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**Kelas : TI.19.C1**

**Mata Kuliah : Pengolahan Citra**

**Laporan Uas :**

[filename,pathname] = uigetfile({'.'});

if ~isequal(filename,0)

axes(handles.axes1)

cla reset

set(gca,'XTick',[])

set(gca,'YTick',[])

axes(handles.axes2)

cla reset

set(gca,'XTick',[])

set(gca,'YTick',[])

axes(handles.axes3)

cla reset

set(gca,'XTick',[])

set(gca,'YTick',[])

set(handles.edit1,'String','')

set(handles.edit2,'String','')

set(handles.edit3,'String','')

set(handles.edit4,'String','')

set(handles.edit5,'String','')

set(handles.edit6,'String','')

Img = imread(fullfile(pathname,filename));

[,,dim] = size(Img);

if dim == 3

Img = rgb2gray(Img);

end

axes(handles.axes1)

imshow(Img)

title('Citra Grayscale')

handles.Img = Img;

guidata(hObject, handles)

else

return

end

catch

end

% --- Executes on selection change in popupmenu1.

function popupmenu1\_Callback(hObject, eventdata, handles)

% hObject handle to popupmenu1 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

% handles structure with handles and user data (see GUIDATA)

% Hints: contents = cellstr(get(hObject,'String')) returns popupmenu1 contents as cell array

% contents{get(hObject,'Value')} returns selected item from popupmenu1

% --- Executes during object creation, after setting all properties.

function popupmenu1\_CreateFcn(hObject, eventdata, handles)

% hObject handle to popupmenu1 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

% handles empty - handles not created until after all CreateFcns called

% Hint: popupmenu controls usually have a white background on Windows.

% See ISPC and COMPUTER.

if ispc && isequal(get(hObject,'BackgroundColor'), get(0,'defaultUicontrolBackgroundColor'))

set(hObject,'BackgroundColor','white');

end

% --- Executes on selection change in popupmenu2.

function popupmenu2\_Callback(hObject, eventdata, handles)

% hObject handle to popupmenu2 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

% handles structure with handles and user data (see GUIDATA)

% Hints: contents = cellstr(get(hObject,'String')) returns popupmenu2 contents as cell array

% contents{get(hObject,'Value')} returns selected item from popupmenu2

% --- Executes during object creation, after setting all properties.

function popupmenu2\_CreateFcn(hObject, eventdata, handles)

% hObject handle to popupmenu2 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

% handles empty - handles not created until after all CreateFcns called

% Hint: popupmenu controls usually have a white background on Windows.

% See ISPC and COMPUTER.

if ispc && isequal(get(hObject,'BackgroundColor'), get(0,'defaultUicontrolBackgroundColor'))

set(hObject,'BackgroundColor','white');

end

% --- Executes on button press in pushbutton2.

function pushbutton2\_Callback(hObject, eventdata, handles)

% hObject handle to pushbutton2 (see GCBO)

% eventdata reserved - to be defined in a future version of MATLAB

% handles structure with handles and user data (see GUIDATA)

try

Img = handles.Img;

[row,col,~] = size(Img);

val1 = get(handles.popupmenu1,'Value');

switch val1

case 1

Img\_noise = imnoise(Img,'salt & pepper',0.2);

case 2

Img\_noise = uint8(double(Img)+60\*rand(row,col));

case 3

Img\_noise = uint8(double(Img)+10\*randn(row,col));

case 4

Img\_noise = uint8(double(Img)+raylrnd(20,row,col));

end

axes(handles.axes2)

imshow(Img\_noise)

title('Citra Terkontaminasi Noise')

MSE = sum(sum((Img-Img\_noise).^2))/(row\*col);

RMSE = sqrt(MSE);

PSNR = 10\*log10(256\*256/MSE);

set(handles.edit1,'String',MSE)

set(handles.edit2,'String',RMSE)

set(handles.edit3,'String',PSNR)

val2 = get(handles.popupmenu2,'Value');

switch val2

case 1

Img\_filter = imfilter(Img\_noise,ones(3)/9);

case 2

Img\_filter = imfilter(Img\_noise,ones(5)/25);

case 3

Img\_filter = medfilt2(Img\_noise,[3 3]);

case 4

Img\_filter = medfilt2(Img\_noise,[5 5]);

end

axes(handles.axes3)

imshow(Img\_filter)

title('Citra Hasil Restorasi')

MSE = sum(sum((Img-Img\_filter).^2))/(row\*col);

RMSE = sqrt(MSE);

PSNR = 10\*log10(256\*256/MSE);

set(handles.edit4,'String',MSE)

set(handles.edit5,'String',RMSE)

set(handles.edit6,'String',PSNR)

catch

end