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|  | **Lembar Kerja Mahasiswa**  **Mata Kuliah Pengolahan Citra Digital Praktik (203311-20)**  **Program Studi Informatika**  **Fakultas Sains & Teknologi – Universitas Teknologi Yogyakarta** | |
|  | **Identitas Mahasiswa** | |
| **Nama** | **Arieska Restu Harpian Dwika** |
| **NPM** | **5200411488** |
| **Kelompok Prak** | **Kel. I** |
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| **Soal 1.** | | |
| Berdasarkan demo di kelas, buatlah aplikasi berbasis GUI untuk menerapkan teknik penapisan citra (*image filtering*) dengan kernel sebagai berikut:  Untuk tugas kali ini Anda dapat membuat layout GUI Anda sendiri dengan catatan GUI mampu menampilkan citra asli dan citra hasil *filtering* secara berdampingan. Buatlah layout GUI yang menarik dan tetap mudah digunakan. | | |
| **Hasil Script** | | |
| **//tuliskan script python Anda di sini**  # 5200411488 - Arieska Restu Harpian Dwika  import cv2  import numpy as np  import os  from tkinter import \*  from tkinter import font  from tkinter import filedialog  from ttkbootstrap import Style  from tkinter import ttk  import tkinter as tk  from PIL import Image, ImageTk  def setOriginal(*img*):      imgTk = ImageTk.PhotoImage(*img*)      lblOriImg.configure(*image*=imgTk)      lblOriImg.image = imgTk      lblOriImg.pack()  def setResult(*img*):      imgTk = ImageTk.PhotoImage(*img*)      lblResultImg.configure(*image*=imgTk)      lblResultImg.image = imgTk      lblResultImg.pack()  def opencv2Pill(*img*):  *img* = cv2.cvtColor(*img*, cv2.COLOR\_BGR2RGB)      imgPill = Image.fromarray(*img*)      return imgPill    def resizeImg(*img*, *width*, *height*):  *img* = cv2.resize(*img*, (*width*, *height*), *interpolation*=cv2.INTER\_CUBIC)      return *img*  def browseImage():      global fln      fln = filedialog.askopenfilename(*initialdir*=os.getcwd(), *title*="Select Image File",  *filetypes*=(                                          ("All Files", "\*.\*",),                                          ("PNG File", "\*.png"),                                          ("JPG File", "\*.jpg"))                                      )        img = opencv2Pill(resizeImg(cv2.imread(fln), 512, 512))      setOriginal(img)  def filtering():      global fln        img = cv2.imread(fln)      kernel = np.array(              [              [0, -1, 0],              [-1,5, -1],              [0, -1, 0],              ],  *dtype*='float')      imgFilter = cv2.filter2D(img, -1, kernel)        setResult(opencv2Pill(resizeImg(imgFilter, 512, 512)))    if \_\_name\_\_ == '\_\_main\_\_':      style = Style()      window = style.master      frm = ttk.Frame(window, *style*='primary.TFrame')      # frm.pack(side='top')      frm.pack\_propagate(0)      frm.pack(*fill*=tk.BOTH, *expand*=1)      frmImg = ttk.Frame(frm, *style*='secondary.TFrame', *width*=900, *height*=550)      frmImg.grid(*row*=0, *column*=0, *padx*=20, *pady*=20)      frmImgOri = ttk.Frame(frmImg, *style*='info.TFrame', *width*=512, *height*=512)      frmImgOri.pack\_propagate(0)      frmImgOri.pack(*side*="left", *padx*=20, *pady*=30)      frmBtn = ttk.Frame(frmImg, *style*='secondary.TFrame', *width*=100, *height*=200)      frmBtn.pack(*side*="left", *padx*=20, *pady*=30)      frmImgResult = ttk.Frame(frmImg, *style*='info.TFrame', *width*=512, *height*=512)      frmImgResult.pack\_propagate(0)      frmImgResult.pack(*side*="left", *padx*=20, *pady*=20)      btnBrowse = ttk.Button(frmBtn, *text*='Browse Image', *style*='info.TButton', *cursor*="hand2", *width*=12, *command*=browseImage)      btnBrowse.pack(*side*='top', *pady*=10)      btnFilter = ttk.Button(frmBtn, *text*='Filter', *style*='success.TButton', *cursor*="hand2", *width*=12, *command*=filtering)      btnFilter.pack(*side*='top', *pady*=10)      btnExit = ttk.Button(frmBtn, *text*='Exit', *style*='danger.TButton', *cursor*="hand2", *width*=12, *command*=lambda: exit())      btnExit.pack(*side*='top', *pady*=10)      lblOriImg = ttk.Label(frmImgOri)      lblResultImg = ttk.Label(frmImgResult)      window.title("Image Filtering - 5200411488")      # window.geometry("1280x720")      window.resizable(0, 0)      window.mainloop() | | |
| **Hasil Running Aplikasi** | | |
| **//paste-kan tampilan aplikasi Anda di sini** | | |