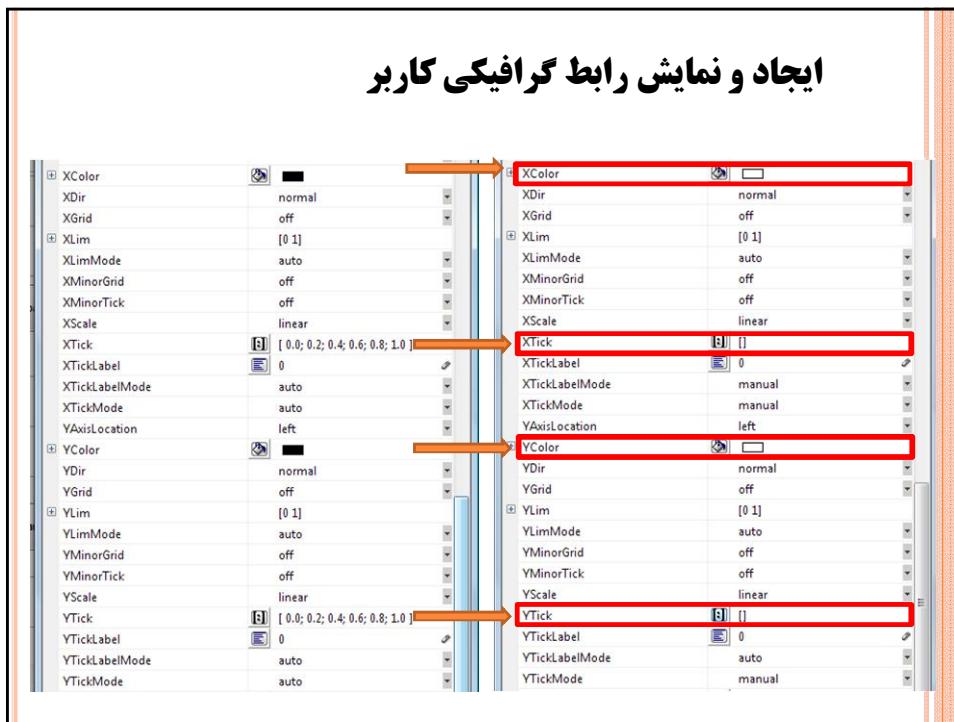
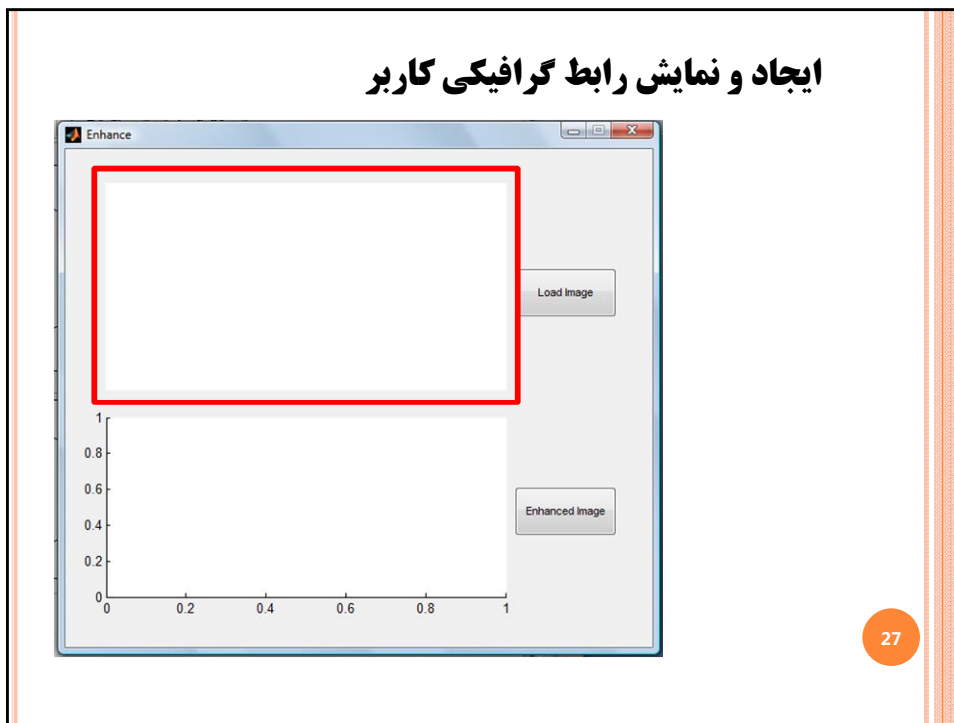


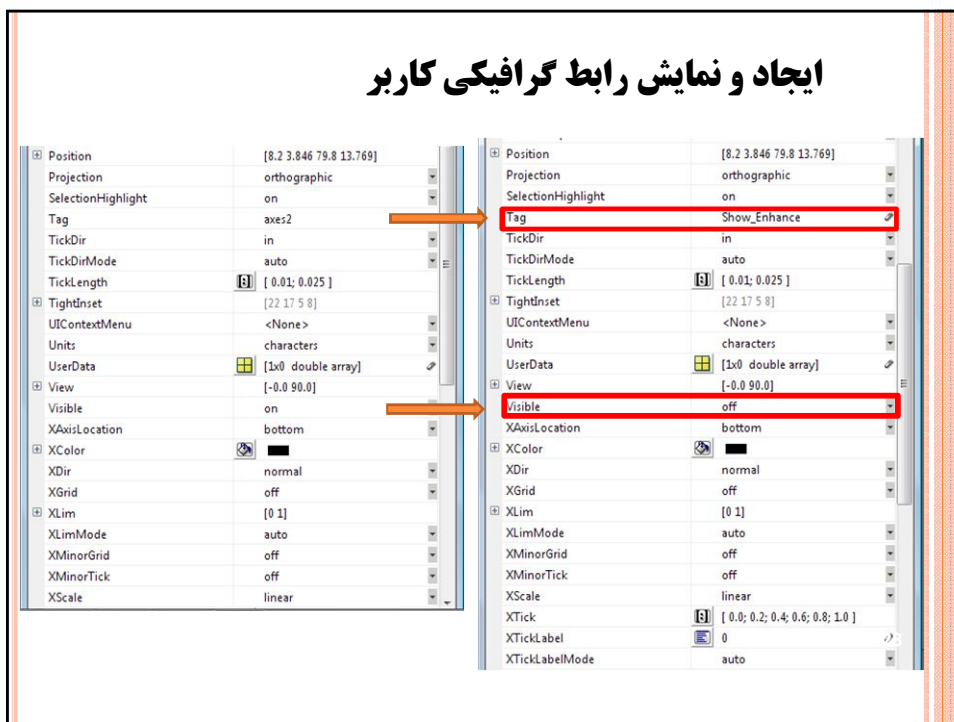
ایجاد و نمایش رابط گرافیکی کاربر



ایجاد و نمایش رابط گرافیکی کاربر



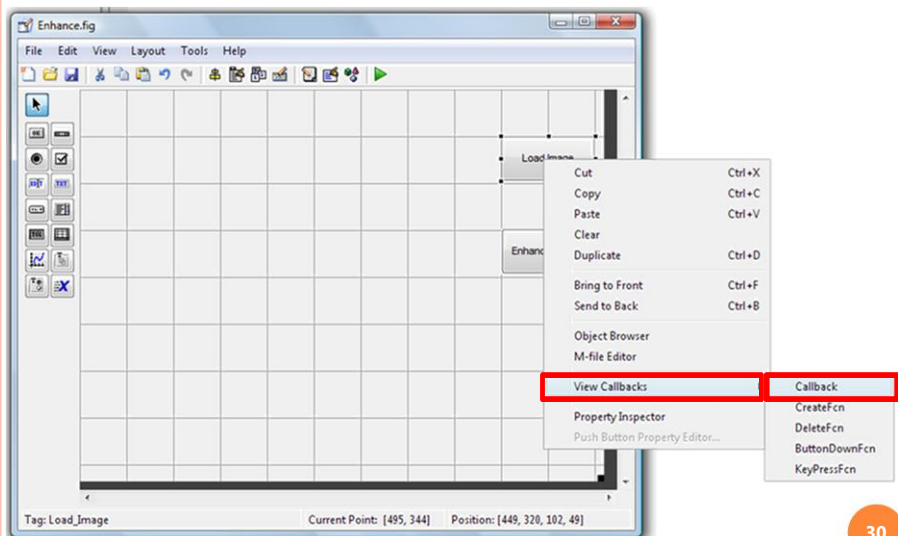
ایجاد و نمایش رابط گرافیکی کاربر



ایجاد و نمایش رابط گرافیکی کاربر



ایجاد و نمایش رابط گرافیکی کاربر



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ایجاد و نمایش رابط گرافیکی کاربر

```

54
55 % Choose default command line output for Enhance
56 handles.output = hObject;
57
58 % Update handles structure
59 guidata(hObject, handles);
60
61 % UIWAIT makes Enhance wait for user response (see UIRESUME)
62 uiwait(handles.figure1);
63
64
65 % --- Outputs from this function are returned to the command line.
66 function varargout = Enhance_OutputFcn(hObject, eventdata, handles)
67 % varargout cell array for returning output args (see VARARGOUT);
68 % hObject handle to figure
69 % eventdata reserved - to be defined in a future version of MATLAB
70 % handles structure with handles and user data (see GUIDATA)
71
72 % Get default command line output from handles structure
73 varargout(1) = handles.output;
74
75
76 % Executes on button press in Load Image
77 function Load_Image_Callback(hObject, eventdata, handles)
78 % hObject handle to Load_Image (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81
82 % --- Executes on button press in Enhanced Image.
83 function Enhanced_Image_Callback(hObject, eventdata, handles)
84 % hObject handle to Enhanced_Image (see GCBO)
85 % eventdata reserved - to be defined in a future version of MATLAB
86 % handles structure with handles and user data (see GUIDATA)
87
88
    
```

نوشتن کدهای مربوط به
کلید **Callback**
Load Image

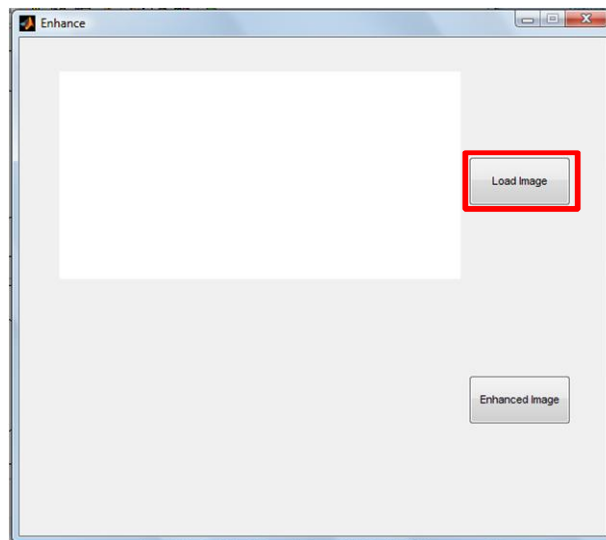
31

ایجاد و نمایش رابط گرافیکی کاربر

```
75 % --- Executes on button press in Load_Image.
76
77 function Load_Image_Callback(hObject, eventdata, handles)
78 % hObject handle to Load_Image (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81 [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.png'}, 'Image selector');
82 eq1 = isequal(PathName,0);
83 eq2 = isequal(FileName,0);
84 if eq1==1 || eq2==1
85     errordlg('No image is loaded!', 'Command error!');
86 else
87     Load = 1;
88     I = imread(strcat(PathName,FileName));
89     axes(handles.Show_Image);
90     cla;
91     imshow(I)
92 end
93
```

32

ایجاد و نمایش رابط گرافیکی کاربر



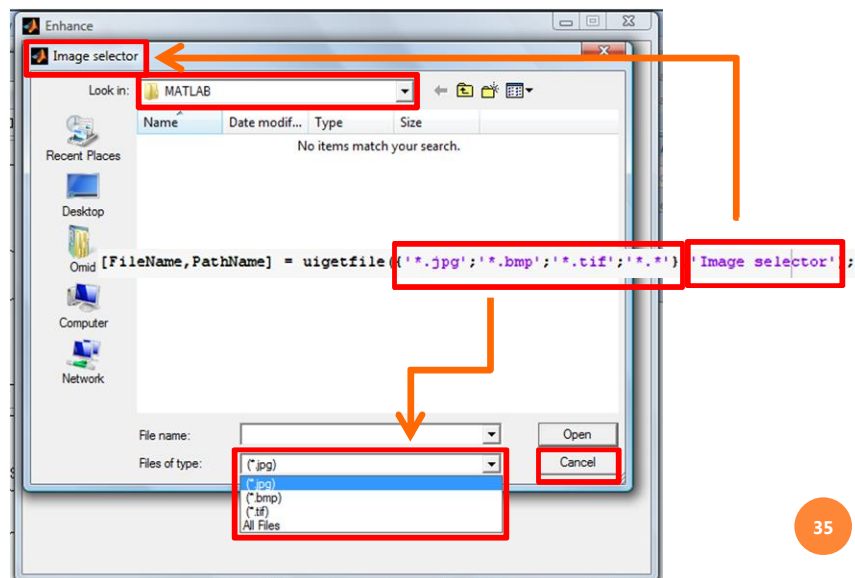
33

ایجاد و نمایش رابط گرافیکی کاربر

```
75 % --- Executes on button press in Load_Image.
76
77 function Load_Image_Callback(hObject, eventdata, handles)
78 % hObject handle to Load_Image (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81 [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.*'}, 'Image selector');
82 eq1 = isequal(PathName,0);
83 eq2 = isequal(FileName,0);
84 if eq1==1 || eq2==1
85     errordlg('No image is loaded!','Command error!');
86 else
87     Load = 1;
88     I = imread(strcat(PathName,FileName));
89     axes(handles.Show_Image);
90     cla;
91     imshow(I)
92 end
93
```

34

ایجاد و نمایش رابط گرافیکی کاربر



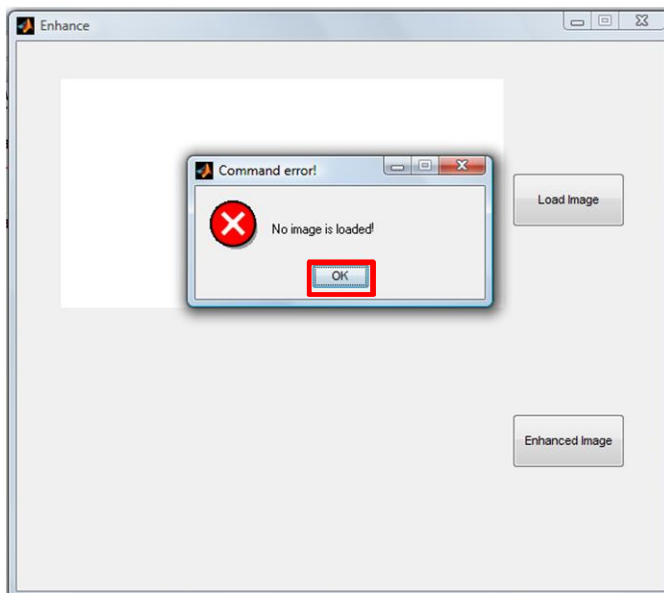
35

ایجاد و نمایش رابط گرافیکی کاربر

```
75 % --- Executes on button press in Load_Image.
76
77 function Load_Image_Callback(hObject, eventdata, handles)
78 % hObject handle to Load_Image (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81 [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.png'}, 'Image selector');
82 eq1 = isequal(PathName,0);
83 eq2 = isequal(FileName,0);
84 if eq1==1 || eq2==1
85     errordlg('No image is loaded','Command error!');
86 else
87     Load = 1;
88     I = imread(strcat(PathName,FileName));
89     axes(handles.Show_Image);
90     cla;
91     imshow(I)
92 end
93
```

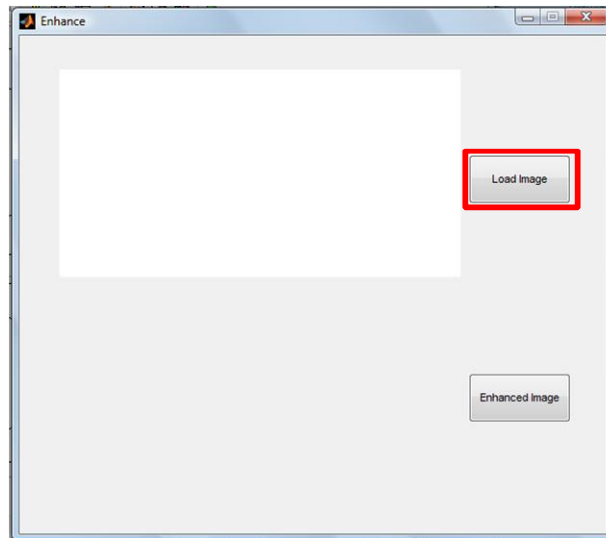
36

ایجاد و نمایش رابط گرافیکی کاربر



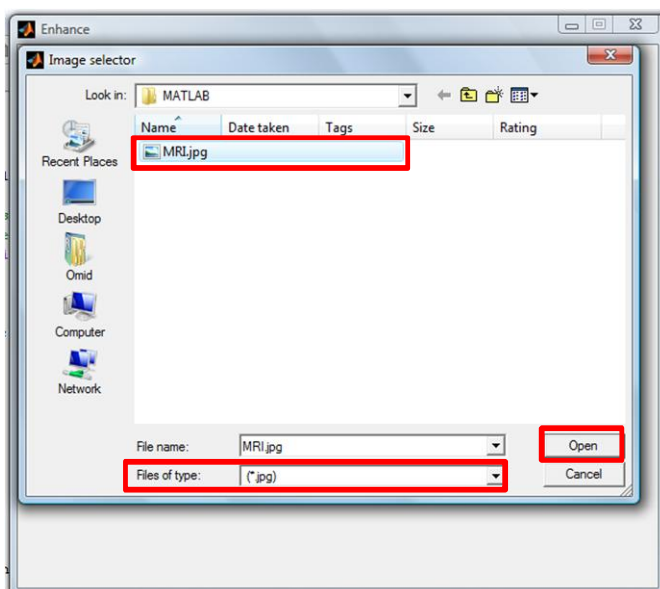
37

ایجاد و نمایش رابط گرافیکی کاربر



38

ایجاد و نمایش رابط گرافیکی کاربر



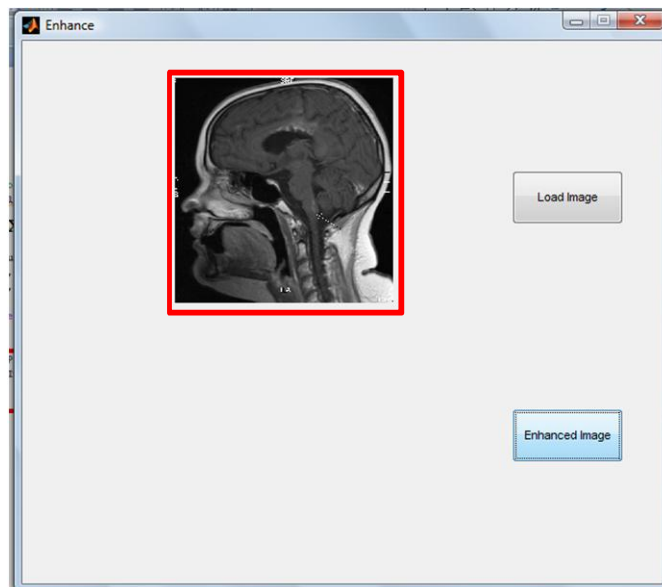
39

ایجاد و نمایش رابط گرافیکی کاربر

```
75 % --- Executes on button press in Load_Image.
76
77 function Load_Image_Callback(hObject, eventdata, handles)
78 % hObject handle to Load_Image (see GCBO)
79 % eventdata reserved - to be defined in a future version of MATLAB
80 % handles structure with handles and user data (see GUIDATA)
81 [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.png'}, 'Image selector');
82 eq1 = isequal(PathName,0);
83 eq2 = isequal(FileName,0);
84 if eq1==1 || eq2==1
85     errordlg('No image is loaded!', 'Command error!');
86 else
87     Load = 1;
88     I = imread(strcat(PathName,FileName));
89     axes(handles.Show_Image);
90     cla;
91     imshow(I)
92 end
93
```

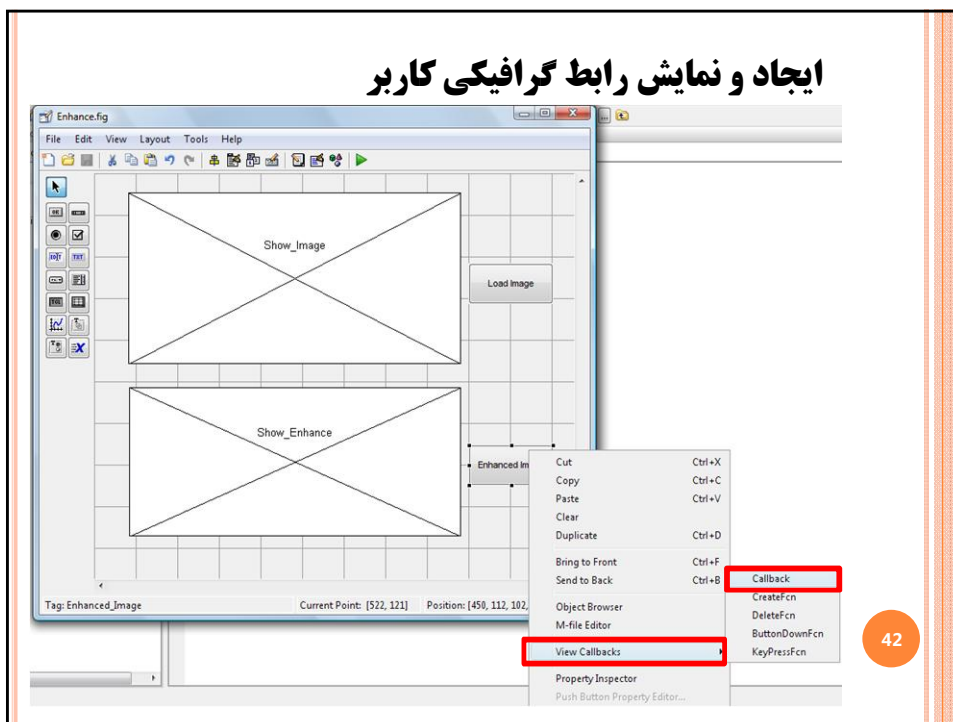
40

ایجاد و نمایش رابط گرافیکی کاربر



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ایجاد و نمایش رابط گرافیکی کاربر



ایجاد و نمایش رابط گرافیکی کاربر

```
75
76     % --- Executes on button press in Load_Image.
77     function Load_Image_Callback(hObject, eventdata, handles)
78     % hObject    handle to Load_Image (see GCBO)
79     % eventdata reserved - to be defined in a future version of MATLAB
80     % handles    structure with handles and user data (see GUIDATA)
81     [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.png'}, 'Image selector');
82     eq1 = isequal(PathName,0);
83     eq2 = isequal(FileName,0);
84     if eq1==1 || eq2==1
85         errordlg('No image is loaded!', 'Command error!');
86     else
87         Load = 1;
88         I = imread(strcat(PathName,FileName));
89         axes(handles.Show_Image);
90         cla;
91         imshow(I)
92     end
93
94
95     % --- Executes on button press in Enhanced_Image.
96     function Enhanced_Image_Callback(hObject, eventdata, handles)
97     % hObject    handle to Enhanced_Image (see GCBO)
98     % eventdata reserved - to be defined in a future version of MATLAB
99     % handles    structure with handles and user data (see GUIDATA)
100
```

ایجاد و نمایش رابط گرافیکی کاربر

```
95 % --- Executes on button press in Enhanced_Image.
96
97 function Enhanced_Image_Callback(hObject, eventdata, handles)
98 % hObject handle to Enhanced_Image (see GCBO)
99 % eventdata reserved - to be defined in a future version of MATLAB
100 % handles structure with handles and user data (see GUIDATA)
101
102 J = hist_equal(I);
103 axes(handles.Show_Enhance);
104 cla;
105 imshow(J)
106
```



```
133
134 % --- Executes on button press in Enhanced_Image.
135 function Enhanced_Image_Callback(hObject, eventdata, handles)
136 % hObject handle to Enhanced_Image (see GCBO)
137 % eventdata reserved - to be defined in a future version of MATLAB
138 % handles structure with handles and user data (see GUIDATA)
139 global I
140 J = hist_equal(I);
141 axes(handles.Show_Enhance);
142 cla;
143 imshow(J)
---
```

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ایجاد و نمایش رابط گرافیکی کاربر

```
115 % --- Executes on button press in Load Image.
116 function Load_Image_Callback(hObject, eventdata, handles)
117 % hObject handle to Load_Image (see GCBO)
118 % eventdata reserved - to be defined in a future version of MATLAB
119 % handles structure with handles and user data (see GUIDATA)
120 global I
121 [FileName, PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.png'}, 'image selector');
122 eq1 = isequal(PathName, 0);
123 eq2 = isequal(FileName, 0);
124 if eq1==1 || eq2==1
125     errordlg('No image is loaded!', 'Command error!');
126 else
127     Load = 1;
128     I = imread(strcat(PathName, FileName));
129     axes(handles.Show_Image);
130     cla;
131     imshow(I)
132 end
133
134 % --- Executes on button press in Enhanced_Image.
135 function Enhanced_Image_Callback(hObject, eventdata, handles)
136 % hObject handle to Enhanced_Image (see GCBO)
137 % eventdata reserved - to be defined in a future version of MATLAB
138 % handles structure with handles and user data (see GUIDATA)
139 global I
140 J = hist_equal(I);
141 axes(handles.Show_Enhance);
142 cla;
143 imshow(J)
---
```

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ایجاد و نمایش رابط گرافیکی کاربر

○ سوال :

○ اگر کاربر بلافاصله پس از اجرای برنامه ابتدا بر روی کلید **Enhanced Image** کلیک کند، چه اتفاقی می افتد؟

○ توجه:

○ هنگام نوشتن **GUI** تمام حالات ممکن را در نظر گرفته و پاسخی برای آن تعیین کنید.

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ایجاد و نمایش رابط گرافیکی کاربر

```
46
47 % --- Executes just before Enhance is made visible.
48 function Enhance_OpeningFcn(hObject, eventdata, handles, varargin)
49 % This function has no output args, see OutputFcn.
50 % hObject    handle to figure
51 % eventdata reserved - to be defined in a future version of MATLAB
52 % handles    structure with handles and user data (see GUIDATA)
53 % varargin   command line arguments to Enhance (see VARARGIN)
54
55 % Choose default command line output for Enhance
56 handles.output = hObject;
57
58 % Update handles structure
59 guidata(hObject, handles);
60
61 % UIWAIT makes Enhance wait for user response (see UIRESUME)
62 % uiwait(handles.figure1);
63 global Load
64 Load = 0;
```

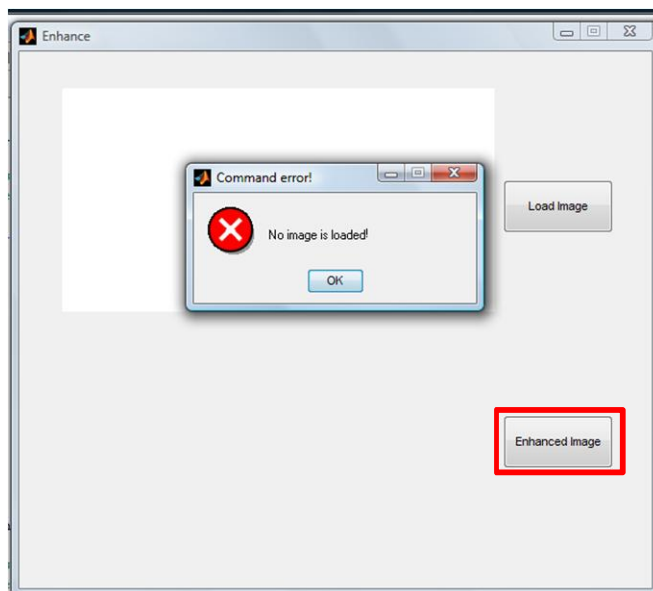
47

ایجاد و نمایش رابط گرافیکی کاربر

```
77 % --- Executes on button press in Load_Image.
78 function Load_Image_Callback(hObject, eventdata, handles)
79 % hObject handle to Load_Image (see GCBO)
80 % eventdata reserved - to be defined in a future version of MATLAB
81 % handles structure with handles and user data (see GUIDATA)
82 global I
83 [FileName,PathName] = uigetfile({'*.jpg'; '*.bmp'; '*.tif'; '*.*'}, 'Image selector');
84 eq1 = isequal(PathName,0);
85 eq2 = isequal(FileName,0);
86 if eq1==1 || eq2==1
87     errordlg('No image is loaded!', 'Command error!');
88 else
89     Load = 1;
90     I = imread(strcat(PathName,FileName));
91     axes(handles.Show_Image);
92     cla;
93     imshow(I)
94 end
95
96
97 % --- Executes on button press in Enhanced_Image.
98 function Enhanced_Image_Callback(hObject, eventdata, handles)
99 % hObject handle to Enhanced_Image (see GCBO)
100 % eventdata reserved - to be defined in a future version of MATLAB
101 % handles structure with handles and user data (see GUIDATA)
102 global I Load
103 if Load == 0
104     errordlg('No image is loaded!', 'Command error!');
105 else
106     J = hist_equal(I);
107     axes(handles.Show_Enhance);
108     cla;
109     imshow(J)
110 end
```

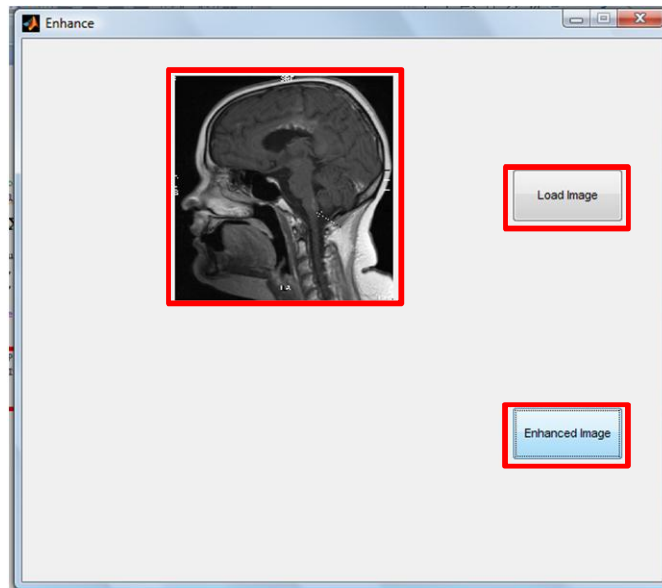
48

ایجاد و نمایش رابط گرافیکی کاربر



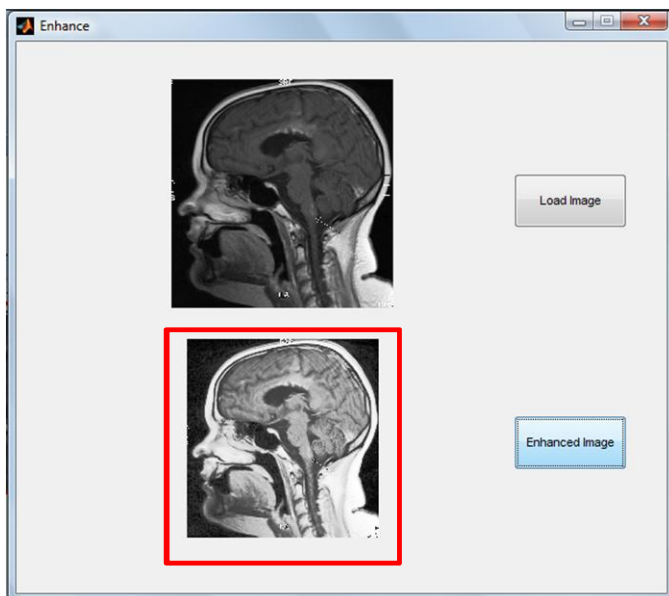
49

ایجاد و نمایش رابط گرافیکی کاربر



50

ایجاد و نمایش رابط گرافیکی کاربر



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