classdef app1 < matlab.apps.AppBase

% Properties that correspond to app components

properties (Access = public)

UIFigure matlab.ui.Figure

GridLayout matlab.ui.container.GridLayout

LeftPanel matlab.ui.container.Panel

Label matlab.ui.control.Label

Slider matlab.ui.control.Slider

Slider\_2Label matlab.ui.control.Label

Slider\_2 matlab.ui.control.Slider

text10 matlab.ui.control.Label

edit4 matlab.ui.control.EditField

edit6 matlab.ui.control.EditField

TextAreaLabel matlab.ui.control.Label

TextArea matlab.ui.control.TextArea

RightPanel matlab.ui.container.Panel

UIAxes matlab.ui.control.UIAxes

UIAxes2 matlab.ui.control.UIAxes

UIAxes3 matlab.ui.control.UIAxes

text1 matlab.ui.control.Label

text2 matlab.ui.control.Label

text3 matlab.ui.control.Label

end

% Properties that correspond to apps with auto-reflow

properties (Access = private)

onePanelWidth = 576;

end

% Callbacks that handle component events

methods (Access = private)

% Value changed function: edit4

function edit4ValueChanged(app, event)

Value = app.edit4.Value;

[hObject, eventdata, handles] = convertToGUIDECallbackArguments(app, event); %#ok<ASGLU>

global T;global N;global t;

input = str2double(get(hObject,'String'));

T=input;

t=-2\*pi/10:pi/1024:2\*pi/10;

ft=square(2\*pi\*30\*t,5\*T);

subplot(1,3,1),plot(app.UIAxes,t,ft), axis(app.UIAxes,[-5,5,-5,5])

m=-30:30;

w1=2\*pi/T;

fn=1./(pi\*m);

subplot(1,3,2),stem(app.UIAxes2,m\*w1,fn), axis(app.UIAxes2,[-15,15,-0.4,0.4])

%吉布斯

n\_max=N; %最大谐波

n=1:1:n\_max;

an=4./(n\*pi).\*sin(double(n\*pi\*T/10));

w=cos(n'\*2\*pi\*(t-T/20)); % 求中间矩阵

x=an\*w+T/5-1; %求图

subplot(1,3,3),plot(app.UIAxes3,t,x);

axis(app.UIAxes3,[-5,5,0,20])

set(handles.Slider,'Value',T) %滑动条

app.edit4.ValueChangedFcn = get(hObject,'String'); %

set(handles.edit4,'string','输入');

end

% Value changed function: edit6

function edit6ValueChanged(app, event)

% Value changing function: Slider

function SliderValueChanging(app, event)

changingValue = event.Value;

% Create GUIDE-style callback args - Added by Migration Tool

[hObject, eventdata, handles] = convertToGUIDECallbackArguments(app, event);

global T;global N;global t;

guidata(hObject,handles);

input = get(hObject,'Value');

T= input;

t=-10:0.002:10;

ft=square(2\*pi\*t,T);

subplot(1,3,1),plot(app.UIAxes,t,ft), axis(app.UIAxes,[-5,5,-5,5])

m=-30:30;

w1=2\*pi/T;

fn=1./(pi\*m);

subplot(1,3,2),stem(app.UIAxes2,m\*w1,fn), axis(app.UIAxes2,[-15,15,-0.4,0.4])

%吉布斯

n\_max=N; %最大谐波

n=1:1:n\_max;

an=4./(n\*pi).\*sin(double(n\*pi\*T/10));

w=cos(n'\*2\*pi\*(t-T/20)); % 求中间矩阵

x=an\*w+T/5-1; %求图

subplot(1,3,3), plot(app.UIAxes3,t,x);

axis(app.UIAxes3,[-5,5,0,20])

set(handles.edit4,'String',num2str(T)); %滑动条

app.Slider.Value = get(hObject,'Value'); %

end

% Value changing function: Slider\_2

function Slider\_2ValueChanging(app, event)

changingValue = event.Value;

[hObject, eventdata, handles] = convertToGUIDECallbackArguments(app, event); %#ok<ASGLU>

global T;global N;global t;

guidata(hObject,handles);

input = get(hObject,'Value');

N= input;

t=-10:0.002:10;

ft=square(2\*pi\*t,T);

subplot(1,3,1),plot(app.UIAxes,t,ft), axis(app.UIAxes,[-5,5,-5,5])

m=-30:30;

w1=2\*pi/T;

fn=1./(pi\*m);

subplot(1,3,2),stem(app.UIAxes2,m\*w1,fn), axis(app.UIAxes2,[-15,15,-0.4,0.4])

%吉布斯

n\_max=N; %最大谐波

n=1:1:n\_max;

an=4./(n\*pi).\*sin(double(n\*pi\*T/10));

w=cos(n'\*2\*pi\*(t-T/20)); % 求中间矩阵

x=an\*w+T/5-1; %求图

subplot(1,3,3), plot(app.UIAxes3,t,x);

axis(app.UIAxes3,[-5,5,0,20])

set(handles.edit6,'String',num2str(N));

app.Slider\_2.Value = get(hObject,'Value'); %

end

% Changes arrangement of the app based on UIFigure width

function updateAppLayout(app, event)

currentFigureWidth = app.UIFigure.Position(3);

if(currentFigureWidth <= app.onePanelWidth)

% Change to a 2x1 grid

app.GridLayout.RowHeight = {575, 575};

app.GridLayout.ColumnWidth = {'1x'};

app.RightPanel.Layout.Row = 2;

app.RightPanel.Layout.Column = 1;

else

% Change to a 1x2 grid

app.GridLayout.RowHeight = {'1x'};

app.GridLayout.ColumnWidth = {317, '1x'};

app.RightPanel.Layout.Row = 1;

app.RightPanel.Layout.Column = 2;

end

end

end

% Component initialization

methods (Access = private)

% Create UIFigure and components

function createComponents(app)

% Create UIFigure and hide until all components are created

app.UIFigure = uifigure('Visible', 'off');

app.UIFigure.AutoResizeChildren = 'off';

app.UIFigure.Position = [100 100 777 575];

app.UIFigure.Name = 'MATLAB App';

app.UIFigure.SizeChangedFcn = createCallbackFcn(app, @updateAppLayout, true);

% Create GridLayout

app.GridLayout = uigridlayout(app.UIFigure);

app.GridLayout.ColumnWidth = {317, '1x'};

app.GridLayout.RowHeight = {'1x'};

app.GridLayout.ColumnSpacing = 0;

app.GridLayout.RowSpacing = 0;

app.GridLayout.Padding = [0 0 0 0];

app.GridLayout.Scrollable = 'on';

% Create LeftPanel

app.LeftPanel = uipanel(app.GridLayout);

app.LeftPanel.Layout.Row = 1;

app.LeftPanel.Layout.Column = 1;

% Create Label

app.Label = uilabel(app.LeftPanel);

app.Label.HorizontalAlignment = 'right';

app.Label.Position = [76 386 29 22];

app.Label.Text = '周期';

% Create Slider

app.Slider = uislider(app.LeftPanel);

app.Slider.ValueChangingFcn = createCallbackFcn(app, @SliderValueChanging, true);

app.Slider.Position = [126 395 150 3];

% Create Slider\_2Label

app.Slider\_2Label = uilabel(app.LeftPanel);

app.Slider\_2Label.HorizontalAlignment = 'right';

app.Slider\_2Label.Position = [34 252 77 22];

app.Slider\_2Label.Text = '最大谐波次数';

% Create Slider\_2

app.Slider\_2 = uislider(app.LeftPanel);

app.Slider\_2.ValueChangingFcn = createCallbackFcn(app, @Slider\_2ValueChanging, true);

app.Slider\_2.Position = [132 261 150 3];

% Create text10

app.text10 = uilabel(app.LeftPanel);

app.text10.Tag = 'text10';

app.text10.HorizontalAlignment = 'center';

app.text10.VerticalAlignment = 'top';

app.text10.FontSize = 27;

app.text10.Position = [42 51 272 66];

app.text10.Text = '方波';

% Create edit4

app.edit4 = uieditfield(app.LeftPanel, 'text');

app.edit4.ValueChangedFcn = createCallbackFcn(app, @edit4ValueChanged, true);

app.edit4.Tag = 'edit4';

app.edit4.HorizontalAlignment = 'center';

app.edit4.FontSize = 16;

app.edit4.Position = [132 308 129 33];

% Create edit6

app.edit6 = uieditfield(app.LeftPanel, 'text');

app.edit6.ValueChangedFcn = createCallbackFcn(app, @edit6ValueChanged, true);

app.edit6.Tag = 'edit6';

app.edit6.HorizontalAlignment = 'center';

app.edit6.FontSize = 16;

app.edit6.Position = [131 163 130 33];

% Create TextAreaLabel

app.TextAreaLabel = uilabel(app.LeftPanel);

app.TextAreaLabel.HorizontalAlignment = 'right';

app.TextAreaLabel.Position = [42 495 56 22];

app.TextAreaLabel.Text = 'Text Area';

% Create TextArea

app.TextArea = uitextarea(app.LeftPanel);

app.TextArea.Position = [113 459 150 60];

app.TextArea.Value = {'bug:会弹出一个空白figure，滑动条为随机值'};

% Create RightPanel

app.RightPanel = uipanel(app.GridLayout);

app.RightPanel.Layout.Row = 1;

app.RightPanel.Layout.Column = 2;

% Create UIAxes

app.UIAxes = uiaxes(app.RightPanel);

title(app.UIAxes, 'Title')

xlabel(app.UIAxes, 'X')

ylabel(app.UIAxes, 'Y')

app.UIAxes.PlotBoxAspectRatio = [1.94444444444444 1 1];

app.UIAxes.TitleFontWeight = 'bold';

app.UIAxes.Position = [7 383 300 185];

% Create UIAxes2

app.UIAxes2 = uiaxes(app.RightPanel);

title(app.UIAxes2, 'Title')

xlabel(app.UIAxes2, 'X')

ylabel(app.UIAxes2, 'Y')

app.UIAxes2.PlotBoxAspectRatio = [1.94444444444444 1 1];

app.UIAxes2.TitleFontWeight = 'bold';

app.UIAxes2.Position = [7 190 300 185];

% Create UIAxes3

app.UIAxes3 = uiaxes(app.RightPanel);

title(app.UIAxes3, 'Title')

xlabel(app.UIAxes3, 'X')

ylabel(app.UIAxes3, 'Y')

app.UIAxes3.PlotBoxAspectRatio = [1.94444444444444 1 1];

app.UIAxes3.TitleFontWeight = 'bold';

app.UIAxes3.Position = [7 19 300 185];

% Create text1

app.text1 = uilabel(app.RightPanel);

app.text1.Tag = 'text1';

app.text1.HorizontalAlignment = 'center';

app.text1.VerticalAlignment = 'top';

app.text1.FontSize = 16;

app.text1.Position = [321 459 134 32];

app.text1.Text = '时域波形图';

% Create text2

app.text2 = uilabel(app.RightPanel);

app.text2.Tag = 'text2';

app.text2.HorizontalAlignment = 'center';

app.text2.VerticalAlignment = 'top';

app.text2.FontSize = 16;

app.text2.Position = [321 276 134 32];

app.text2.Text = '频谱图';

% Create text3

app.text3 = uilabel(app.RightPanel);

app.text3.Tag = 'text3';

app.text3.HorizontalAlignment = 'center';

app.text3.VerticalAlignment = 'top';

app.text3.FontSize = 16;

app.text3.Position = [321 77 134 32];

app.text3.Text = '吉布斯现象';

% Show the figure after all components are created

app.UIFigure.Visible = 'on';

end

end

% App creation and deletion

methods (Access = public)

% Construct app

function app = app1

% Create UIFigure and components

createComponents(app)

% Register the app with App Designer

registerApp(app, app.UIFigure)

if nargout == 0

clear app

end

end

% Code that executes before app deletion

function delete(app)

% Delete UIFigure when app is deleted

delete(app.UIFigure)

end

end

end