LAPORAN PENGOLAHAN CITRA DIGITAL

PROJECT AKHIR SEMESTER

KELAS PENGOLAHAN CITRA DIGITAL – TIK2052_C

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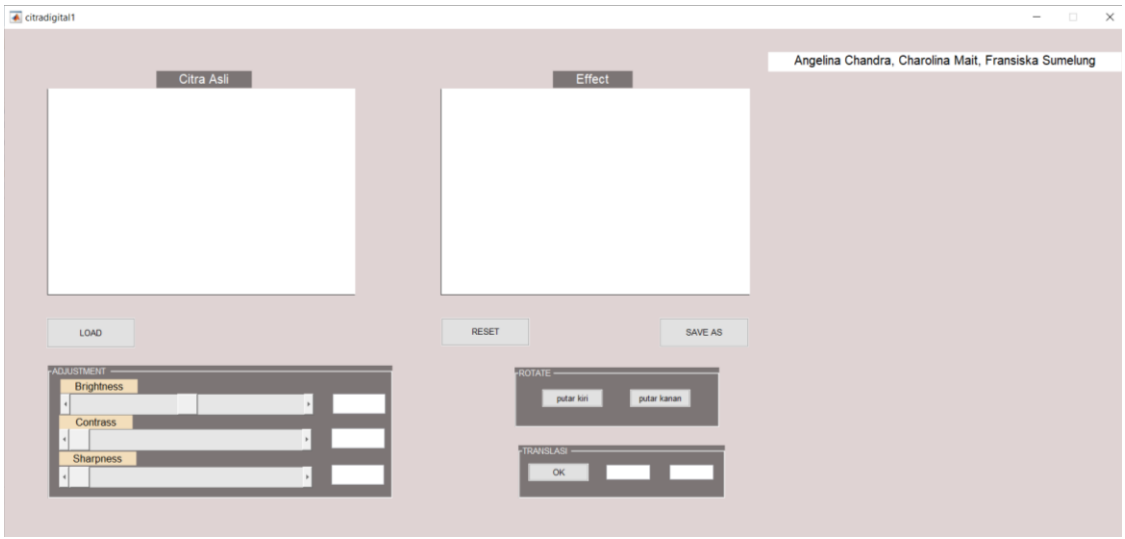
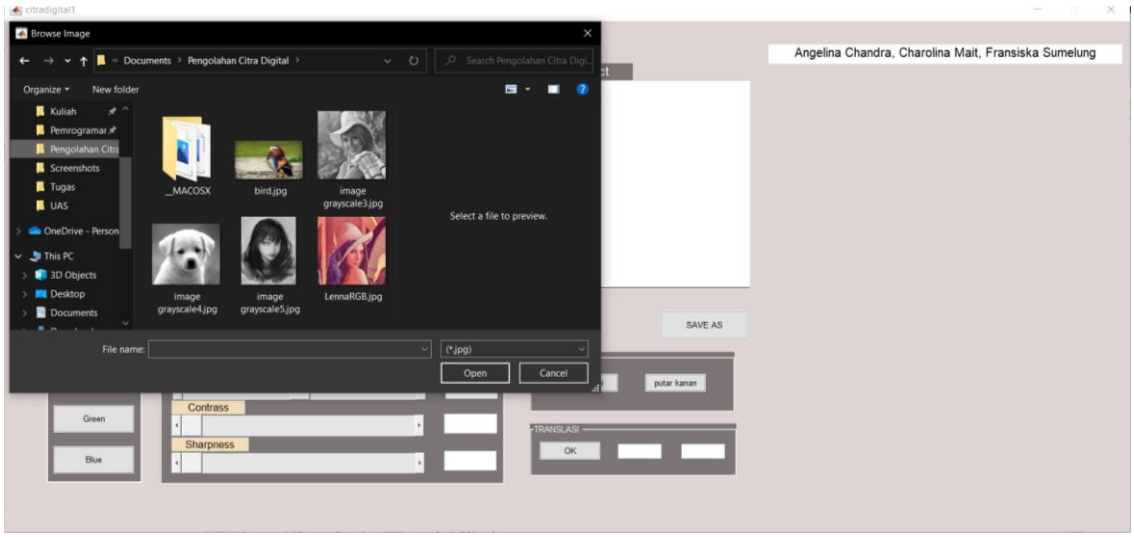
Dokumentasi Program

1. Tampilan awal



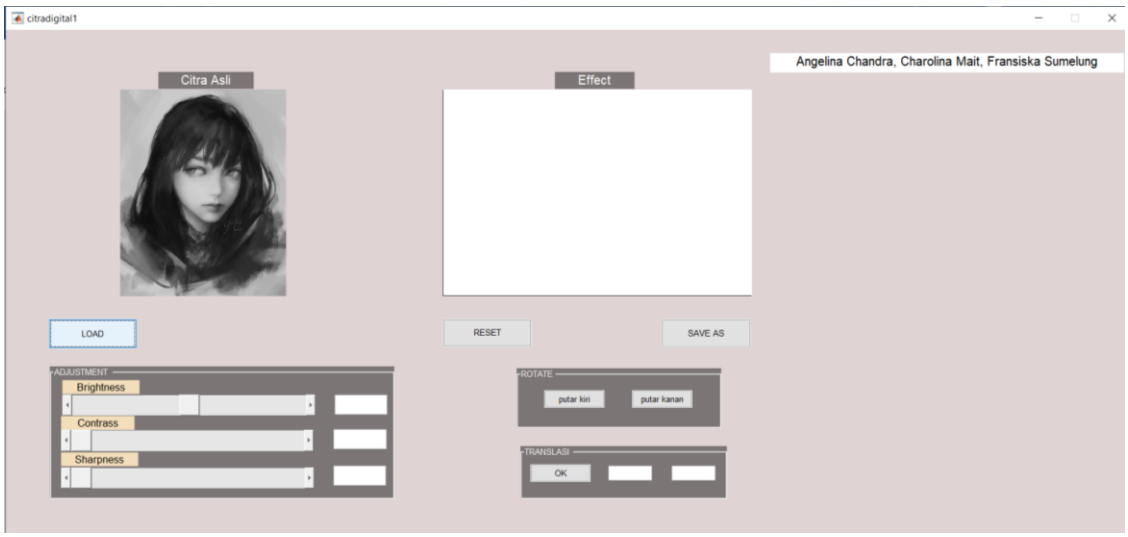
Gambar1.1Tampilan Awal

2. Klik search images untuk mengunggah foto, kemudian akan muncul tampilan untuk memilih foto



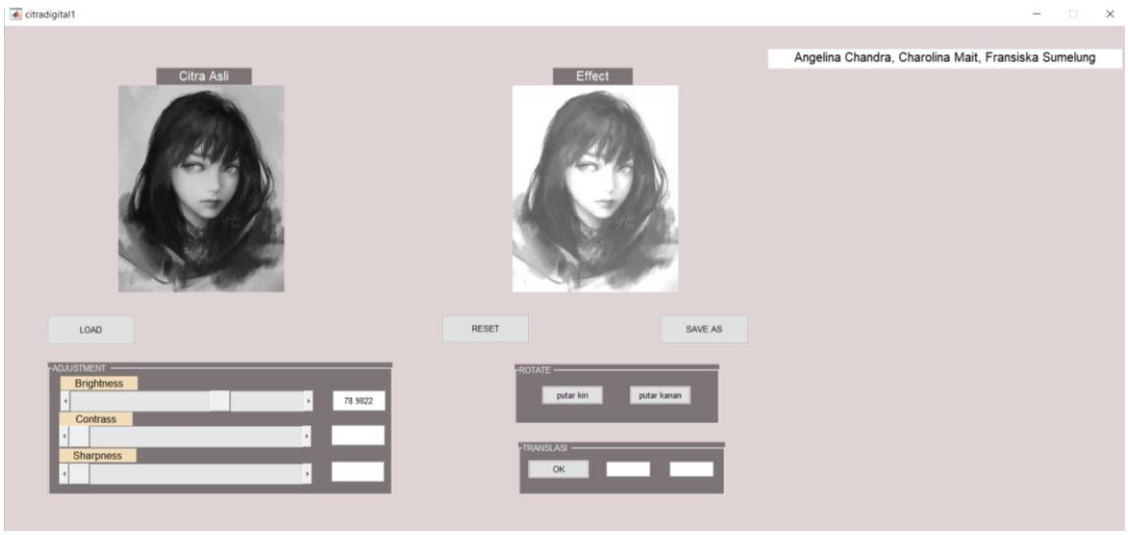
Gambar1.2Search Image

3. Tampilan ketika kita sudah memilih foto yang akan dipakai



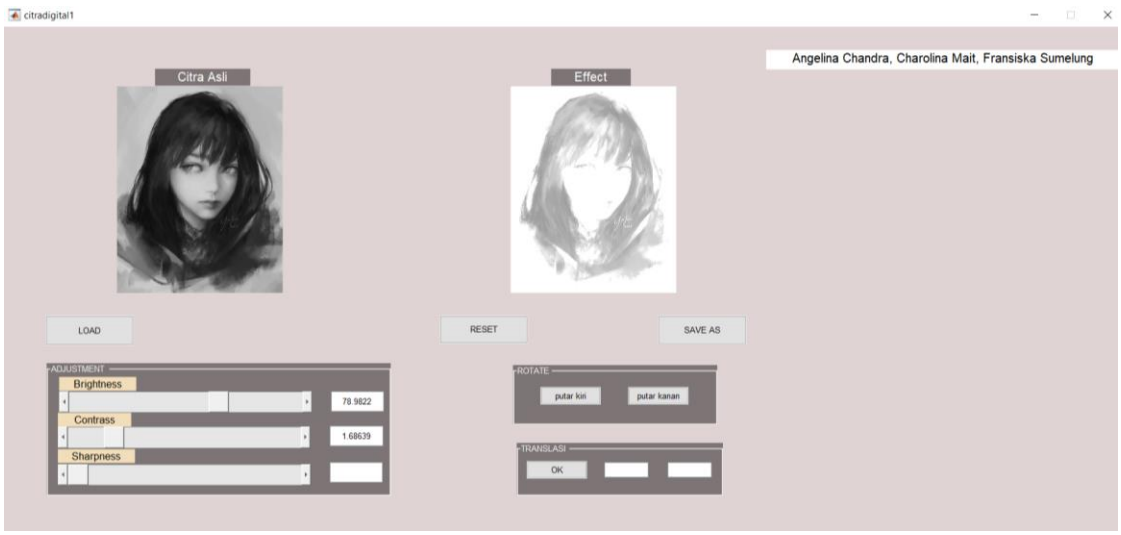
Gambar1.3 Image telah dipasang

4. Tampilan saat menggunakan fitur Brightness



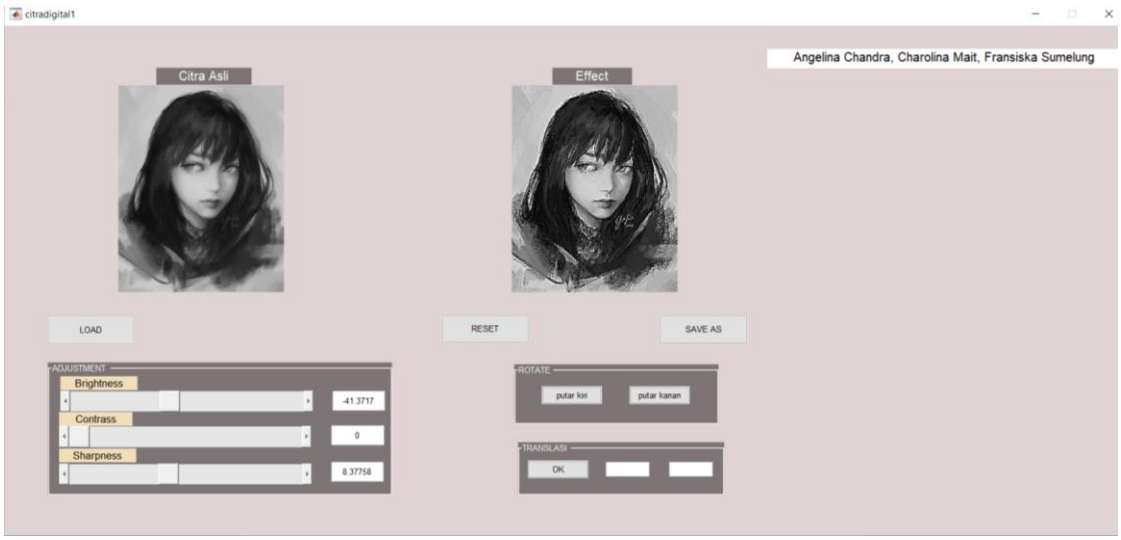
Gambar 1.4 Fitur Brightness

5. Tampilan saat menggunakan fitur brightness dan contrass



Gambar 1.5 Brightness dan Contrass

6. Tampilan saat menggunakan fitur sharpness



Gambar 1.6 Sharpness

7. Tampilan saat menggunakan fitur brightness, contrass, dan sharpness

Gambar 1.7 brightness+contrass+sharpness

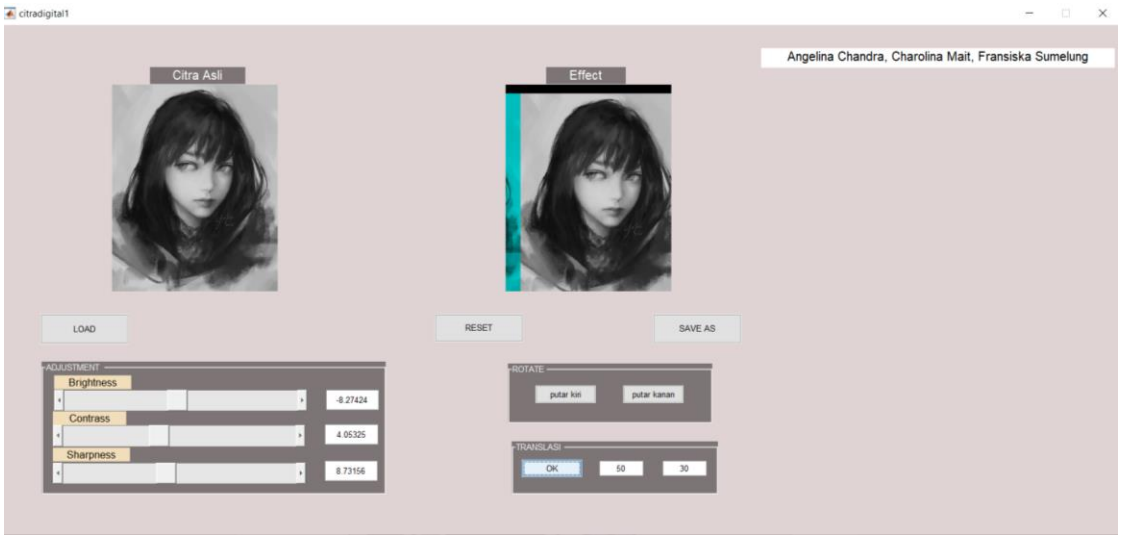
8. Tampilan saat melakukan rotasi 90 derajat ke kiri

Gambar1.8 rotate kiri 90 derajat

9. Tampilan saat melakukan rotasi 90 derajat ke kanan

Gambar19 rotate kanan 90 derajat

10. Tampilan saat melakukan Translasi dari hasil input x dan y

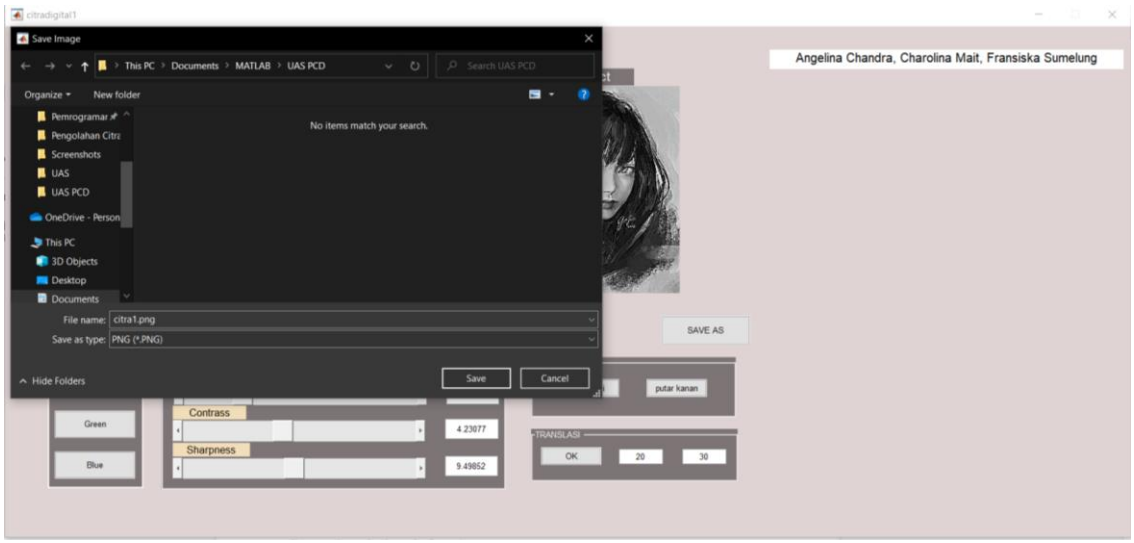


Gambar 10 Translasi

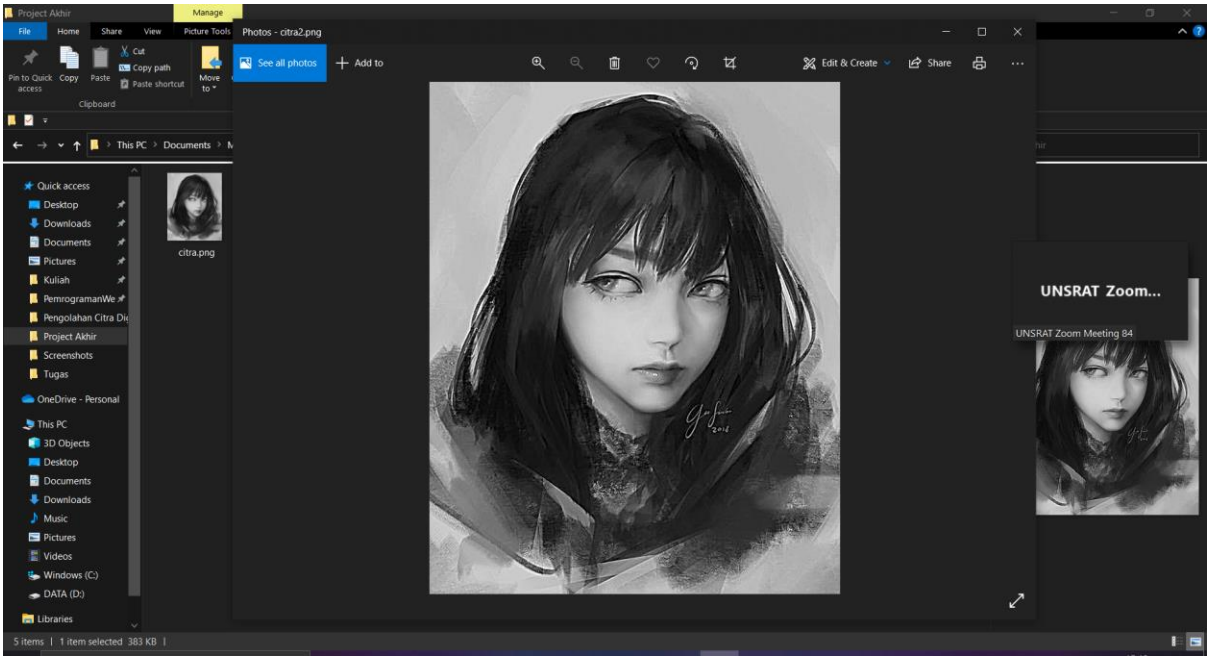
11. Tampilan saat melakukan reset.

Gambar 1.11 Reset

12. Tampilan saat melakukan penyimpanan foto (Save As) hasil filtering



Gambar 1.12 Save As



Gambar 1.17 Hasil

Kode Program

```
function varargout = citradigital1(varargin)
% citradigital1 MATLAB code for citradigital1.fig
%      citradigital1, by itself, creates a new citradigital1 or raises the
existing
%      singleton*.
%
%      H = citradigital1 returns the handle to a new citradigital1 or the handle
to
%      the existing singleton*.
%
%      citradigital1('CALLBAguCK',hObject,eventData,handles,...) calls the local
%      function named CALLBACK in citradigital1.M with the given input arguments.
%
%      citradigital1('Property','Value',...) creates a new citradigital1 or raises
the
%      existing singleton*.  Starting from the left, property value pairs are
%      applied to the GUI before citradigital1_OpeningFcn gets called.  An
%      unrecognized property name or invalid value makes property application
%      stop.  All inputs are passed to citradigital1_OpeningFcn via varargin.
%
%      *See GUI Options on GUIDE's Tools menu.  Choose "GUI allows only one
%      instance to run (singleton)".
%
% See also: GUIDE, GUIDATA, GUIHANDLES

% Edit the above text to modify the response to help citradigital1

% Last Modified by GUIDE v2.5 07-Jun-2022 15:57:12

% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
```

```
gui_State = struct('gui_Name',       mfilename, ...
                   'gui_Singleton',  gui_Singleton, ...
                   'gui_OpeningFcn', @citradigital1_OpeningFcn, ...
                   'gui_OutputFcn',  @citradigital1_OutputFcn, ...
                   'gui_LayoutFcn',  [] , ...
                   'gui_Callback',   []);
if nargin && ischar(varargin{1})
    gui_State.gui_Callback = str2func(varargin{1});
end

if nargout
    [varargout{1:nargout}] = gui_mainfcn(gui_State, varargin{:});
else
    gui_mainfcn(gui_State, varargin{:});
end
% End initialization code - DO NOT EDIT


% --- Executes just before citradigital1 is made visible.
function citradigital1_OpeningFcn(hObject, eventdata, handles, varargin)
% This function has no output args, see OutputFcn.
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
% varargin   command line arguments to citradigital1 (see VARARGIN)

% Choose default command line output for citradigital1
handles.output = hObject;

% Update handles structure
guidata(hObject, handles);

% UIWAIT makes citradigital1 wait for user response (see UIRESUME)
% uiwait(handles.figure1);


% --- Outputs from this function are returned to the command line.
function varargout = citradigital1_OutputFcn(hObject, eventdata, handles)
% varargout  cell array for returning output args (see VARARGOUT);
% hObject    handle to figure
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Get default command line output from handles structure
varargout{1} = handles.output;


% --- Executes on button press in load.
function load_Callback(hObject, eventdata, handles)
% hObject    handle to load (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global I;
global G;
[nama , alamat] = uigetfile({'*.jpg';'*.bmp';'*.png';'*.tif'},'Browse Image');
I = imread([alamat,nama]);
handles.image=I;
guidata(hObject, handles);
axes(handles.axes1);
```

```
imshow(I,[]);
G=I;

% --- Executes on button press in save.
function save_Callback(hObject, eventdata, handles)
% hObject    handle to save (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global G;
[nama, alamat] = uiputfile({'*.png','PNG (*.PNG)';'*.jpg','JPG (*.jpg)'},'Save
Image');
imwrite(G,fullfile(alamat,nama));
guidata(hObject, handles);

% --- Executes on button press in reset.
function reset_Callback(hObject, eventdata, handles)
% hObject    handle to reset (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global G;
global I;
citra=handles.image;
axes(handles.axes2);
cla;
imshow(citra); %membuat citra asli blm terkena filter tetap ada
cla reset;
G=I;

% --- Executes on slider movement.
function Contrass_Callback(hObject, eventdata, handles)
% hObject    handle to Contrass (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'Value') returns position of slider
%        get(hObject,'Min') and get(hObject,'Max') to determine range of slider
global G;
valueKon=get(handles.Contrass,'Value');
valueCe=get(handles.brightness,'Value');
set(handles.txtC,'String',valueKon);
citra=handles.image;
cerah=citra+valueCe;
kontras=valueKon*cerah;
G=kontras;
axes(handles.axes2);
guidata(hObject, handles);
imshow(G,[]);


% --- Executes during object creation, after setting all properties.
function Contrass_CreateFcn(hObject, ~, handles)
% hObject    handle to Contrass (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
```

```
end

% --- Executes on slider movement.
function brightness_Callback(hObject, ~, handles)
% hObject    handle to brightness (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global G;
valueK=get(handles.Contrass,'Value');
valueC=get(handles.brightness,'Value');
set(handles.txtB,'String',valueC);
citra=handles.image;
kontras=valueK*(citra+valueC);
cerah=citra+valueC;
G=cerah;
axes(handles.axes2);
guidata(hObject, handles);
imshow(G,[]);

% --- Executes during object creation, after setting all properties.
function brightness_CreateFcn(hObject, ~, ~)
% hObject    handle to brightness (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
end


% --- 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


function txtC_Callback(hObject, eventdata, handles)
% hObject    handle to txtC (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of txtC as text
%        str2double(get(hObject,'String')) returns contents of txtC as a double


% --- Executes during object creation, after setting all properties.
function txtC_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtC (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
```

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

% Hint: edit 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

function txtB_Callback(~, eventdata, handles)
% hObject    handle to txtB (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of txtB as text
%        str2double(get(hObject,'String')) returns contents of txtB as a double


% --- Executes during object creation, after setting all properties.
function txtB_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtB (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit 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 slider movement.
function sharpness_Callback(hObject, eventdata, handles)
% hObject    handle to sharpness (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'Value') returns position of slider
%        get(hObject,'Min') and get(hObject,'Max') to determine range of slider
global G;
valueSharp=get(handles.sharpness,'Value');
set(handles.txtS,'String',valueSharp);
citra=handles.image;
sharpen=imsharpen(citra,'Radius',2,'Amount',valueSharp); %Amount: how much
sharpening you’re doing, ambil dr valueSharp
                        %Radius: the reach of the filter, in terms of how far from
an edge the sharpening extends
                        %2 adl Nilai yg mengontrol ukuran wilayah di sekitar
piksel tepi yang dipengaruhi oleh penajaman
                        %Standard deviation of the Gaussian lowpass filter=1
G=sharpen;
axes(handles.axes2);
guidata(hObject, handles);
imshow(G,[]);

% --- Executes during object creation, after setting all properties.
function sharpness_CreateFcn(hObject, eventdata, handles)
% hObject    handle to sharpness (see GCBO)
```

```
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: slider controls usually have a light gray background.
if isequal(get(hObject,'BackgroundColor'),
get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor',[.9 .9 .9]);
end



function txtS_Callback(hObject, eventdata, handles)
% hObject    handle to txtS (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of txtS as text
%        str2double(get(hObject,'String')) returns contents of txtS as a double


% --- Executes during object creation, after setting all properties.
function txtS_CreateFcn(hObject, eventdata, handles)
% hObject    handle to txtS (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit 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 translasi1.
function translasi1_Callback(hObject, eventdata, handles)
% hObject    handle to translasi1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
global I;

[tinggi, lebar] = size(I);
  G = zeros(size(I));
  G = uint8(G);
  gx = str2num(get(handles.x,'string'));
  gy = str2num(get(handles.y,'string'));
  for y=1:tinggi
    for x=1:lebar
      if(y+gy >= 1) && (y+gy <= tinggi) && ...
        (x+gx >= 1) && (x+gx <= lebar)
        G(y+gy,x+gx) = I(y,x);
        end
    end
  end
axes(handles.axes2);
imshow(G);


function x_Callback(hObject, eventdata, handles)
```

```
% hObject    handle to x (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of x as text
%        str2double(get(hObject,'String')) returns contents of x as a double


% --- Executes during object creation, after setting all properties.
function x_CreateFcn(hObject, eventdata, handles)
% hObject    handle to x (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit 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



function y_Callback(hObject, eventdata, handles)
% hObject    handle to y (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

% Hints: get(hObject,'String') returns contents of y as text
%        str2double(get(hObject,'String')) returns contents of y as a double


% --- Executes during object creation, after setting all properties.
function y_CreateFcn(hObject, eventdata, handles)
% hObject    handle to y (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    empty - handles not created until after all CreateFcns called

% Hint: edit 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 putarkiri.
function putarkiri_Callback(hObject, eventdata, handles)
% hObject    handle to putarkiri (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
p = handles.image;
r = rot90(p(:,:,1),1);
g = rot90(p(:,:,2),1);
b = rot90(p(:,:,3),1);
putar = cat(3,r,g,b);
handles.image = putar;
guidata(hObject, handles);
axes(handles.axes2);
```

```
imshow(putar);

% --- Executes on button press in putarkanan.
function putarkanan_Callback(hObject, eventdata, handles)
% hObject    handle to putarkanan (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
p = handles.image;
r = rot90(p(:,:,1),3);
g = rot90(p(:,:,2),3);
b = rot90(p(:,:,3),3);
putar = cat(3,r,g,b);
handles.image = putar;
guidata(hObject, handles);
axes(handles.axes2);
imshow(putar);


% --- If Enable == 'on', executes on mouse press in 5 pixel border.
% --- Otherwise, executes on mouse press in 5 pixel border or over load.
function load_ButtonDownFcn(hObject, eventdata, handles)
% hObject    handle to load (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)
```