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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 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(size=(600, 500))  # Atur ukuran gambar di sini
        image_row.add_widget(self.image1)

        # Widget Image untuk gambar 2
        self.image2 = Image(size=(600, 500))  # 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
```

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        image1 = img_as_float(io.imread(image1_path))
        image2 = img_as_float(io.imread(image2_path))

        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

        # Tampilkan kedua gambar
        self.image1.source = image1_path
        self.image2.source = image2_path

if __name__ == '__main__':
    ImageComparisonApp().run()
```
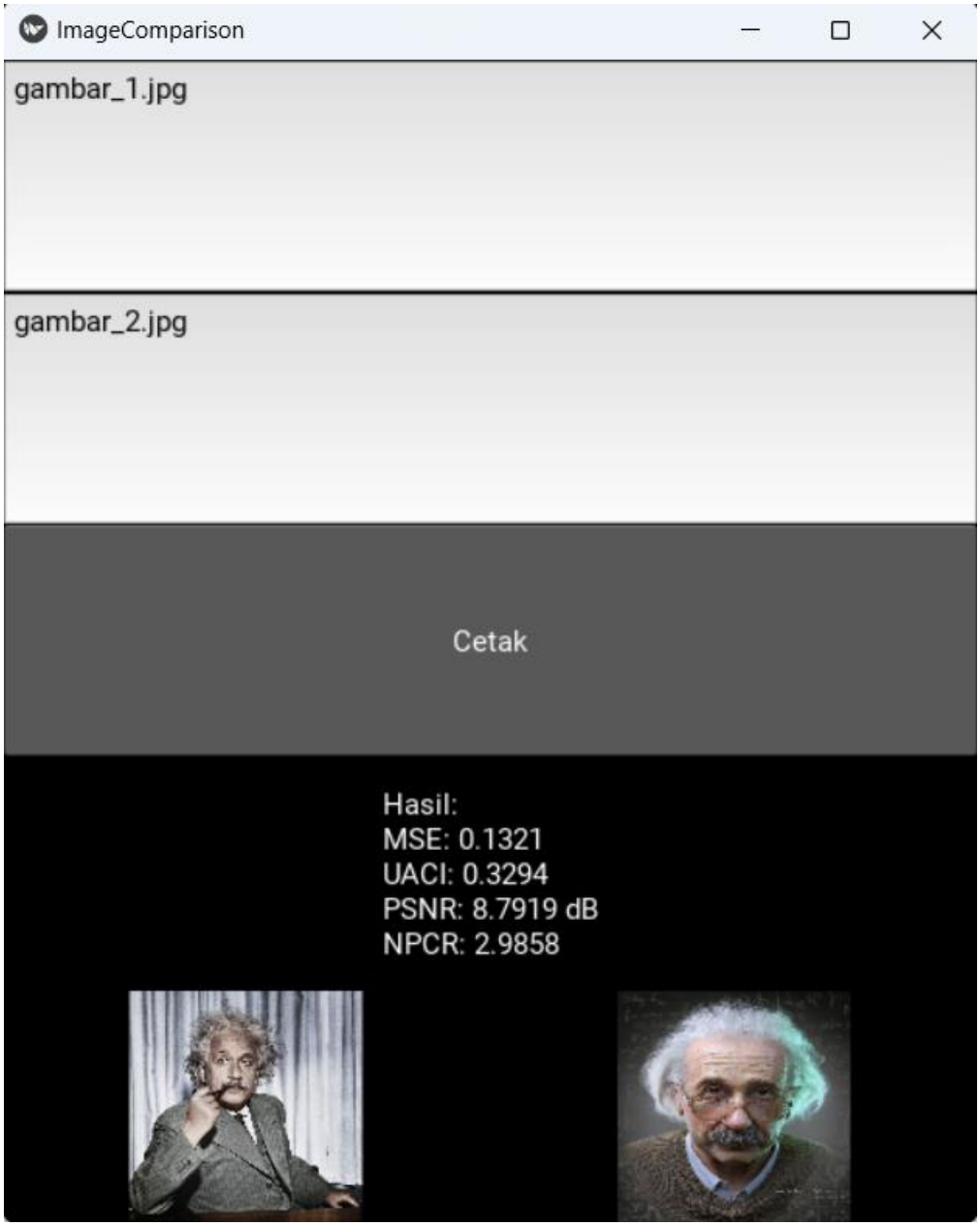
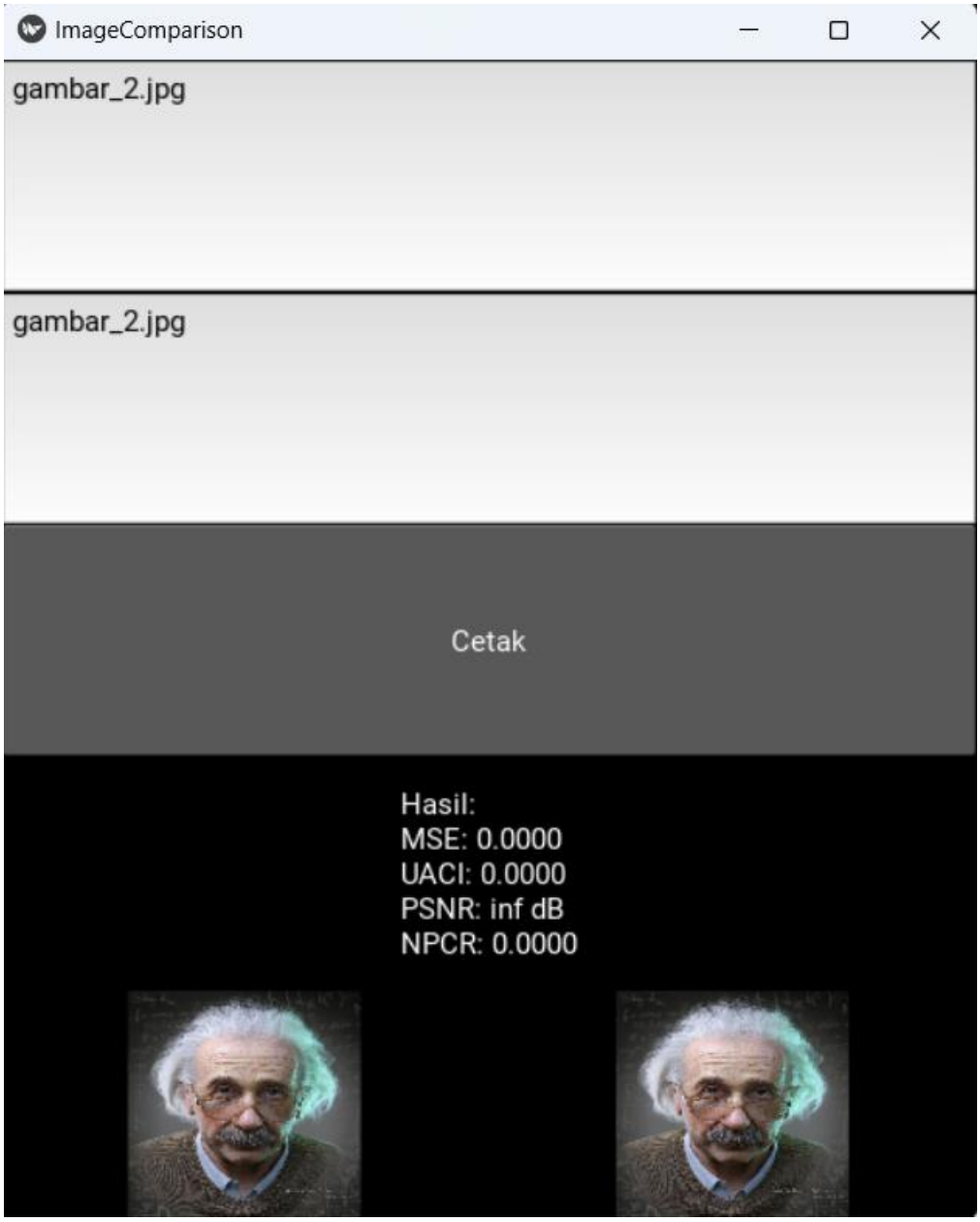
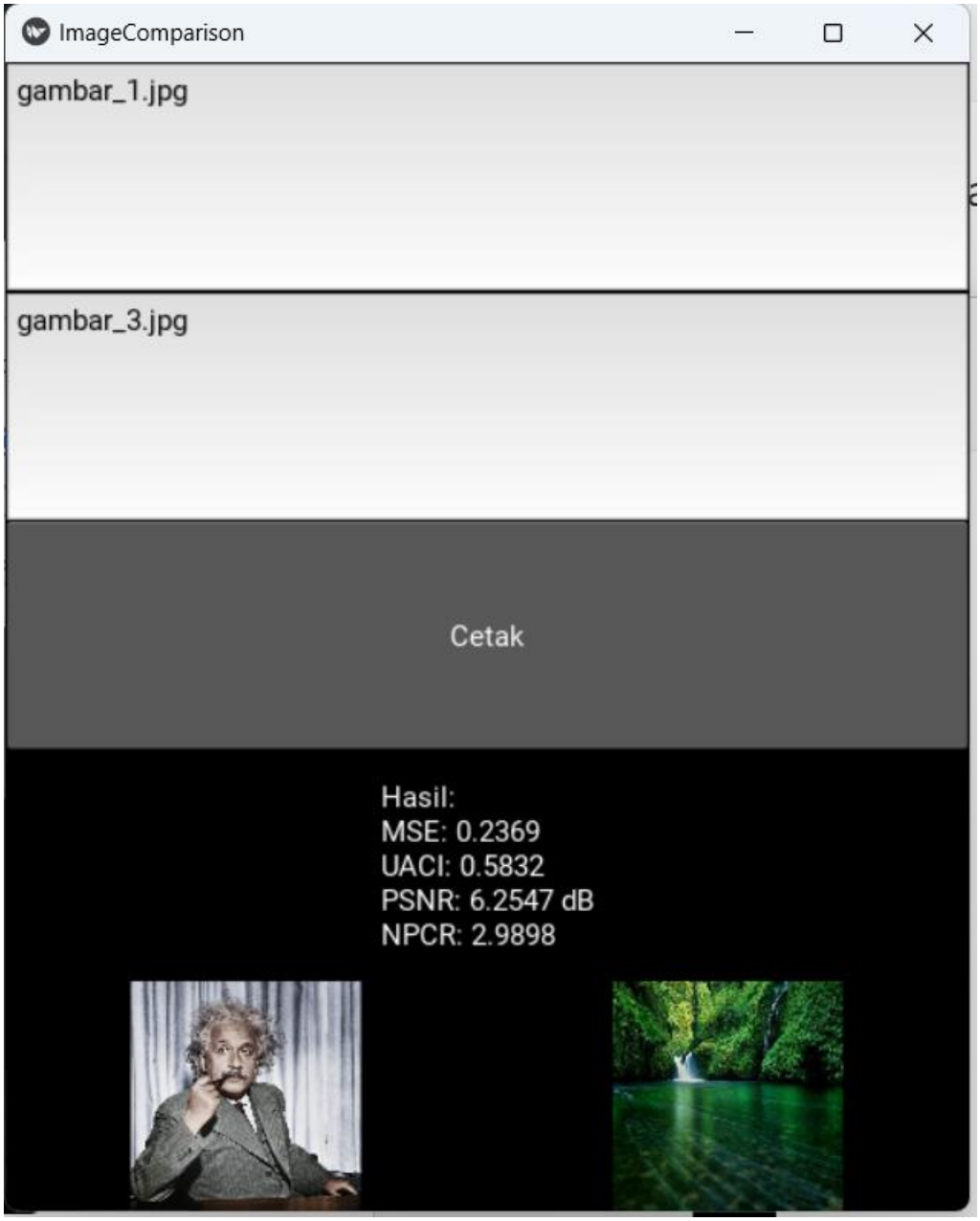
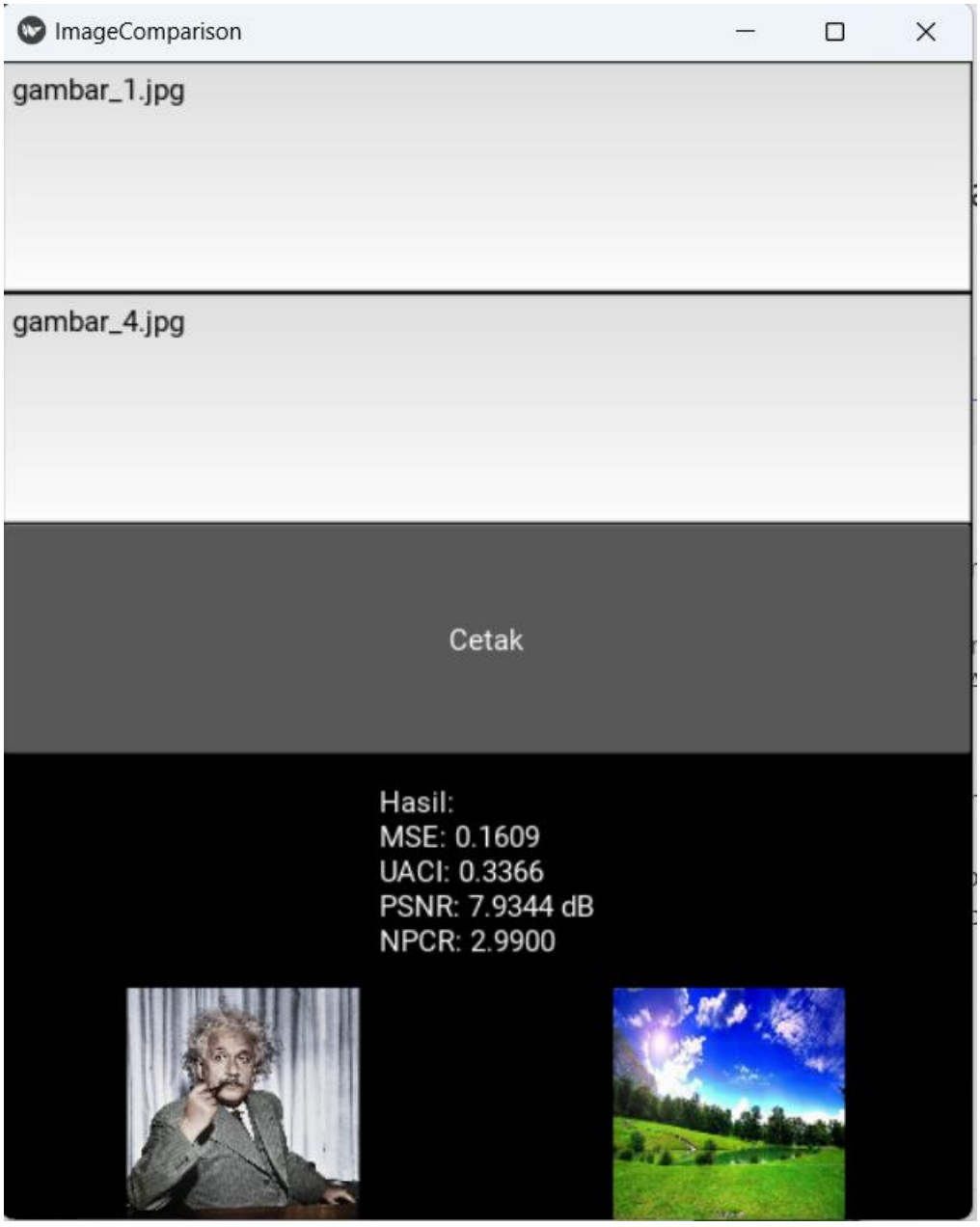
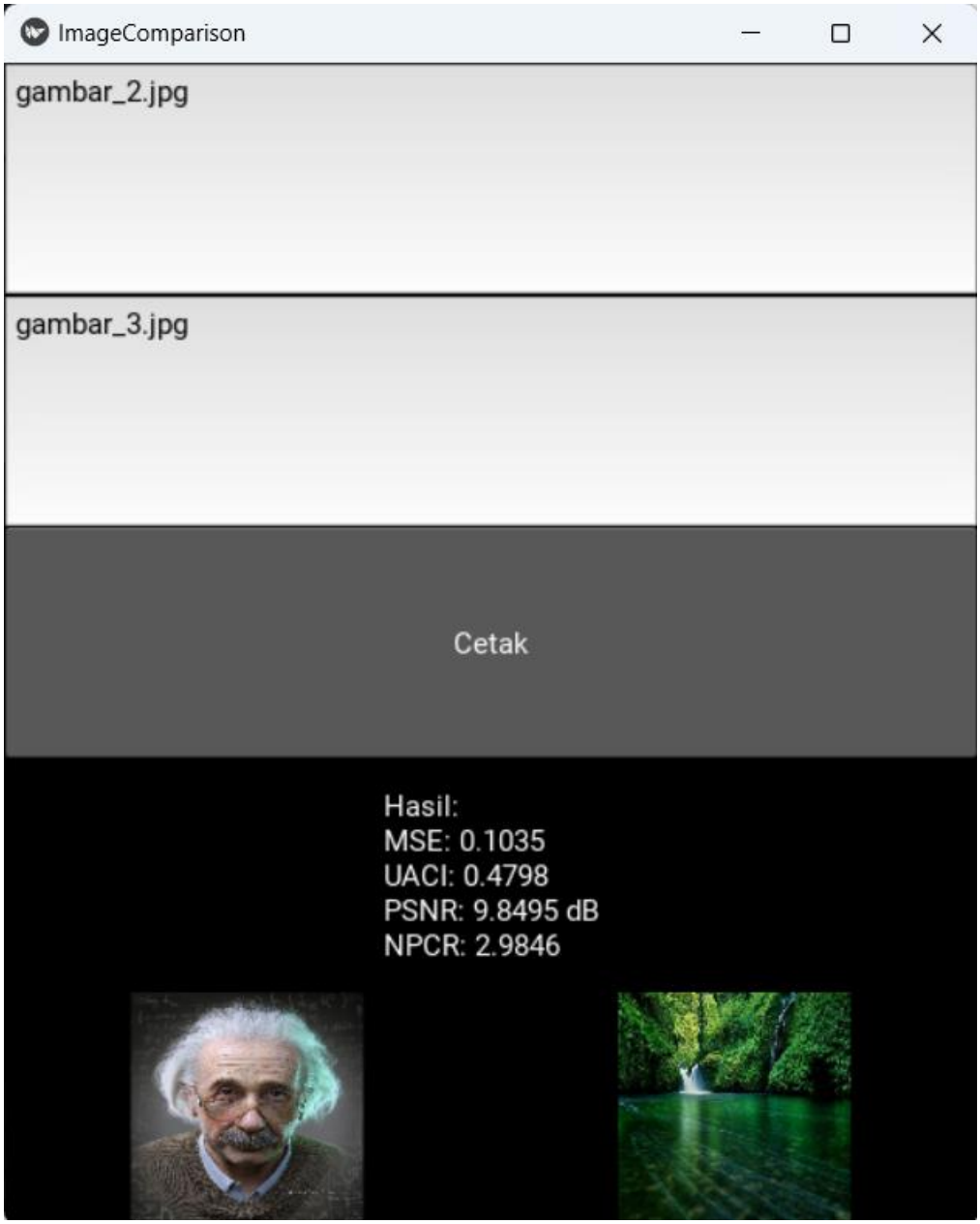


ImageComparison
gambar_1.jpg
gambar_2.jpg
Cetak
Hasil:
MSE: 0.1321
UACI: 0.3294
PSNR: 8.7919 dB
NPCR: 2.9858

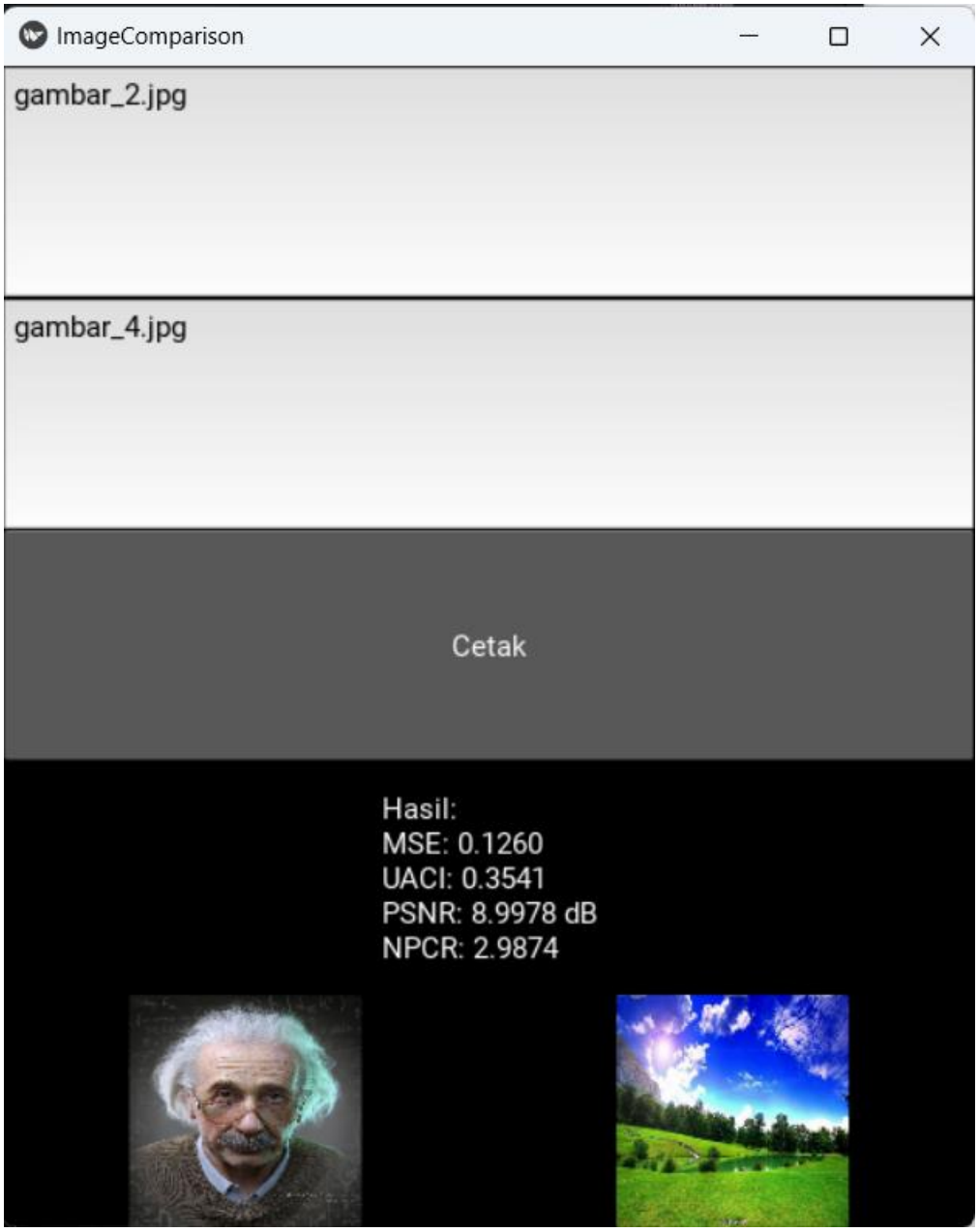


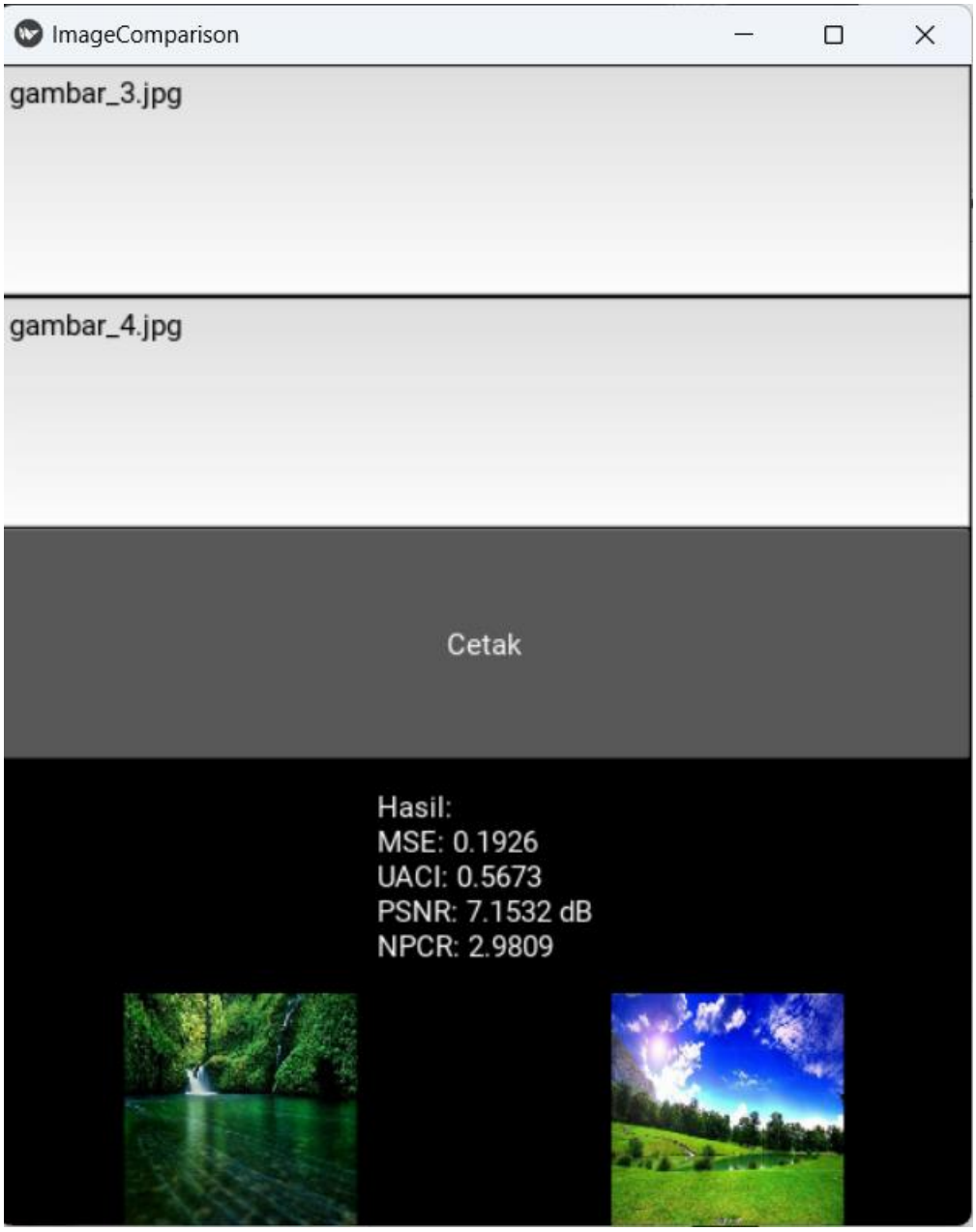
Note : Jika hasil dari perbandingan gambar menghasilkan nilai 0, itu berarti kedua gambar yang Anda bandingkan identik, yaitu gambar pertama dan gambar kedua memiliki piksel yang sama persis. Hasil MSE, UACI, PSNR, dan NPCR akan menjadi 0 dalam kasus ini karena tidak ada perbedaan antara gambar-gambar tersebut.


ImageComparison
gambar_1.jpg
gambar_3.jpg
Cetak
Hasil:
MSE: 0.2369
UACI: 0.5832
PSNR: 6.2547 dB
NPCR: 2.9898


ImageComparison
gambar_1.jpg
gambar_4.jpg
Cetak
Hasil:
MSE: 0.1609
UACI: 0.3366
PSNR: 7.9344 dB
NPCR: 2.9900


ImageComparison
gambar_2.jpg
gambar_3.jpg
Cetak
Hasil:
MSE: 0.1035
UACI: 0.4798
PSNR: 9.8495 dB
NPCR: 2.9846


ImageComparison
gambar_2.jpg
gambar_4.jpg
Cetak
Hasil:
MSE: 0.1260
UACI: 0.3541
PSNR: 8.9978 dB
NPCR: 2.9874


ImageComparison
gambar_3.jpg
gambar_4.jpg
Cetak
Hasil:
MSE: 0.1926
UACI: 0.5673
PSNR: 7.1532 dB
NPCR: 2.9809