```matlab
function varargout = Tampilan1(varargin)
% TAMPILAN1 M-file for Tampilan1.fig
%       TAMPILAN1, by itself, creates a new TAMPILAN1 or raises the existing
%       singleton*.
%
%       H = TAMPILAN1 returns the handle to a new TAMPILAN1 or the handle to
%       the existing singleton*.
%
%       TAMPILAN1('CALLBACK',hObject,eventData,handles,...) calls the local
%       function named CALLBACK in TAMPILAN1.M with the given input arguments.
%
%       TAMPILAN1('Property','Value',...) creates a new TAMPILAN1 or raises the
%       existing singleton*.  Starting from the left, property value pairs are
%       applied to the GUI before Tampilan1_OpeningFunction gets called.  An
%       unrecognized property name or invalid value makes property application
%       stop.  All inputs are passed to Tampilan1_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 Tampilan1


% Begin initialization code - DO NOT EDIT
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                   'gui_Singleton',  gui_Singleton, ...
                   'gui_OpeningFcn', @Tampilan1_OpeningFcn, ...
                   'gui_OutputFcn',  @Tampilan1_OutputFcn, ...
                   'gui_LayoutFcn',  [] , ...
                   'gui_Callback',   []);
if nargin & isstr(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 Tampilan1 is made visible.
function Tampilan1_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 Tampilan1 (see VARARGIN)

% Choose default command line output for Tampilan1
handles.output = hObject;

% Update handles structure
guidata(hObject, handles);

% UIWAIT makes Tampilan1 wait for user response (see UIRESUME)
% uiwait(handles.figure1);
```

```matlab
% --- Outputs from this function are returned to the command line.
function varargout = Tampilan1_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 pushbutton1.
function pushbutton1_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton1 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

h=waitbar(0,'Tungguin entar ya..,lagi diitung nih...!');

if get(handles.radiobutton1,'Value')==1
    nama='indonesia.wav';
    x=wavread('indonesia');
elseif get(handles.radiobutton2,'Value')==1
    nama='semarang.wav';
    x=wavread('semarang_edit');
elseif get(handles.radiobutton3,'Value')==1
    nama='c.wav';
    x=wavread('c');
elseif get(handles.radiobutton4,'Value')==1
    nama='teknik elektro.wav';
    x=wavread('teknik elektro');
else
    close(h);
    errordlg('Anda Belum memasukkan pilihan suara yang akan diproses, masukkan pilihan ∠
terlebih dahulu sebelum melanjutkan','Kesalahan Pada Input');
    error('Masukan kurang.Anda Belum memasukkan pilihan suara yang akan diproses');
end

waitbar(0.2)
p=str2double(get(handles.edit1,'string'));
L = length (x);

waitbar (0.4)
a = linpred(x,p);
est_x = filter([0 -a(2:end)],1,x);

waitbar(0.6)
err = x - est_x;
erms = sqrt(sum(err.^2)/L);

waitbar(0.8)
N = 0:L-1;
set(handles.edit3,'string',L);
set(handles.edit2,'string',nama);
set(handles.edit5,'string',erms);

% Tampilkan grafik suara asli
axes(handles.axes1);
plot(N,x,'--');
```

```
title ('Sinyal Suara asli');
xlabel('sample');
ylabel('Amplitude');
grid;
legend('Sinyal asli');

% Tampilkan grafik suara hasil estimasi
axes(handles.axes2);
plot(N,est_x,'--');
title ('Sinyal Suara Estimasi');
xlabel('sample');
ylabel('Amplitude');
grid;
legend('prediksi LP');

% Tampilkan grafik error
axes(handles.axes3);
plot(N,abs(err),'--');
title('Error Prediksi');
xlabel('sample');
ylabel('Amplitude');
grid;
legend('Error');

waitbar(1)
end
close(h)

% --- Executes during object creation, after setting all properties.
function edit1_CreateFcn(hObject, eventdata, handles)
% hObject    handle to edit1 (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
    set(hObject,'BackgroundColor','white');
else
    set(hObject,'BackgroundColor',get(0,'defaultUicontrolBackgroundColor'));
end

function edit1_Callback(hObject, eventdata, handles)
% hObject    handle to edit1 (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 edit1 as text
%        str2double(get(hObject,'String')) returns contents of edit1 as a double

% --- Executes on button press in pushbutton3.
function pushbutton3_Callback(hObject, eventdata, handles)
% hObject    handle to pushbutton3 (see GCBO)
% eventdata  reserved - to be defined in a future version of MATLAB
% handles    structure with handles and user data (see GUIDATA)

delete(handles.figure1)

% --- Executes during object creation, after setting all properties.
function edit2_CreateFcn(hObject, eventdata, handles)
```

```
% hObject     handle to edit2 (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
    set(hObject,'BackgroundColor','white');
else
    set(hObject,'BackgroundColor',get(0,'defaultUicontrolBackgroundColor'));
end


function edit2_Callback(hObject, eventdata, handles)
% hObject     handle to edit2 (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 edit2 as text
%        str2double(get(hObject,'String')) returns contents of edit2 as a double

set


% --- Executes during object creation, after setting all properties.
function edit3_CreateFcn(hObject, eventdata, handles)
% hObject     handle to edit3 (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
    set(hObject,'BackgroundColor','white');
else
    set(hObject,'BackgroundColor',get(0,'defaultUicontrolBackgroundColor'));
end


function edit3_Callback(hObject, eventdata, handles)
% hObject     handle to edit3 (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 edit3 as text
%        str2double(get(hObject,'String')) returns contents of edit3 as a double


% --- If Enable == 'on', executes on mouse press in 5 pixel border.
% --- Otherwise, executes on mouse press in 5 pixel border or over pushbutton1.

function pushbutton1_ButtonDownFcn(hObject, eventdata, handles)
% hObject     handle to pushbutton1 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)


% --- Executes during object creation, after setting all properties.
function edit4_CreateFcn(hObject, eventdata, handles)
% hObject     handle to edit4 (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.
```

```matlab
%         See ISPC and COMPUTER.
if ispc
    set(hObject,'BackgroundColor','white');
else
    set(hObject,'BackgroundColor',get(0,'defaultUicontrolBackgroundColor'));
end




function edit4_Callback(hObject, eventdata, handles)
% hObject     handle to edit4 (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 edit4 as text
%        str2double(get(hObject,'String')) returns contents of edit4 as a double


% --- Executes on button press in pushbutton4.
function pushbutton4_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton4 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

if get(handles.radiobutton1,'Value')==1
        x=wavread('indonesia');
elseif get(handles.radiobutton2,'Value')==1
        x=wavread('semarang_edit');
elseif get(handles.radiobutton3,'Value')==1
        x=wavread('c');
else
        x=wavread('teknik elektro');
end

soundsc(x);

% --- Executes on button press in pushbutton5.
function pushbutton5_Callback(hObject, eventdata, handles)
% hObject     handle to pushbutton5 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

if get(handles.radiobutton1,'Value')==1
        x=wavread('indonesia');
elseif get(handles.radiobutton2,'Value')==1
        x=wavread('semarang_edit');
elseif get(handles.radiobutton3,'Value')==1
        x=wavread('c');
else
        x=wavread('teknik elektro');
end

p=str2double(get(handles.edit1,'string'));
a = linpred(x, p);
est_x=filter([0-a(2:end)],1,x);
soundsc(est_x);


% --- Executes during object creation, after setting all properties.
function edit5_CreateFcn(hObject, eventdata, handles)
% hObject     handle to edit5 (see GCBO)
```

```matlab
% 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
    set(hObject,'BackgroundColor','white');
else
    set(hObject,'BackgroundColor',get(0,'defaultUicontrolBackgroundColor'));
end




function edit5_Callback(hObject, eventdata, handles)
% hObject     handle to edit5 (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 edit5 as text
%        str2double(get(hObject,'String')) returns contents of edit5 as a double


% --- Executes on button press in radiobutton1.
function radiobutton1_Callback(hObject, eventdata, handles)
% hObject     handle to radiobutton1 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

% Hint: get(hObject,'Value') returns toggle state of radiobutton1

off = [handles.radiobutton2,handles.radiobutton3,handles.radiobutton4];
mutual_exclude(off)


% --- Executes on button press in radiobutton2.
function radiobutton2_Callback(hObject, eventdata, handles)
% hObject     handle to radiobutton2 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

% Hint: get(hObject,'Value') returns toggle state of radiobutton2

off = [handles.radiobutton1,handles.radiobutton3,handles.radiobutton4];
mutual_exclude(off)

% --- Executes on button press in radiobutton3.
function radiobutton3_Callback(hObject, eventdata, handles)
% hObject     handle to radiobutton3 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)

% Hint: get(hObject,'Value') returns toggle state of radiobutton3

off = [handles.radiobutton1,handles.radiobutton2,handles.radiobutton4];
mutual_exclude(off)

% --- Executes on button press in radiobutton4.
function radiobutton4_Callback(hObject, eventdata, handles)
% hObject     handle to radiobutton4 (see GCBO)
% eventdata   reserved - to be defined in a future version of MATLAB
% handles     structure with handles and user data (see GUIDATA)
```

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```
% Hint: get(hObject,'Value') returns toggle state of radiobutton4

off = [handles.radiobutton1,handles.radiobutton2,handles.radiobutton3];
mutual_exclude(off)
```

```
function [a]=linpred(x,p);

[m,n] = size(x);
if (n>1)&(m==1)
    x = x(:);
    [m,n] = size(x);
end

if (p > m-1),
    x(N+1,:)=zeros(1,n);
end

X = fft(x,2^nextpow2(2*size(x,1)-1));
R = ifft(abs(X).^2);
R = R./(m-1);

a = levinson(R,p);
```