

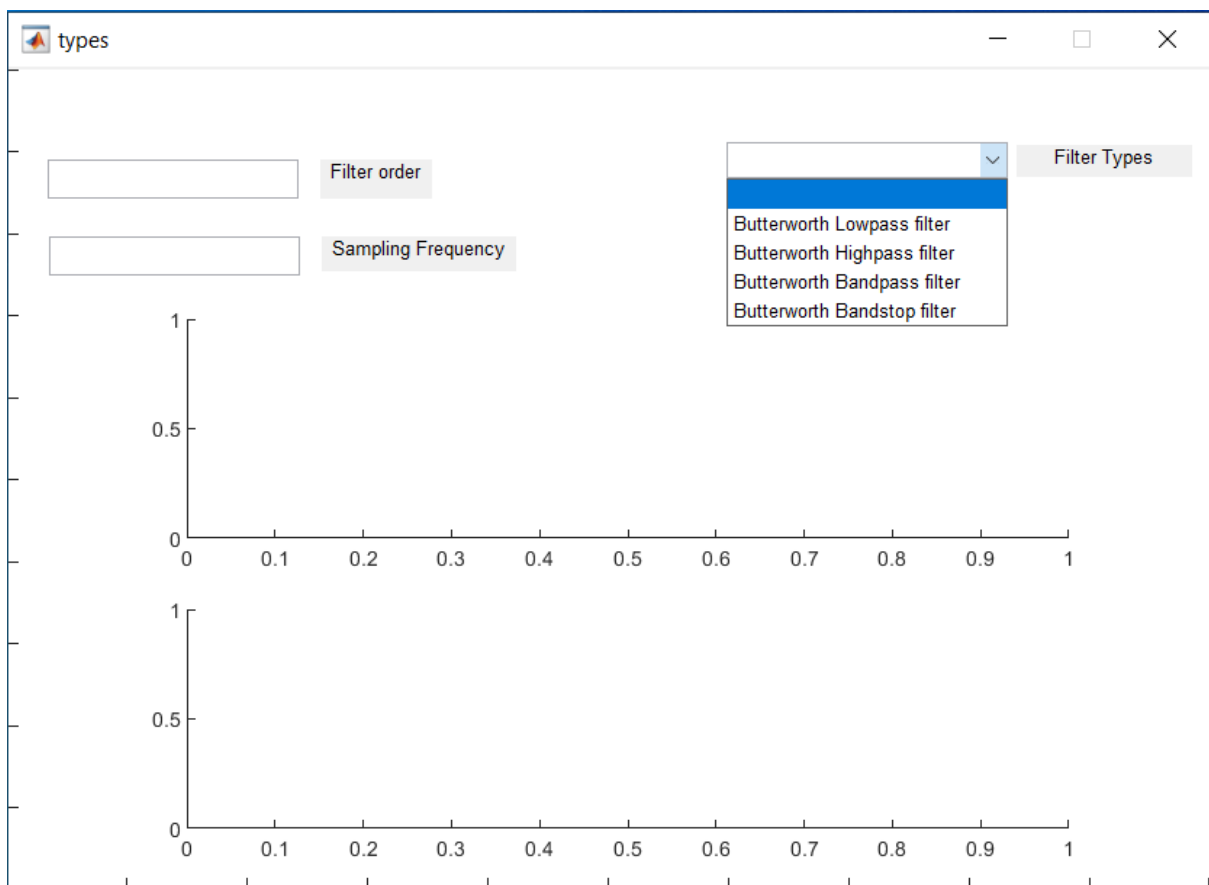
Name:- Krishna Kokate

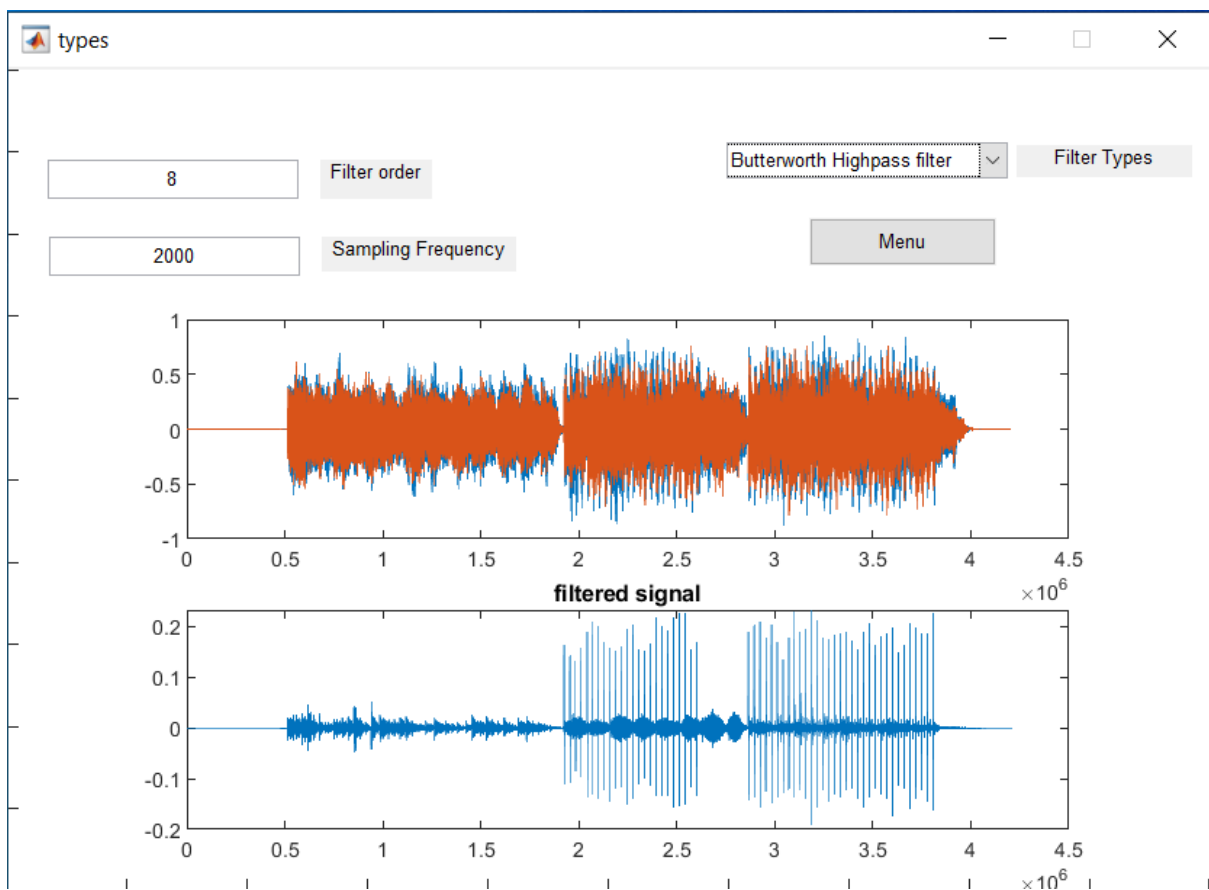
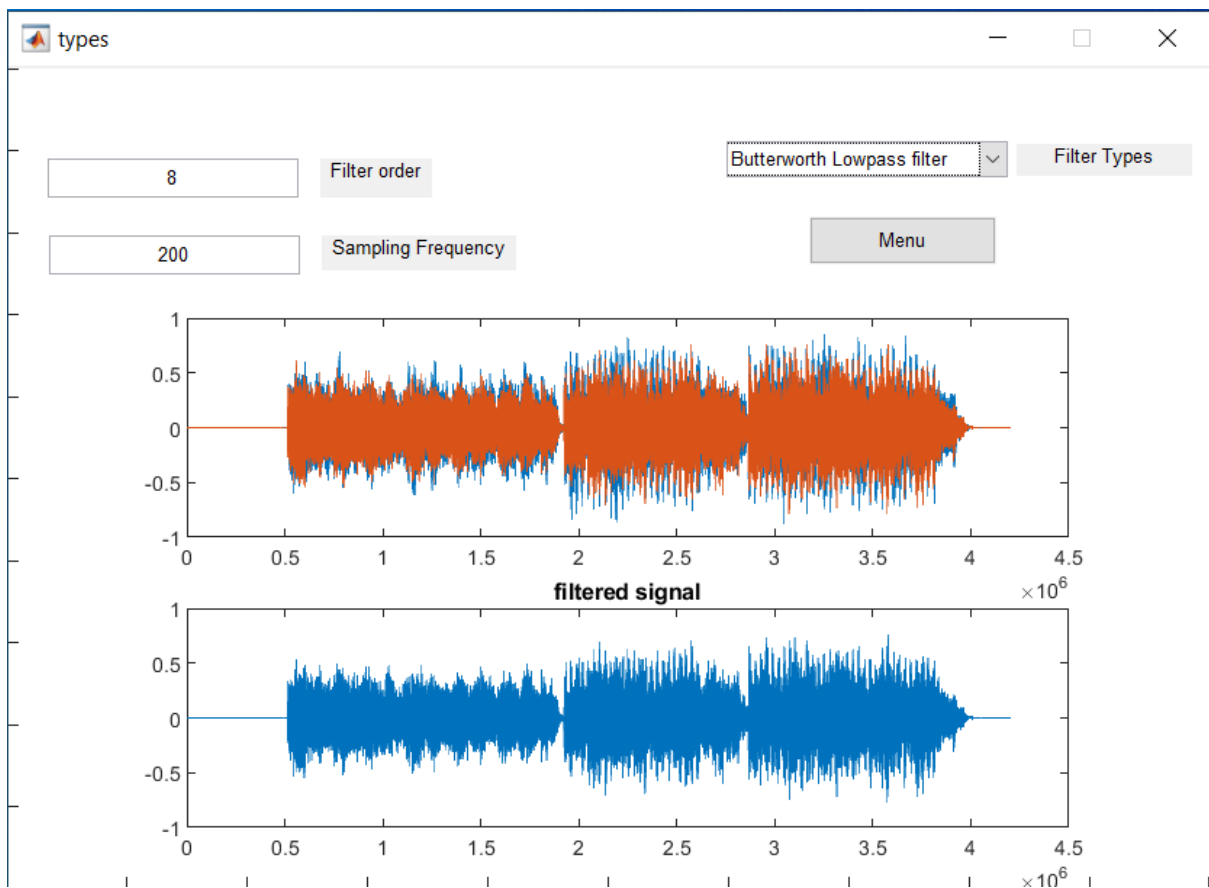
Roll No. :-161

Prn No.:- 0120200304

Drive Link:- <https://drive.google.com/drive/folders/1YOifsjiOsitNcoI3o42ruEEw2litNNMO>







types

8

Filter order

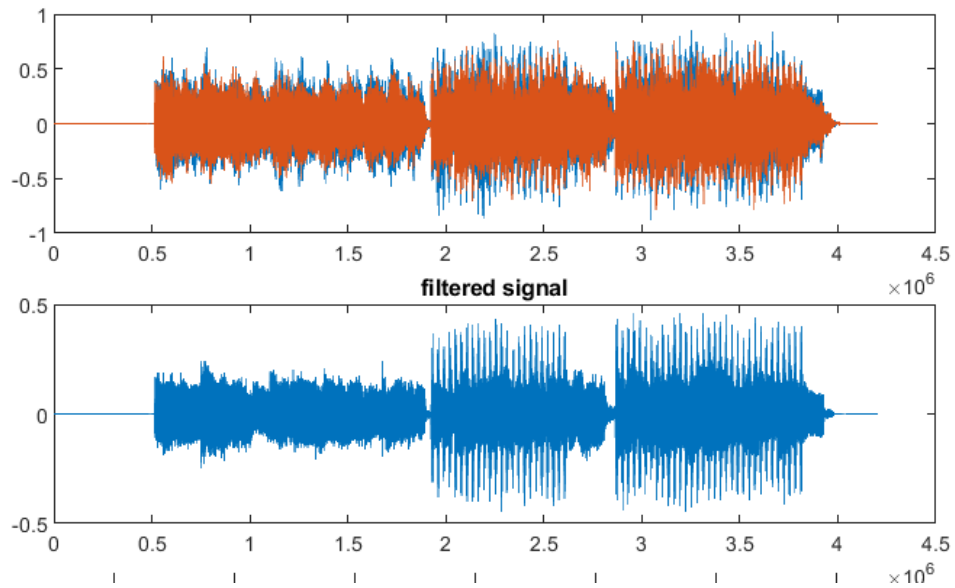
Butterworth Bandpass filter

Filter Types

200

Sampling Frequency

Menu



```
function varargout = iir_filter(varargin)
gui_Singleton = 1;
gui_State = struct('gui_Name',       mfilename, ...
                  'gui_Singleton',   gui_Singleton, ...
                  'gui_OpeningFcn', @iir_filter_OpeningFcn, ...
                  'gui_OutputFcn',  @iir_filter_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 iir_filter is made visible.
function iir_filter_OpeningFcn(hObject, eventdata, handles, varargin)

[x,map]=imread('dsp.png','png');

image(x),colormap(map),axis off,hold on

handles.output = hObject;

guidata(hObject, handles);

function varargout = iir_filter_OutputFcn(hObject, eventdata, handles)
varargout{1} = handles.output;

% --- Executes on button press in pushbutton1.
function pushbutton1_Callback(hObject, eventdata, handles)
types
close iir_filter
```



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```
function varargout = types(varargin)

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

if nargin
    [varargout{1:nargout}] = gui_mainfcn(gui_State, varargin{:});
else
    gui_mainfcn(gui_State, varargin{:});
end

function types_OpeningFcn(hObject, eventdata, handles, varargin)
handles.output = hObject;
guidata(hObject, handles);

function varargout = types_OutputFcn(hObject, eventdata, handles)

varargout{1} = handles.output;

function popupmenu1_Callback(hObject, eventdata, handles)

val=get(handles.popupmenu1,'value');
switch(val)
    case 2
        [s,fs] = audioread("love.mp3");
        m = s(1:end,2);
        [row,col] = size(s);
        axes(handles.axes3)
        title('original signal')

        plot(s)
        N=8;
        fc=800;
        wc = fc/(fs/2);
        [num,den] = butter(N,wc,'low');
        y = filter(num,den,m);
        axes(handles.axes4)
        plot(y)
        title('filtered signal')
        sound(y,fs)
    case 3
        [s,fs] = audioread("love.mp3");
        m = s(1:end,2);
```

```

        [row,col] = size(s);
        title('original signal')
        axes(handles.axes3)
        plot(s)
        N=8;
        fc=2000;
        wc = fc/(fs/2);
        [num,den] = butter(N,wc,'high');
        y = filter(num,den,m);
        axes(handles.axes4)
        plot(y)
        title('filtered signal')
        sound(y,fs)
    case 4
        [s,fs] = audioread("love.mp3");
        m = s(1:end,2);
        [row,col] = size(s);
        axes(handles.axes3)
        title('original signal')
        plot(s)

        fc=100;
        fc1=1000;
        Rp=3;
        Rs = 40;
        wc = fc/(fs/2);
        wc1 = fc1/(fs/2);
        [n,wn] = buttord(wc,wc1,Rp,Rs);
        [num,den] = butter(n,wn);
        y =filter(num,den,m);
        axes(handles.axes4)
        plot(y)
        title('filtered signal')
        sound(y,fs)
    case 5
        [s,fs] = audioread("love.mp3");
        m = s(1:end,2);
        [row,col] = size(s);
        axes(handles.axes3)
        title('original signal')
        plot(s)
        fc=800;
        fc1=8000;
        Rp=3;
        Rs = 40;
        wc = fc/(fs/2);
        wc1 = fc1/(fs/2);
        [n,wn] = buttord(wc,wc1,Rp,Rs);
        [num,den] = butter(n,wn,'stop');
        y =filter(num,den,m);
        axes(handles.axes4)
        plot(y)
        title('filtered signal')
        sound(y,fs)

```

end

```
function popupmenu1_CreateFcn(hObject, eventdata, handles)
if ispc && isequal(get(hObject,'BackgroundColor'),
    get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
```

```
function Order_Callback(hObject, eventdata, handles)
N=str2num(get(handles.Order,'String'));
```

```
function Order_CreateFcn(hObject, eventdata, handles)
if ispc && isequal(get(hObject,'BackgroundColor'),
    get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
```

```
function samp_Callback(hObject, eventdata, handles)
fc=str2num(get(handles.samp,'String'));
```

```
function samp_CreateFcn(hObject, eventdata, handles)
if ispc && isequal(get(hObject,'BackgroundColor'),
    get(0,'defaultUicontrolBackgroundColor'))
    set(hObject,'BackgroundColor','white');
end
```

```
function mennu_Callback(hObject, eventdata, handles)
iir_filter
close types
```

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