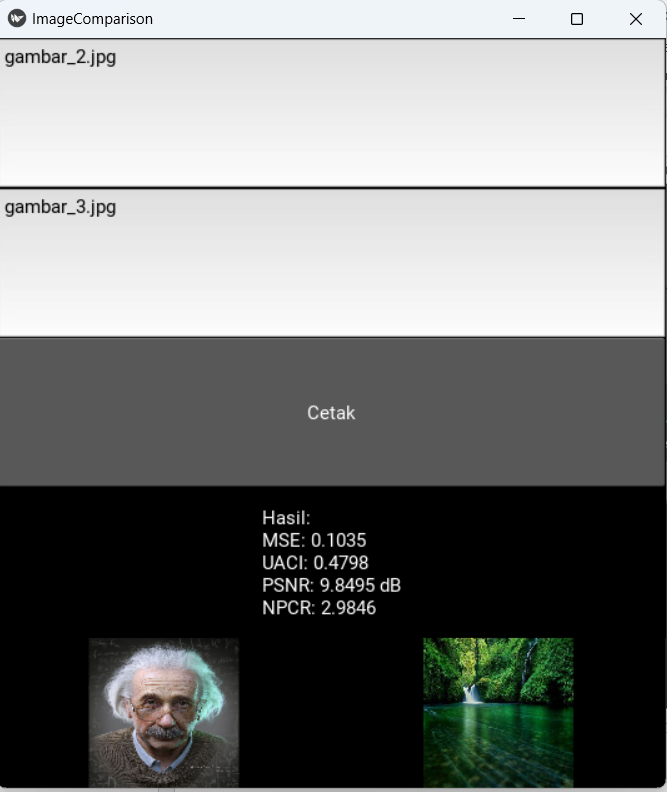
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**NOTE : GAMBAR 7 BERBEDA UKURAN , MAKA AKAN MUNCUL PESAN ERROR SEPERTI DIATAS.**

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**NOTE : GAMBAR 9 BERBEDA UKURAN , MAKA AKAN MUCUL PESAN ERROR SEPERTI DIATAS**

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