Project Report (Software)
Engineering Economics

Ali Naghiloo 40010093

Engineering Economics

Dr. Nozarian

1403/03/20

1928

K. N. Toosi

University of Technology

Faculty of Electrical Engineering

Designed By:

- **هدف از پروژه:** توی این پروژه، من یک اپ خفن درست کردم که می‌تونه کلی محاسبات سخت اقتصاد مهندسی رو خیلی راحت انجام بده. فرض کنید می‌خواهید NPW یا NEUA یا NFW رو حساب کنید، فقط کافیه چند تا عدد وارد کنید و بزنید بره! حتی می‌تونید نمودار Cash Flow رو هم ببینید. این اپ به مهندسین اقتصاد(و حتی مهندسای دیگه) کمک می‌کنه که بتونند تصمیمات بهتری بگیرند و با داده‌ها بهتر بازی کنند. پس اگه دوست دارید کارهای سخت رو ساده کنید، این اپ گرافیکی دقیقا برای شماست!

- **معرفی و توضیح قسمت های مختلف برنامه و کد:**

از اونجایی که هر چیزی اول ظاهرش مهمه و تو چشم میزنه، ابتدا به معرفی لوگوی اپلیکیشن می پردازم چون زحمت زیادی بابتش کشیدم و با Adobe Photoshop (یعنی ایشون 👉 [Ps]) طراحی کردم و شد چیزی که پایین میبینید:
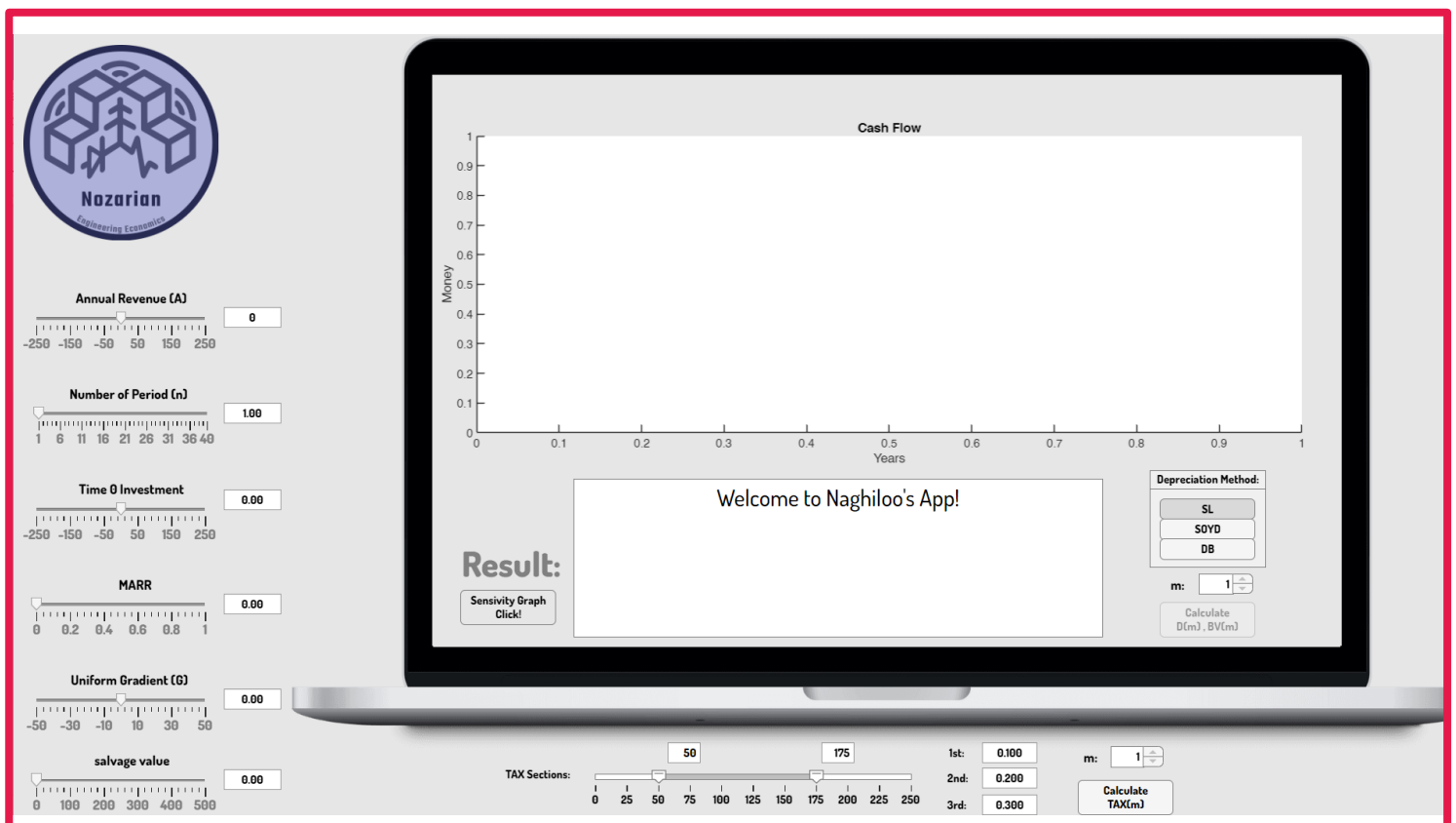

تصویر(۱) لگوی برنامه
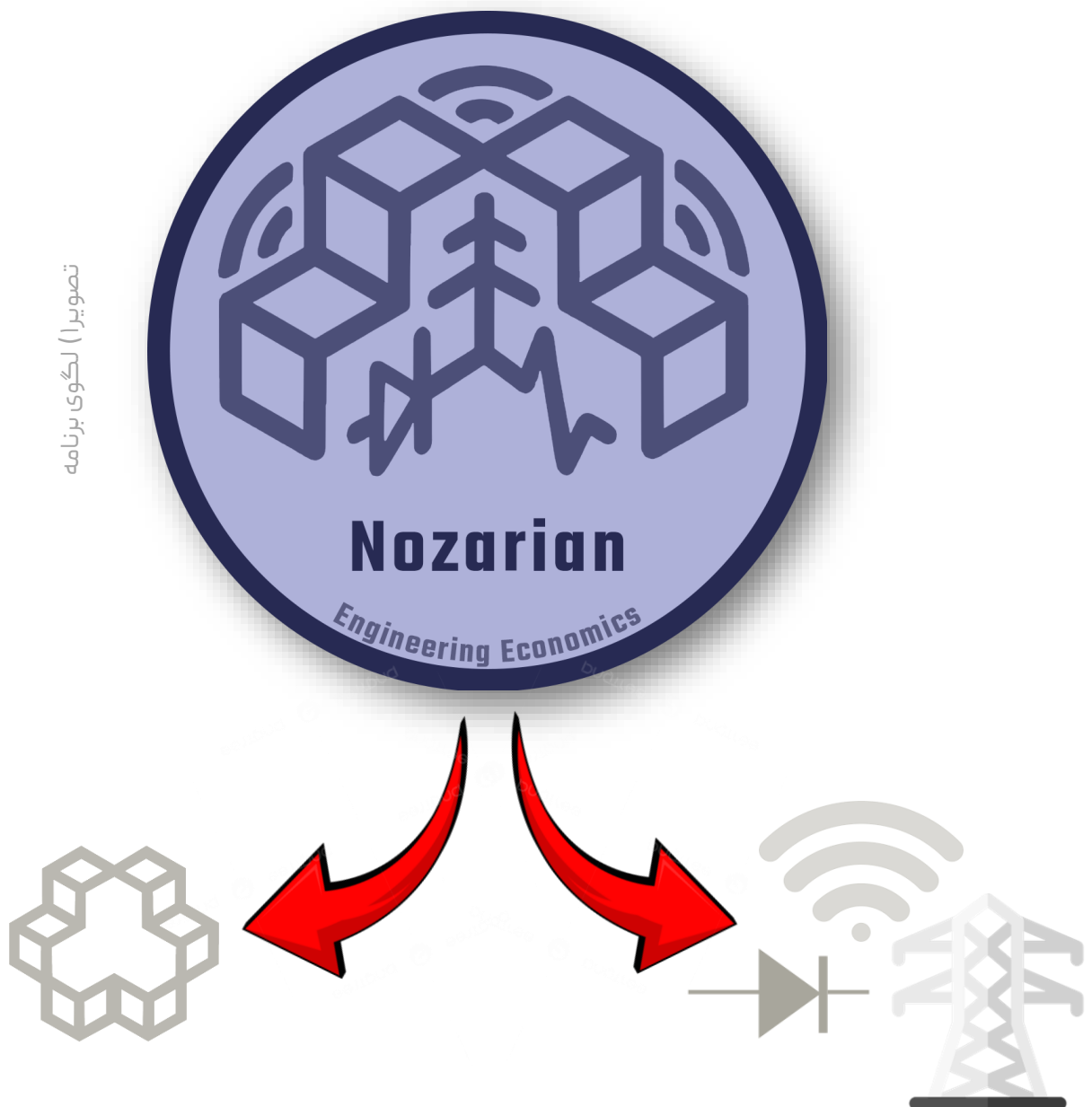
ترکیب این دو تا شد یعنی ادوات برقی + لوگوی خواجه نصیر!

- **معرفی رابط کاربری گرافیکی یا به اصطلاح همون GUI:**

در ابتدا برنامه موقع ران شدن یک صفحه لودینگ با همان لگوی خودمان را دارد و سپس بعد از لحظاتی وارد محیط اصلی میشود و همه ی این توضیحات من در تصاویر زیر مشخص است.
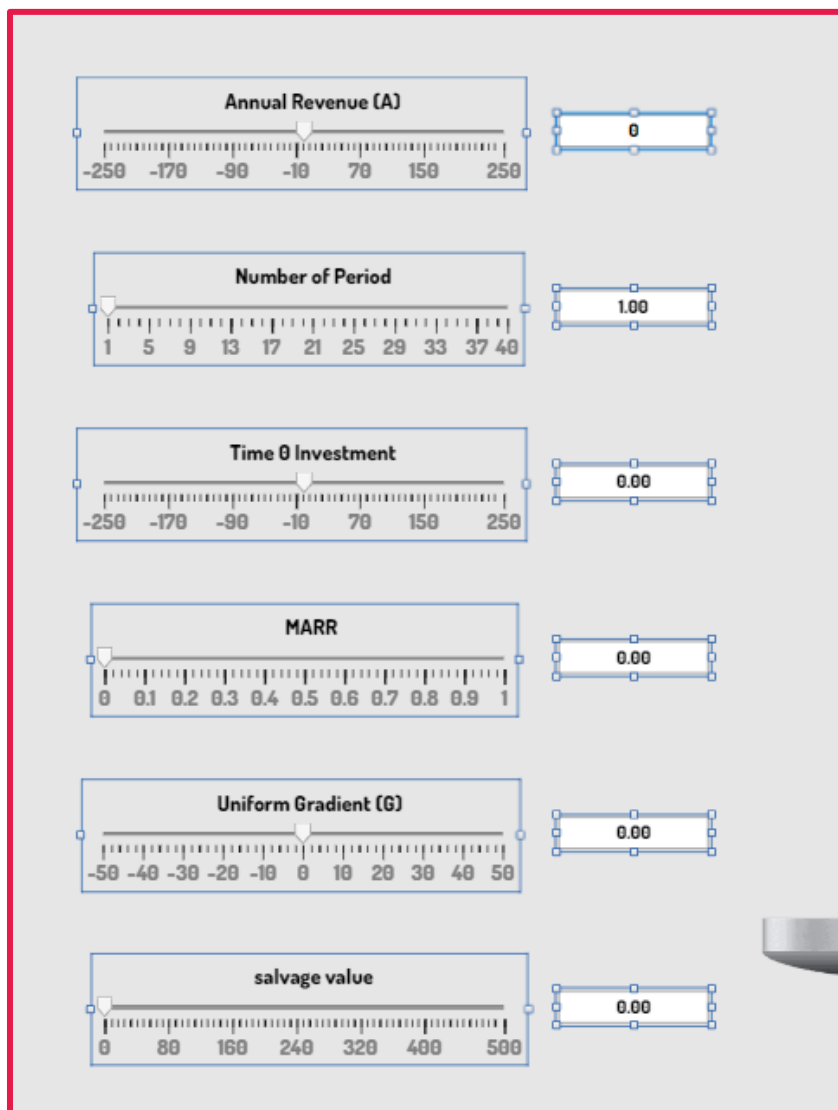

تصویر۲) صفحه لودینگ

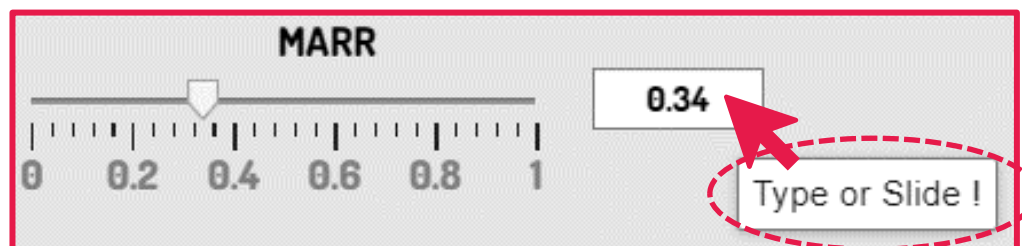تصویر۳) GUI

در تصویر ۴ یعنی تصویر زیر، ما Slide Bar ها و Edit Text & Number Field رو میبینیم:

تصویر۴) المان های مقدار دهی

من حتی یک Tool Tip هم برای همه المان ها نوشتم که وقتی موس رو روی آنها بیاوریم یک راهنمایی میکند که چگونه از آن ابزار استفاده کنیم: (این ها ریزه کاری های یک رابطه کاربری گرافیکی خوب است)

تصویر۵) راهنمای ابزار

- **یک نمونه بازی با وردی ها و گرفتن خروجی و نیز پلات جریان مالی به صورت آنی و در لحظه:**

مشاهده میشود که از روش های گوناگون نظیر NPW و NFW و NEUA به ما شاخص هایی تحویل میدهد و نیز نمودار Cash flow را هم رسم میکند و نکته مهم این است که چون نمودار ها و نتایج را در لحظه و بدون فشردن کلیدی میدهد، امکان Tunning به ما میدهد و میتوانیم تغییرات متناظر خروجی را با ورودی ها را احساس کنیم.

تصویر۶) خروجی گرفتن و تست اپلیکیشن برای روش های اقتصاد مهندسی

- **مالیات (Tax):**

حتی این نرم افزار میزان مالیاتی که باید در سال m پرداخت شود را در کسری از ثانیه محاسبه میکند:
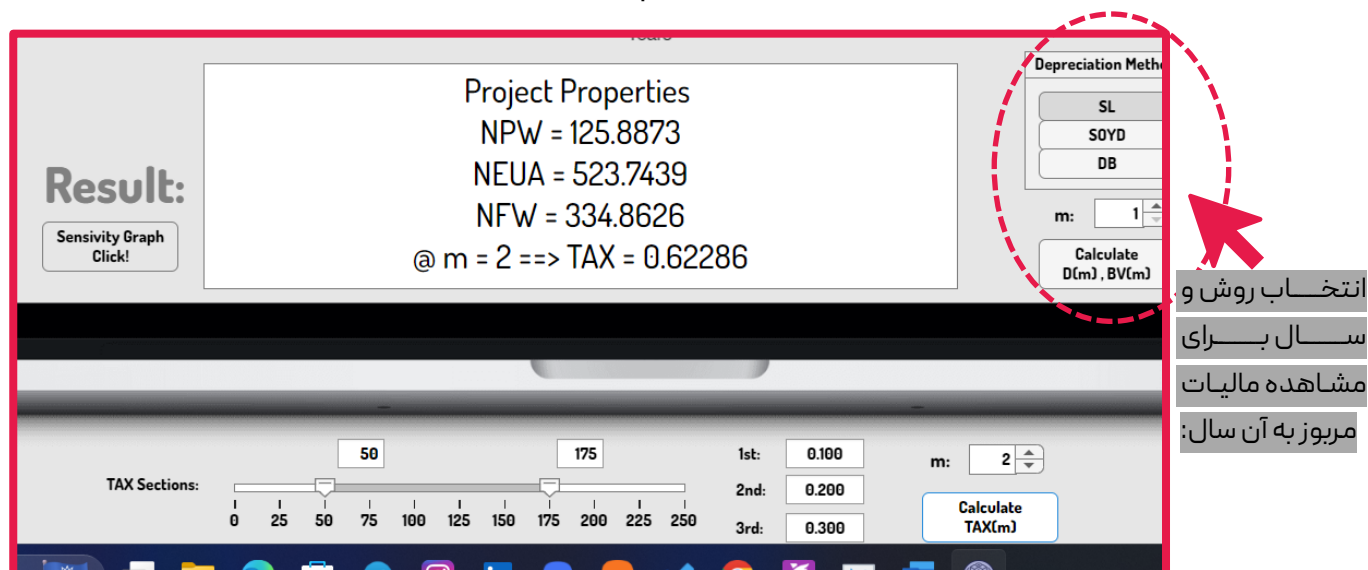
تصویر۷) خروجی گرفتن و تست اپلیکیشن برای مالیات

- **استهلاک (Depreciation):**

حتی این نرم افزار میزان استهلاکی که در سال m دچار میشود یعنی D_m و همچنین ارزش دفتری در آن سال یعنی BV_m را با هر سه روش یعنی SL، SOYD و DB در کسری از ثانیه محاسبه میکند:
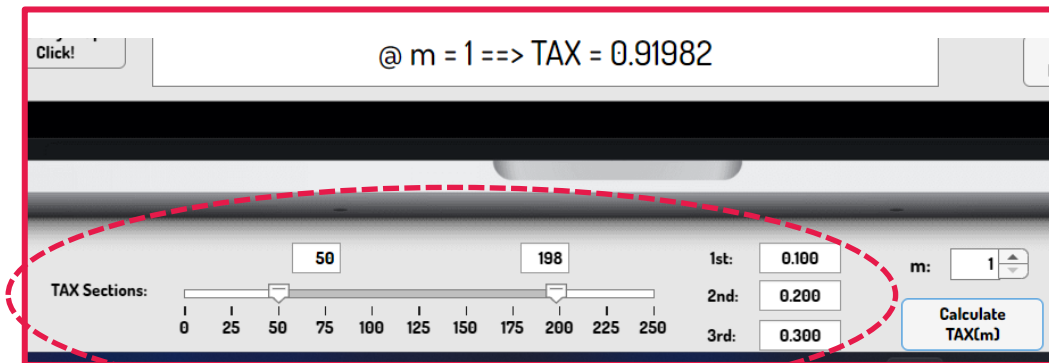
ما دارای سه بازه برای سه قشر جامعه هستیم که هر بخش حقوق افراد درصد مالیات مختلفی را دارد که مثلا در اینجا در این مثال خاص ما بازه های مالیاتی را به زیر ۵۰ میلیون حقوق، بین ۵۰ تا ۱۹۸ میلیون حقوق و بالای ۱۹۸ میلیون حقوق و درصد مالیات هر بخش را وارد کرده (در این مثال خاص در عکس ۱۰ درصد برای بازه اول حقوقی، ۲۰ درصد برای بازه وسط و ۳۰ درصد برای بیش از ۱۹۸ میلیون حقوق) ودکمه را فشار میدهیم :

- **منحنی حساسیت (Sensivity Graph):**
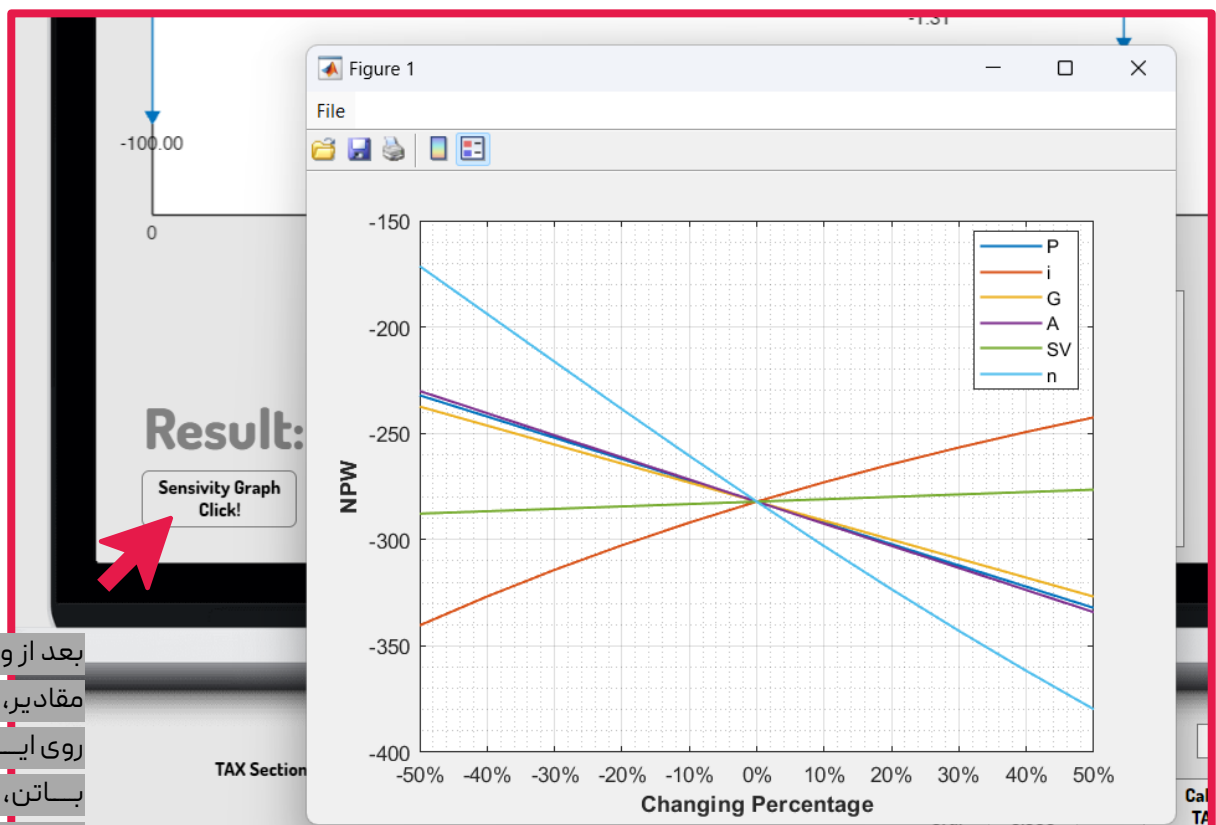
بعد از وارد کردن مقادیر، با کلیک روی ایـن پـوش بـاتن، میتـوان گراف حساسیت :

❖ لطفا حتما ویدیو تست نرم افزار را ببنید، زیرا که در آن صورت بهتر متوجه توضیحات میشوید!

❖ اگر ویدیو را ندارید از لینک زیر دانلود کنید:

https://drive.google.com/file/d/1PfA476dLSVv43Ltc4o6APNZMNW6Ic-DI/view?usp=sharing

❖ کد نزدیک به ۹۹۷ خط شد که بسیار وقت گیر بود و در صفحات بعد با فونت بسیار ریز قرار دادم!!!!

```matlab
classdef app1 < matlab.apps.AppBase

    % Properties that correspond to app components
    properties (Access = public)
        EEProjectAliNaghilooUIFigure    matlab.ui.Figure
        SensivityGraphClickButton       matlab.ui.control.Button
        EditField_Range_2               matlab.ui.control.NumericEditField
        EditField_Range                 matlab.ui.control.NumericEditField
        mSpinner_2                      matlab.ui.control.Spinner
        mSpinner_2Label                 matlab.ui.control.Label
        ButtonTX                        matlab.ui.control.Button
        rdEditField                     matlab.ui.control.NumericEditField
        rdEditFieldLabel                matlab.ui.control.Label
        ndEditField                     matlab.ui.control.NumericEditField
        ndEditFieldLabel                matlab.ui.control.Label
        stEditField                     matlab.ui.control.NumericEditField
        stEditFieldLabel                matlab.ui.control.Label
        range                           matlab.ui.control.RangeSlider
        TAXSectionsSliderLabel          matlab.ui.control.Label
        EditField5                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider5        matlab.ui.control.Slider
        salvagevalueLabel               matlab.ui.control.Label
        EditField4                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider4        matlab.ui.control.Slider
        UniformGradientGLabel           matlab.ui.control.Label
        CalculateDmBVmButton            matlab.ui.control.Button
        mSpinner                        matlab.ui.control.Spinner
        mSpinnerLabel                   matlab.ui.control.Label
        EditField3                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider3        matlab.ui.control.Slider
        ResultTextAreaLabel             matlab.ui.control.Label
        MARRLabel                       matlab.ui.control.Label
        DepreciationMethodButtonGroup   matlab.ui.container.ButtonGroup
        DBButton                        matlab.ui.control.ToggleButton
        SOYDButton                      matlab.ui.control.ToggleButton
        SLButton                        matlab.ui.control.ToggleButton
        ResultTextArea                  matlab.ui.control.TextArea
        EditField2                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider2        matlab.ui.control.Slider
        Time0InvestmentLabel            matlab.ui.control.Label
        EditField1                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider1        matlab.ui.control.Slider
        NumberOfPeriodLabel             matlab.ui.control.Label
        EditField0                      matlab.ui.control.NumericEditField
        CashFlowPerPeriodSlider0        matlab.ui.control.Slider
        AnnualRevenueLabel              matlab.ui.control.Label
        Image2                          matlab.ui.control.Image
        Image                           matlab.ui.control.Image
        UIAxes                          matlab.ui.control.UIAxes
    end


    properties (Access = public)
        index = ' ';

        initial_investment = zeros(1,10);
        A ;
        G ;
        years ;
        MARR ;
        salvage_value;
```

```matlab
        NPW = ones(1,10);
        NFW = ones(1,10);
        NEUA = ones(1,10);

%---

        DMethod = 1;
        m = 1 ;

        D;
        BV;

%-----

        L=50;
        U=175;
        L1=0.1;
        L2=0.2;
        L3=0.3;
        m2 = 1;

        eachyear = 0;

        flag=0;



    end

    methods (Access = private)

        function  [NPW,NEUA,NFW]=calc(app,initial_investment, A, G, MARR, years, salvage_value)
            NPW = -initial_investment;
            for i = 1:years
                NPW = NPW + (A + G .* (i - 1)) ./ ((1 + MARR) .^ i);
            end
            NPW = NPW + salvage_value ./ ((1 + MARR) .^ years);

            NEUA = NPW * ((1 + MARR) ^ years - 1) / (MARR * (1 + MARR) ^ years);

            NFW = NPW * (1 + MARR) ^ years;


        end

        function Cashfplot(app,years,A,G,init_investment,SV)

        CFlowAmounts = zeros(1,years);
        CFlowDates = ones(1,years);

        for i = 0:years
            CFlowDates(i+1) = i;
        end
        CFlowAmounts(1) = init_investment;
        CFlowAmounts(2) = A;
        CFlowAmounts(years+1) = A+G+SV;
        for i = 3:years
            CFlowAmounts(i) = A + (i-2).*G;
        end
                % Plot the cash flow diagram
        cla(app.UIAxes)
        cfplot(app.UIAxes,CFlowDates, CFlowAmounts,'ShowAmnt','all','datespacing',0.5);

        end
```

```matlab
function [D,BV] = Depreciation(app,P,SV,n,m)
    if(app.DMethod == 1)
        D = (P-SV)./n;
        BV = P-m.*D;
    elseif(app.DMethod == 2)
        D = ((n-m+1)./(0.5.*n.*(n+1))).*(P-SV);
        BV = P - ((m.*(n-0.5.*m+0.5)./(0.5.*n.*(n+1)))).*(P-SV);
    else
        d = 1 - (SV./P).^(1./n);
        D = d.*P.*(1-d).^(m-1);
        BV = P.*(1-d).^m;
    end
end


        function CFlowAmounts = Cashf(app,years,A,G,init_investment,SV)

CFlowAmounts = zeros(1,years);
CFlowDates = ones(1,years);

for i = 0:years
    CFlowDates(i+1) = i;
end
CFlowAmounts(1) = init_investment;
CFlowAmounts(2) = A;
CFlowAmounts(years+1) = A+G+SV;
for i = 3:years
    CFlowAmounts(i) = A + (i-2).*G;
end
        % Plot the cash flow diagram
% cla(app.UIAxes)
% cfplot(app.UIAxes,CFlowDates, CFlowAmounts,'ShowAmnt','all','datespacing',0.5);

end




function results = TXX(app,L,U,L1,L2,L3,IT)
    if(IT < 0); results=0;
    elseif(IT <= L); results=L1.*IT;
    elseif(IT <= U); results=L.*L1 + (IT-L).*L2;
    else; results=L.*L1 + (U-L).*L2 + (IT-U).*L3;
    % elseif(U < IT); results=L.*L1 + (U-L).*L2 + (IT-U).*L3;
    end

end
end



% Callbacks that handle component events
methods (Access = private)

    % Value changing function: CashFlowPerPeriodSlider0
    function CashFlowPerPeriodSlider0ValueChanging(app, event)
        changingValue = event.Value;
        app.EditField0.Value = changingValue;
                app.initial_investment = app.EditField2.Value;
app.A = app.EditField0.Value;
app.G = app.EditField4.Value;
app.years = app.EditField1.Value;
app.MARR = app.EditField3.Value;
app.salvage_value = app.EditField5.Value;
```

```matlab
            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};

        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changing function: CashFlowPerPeriodSlider1
        function CashFlowPerPeriodSlider1ValueChanging(app, event)
            changingValue = event.Value;
            app.EditField1.Value = floor(changingValue);
                    app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
        app.mSpinner.Limits = [1 app.years];
        app.mSpinner_2.Limits = [1 app.years];
                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changing function: CashFlowPerPeriodSlider2
        function CashFlowPerPeriodSlider2ValueChanging(app, event)
            changingValue = event.Value;
            app.EditField2.Value = changingValue;
                    app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
if(abs(app.initial_investment) > app.salvage_value && 0 > app.initial_investment &&
app.salvage_value > 0);app.CalculateDmBVmButton.Enable = 'on';app.ButtonTX.Enable = 'on';
else;app.CalculateDmBVmButton.Enable = 'off';app.ButtonTX.Enable = 'off';end
                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changing function: CashFlowPerPeriodSlider3
        function CashFlowPerPeriodSlider3ValueChanging(app, event)
            changingValue = event.Value;
            app.EditField3.Value = changingValue;
                    app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;

                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
```

```matlab
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW = 
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changing function: CashFlowPerPeriodSlider4
        function CashFlowPerPeriodSlider4ValueChanging(app, event)
            changingValue = event.Value;
            app.EditField4.Value = changingValue;
                    app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;



                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR, 
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW = 
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changing function: CashFlowPerPeriodSlider5
        function CashFlowPerPeriodSlider5ValueChanging(app, event)
            changingValue = event.Value;
            app.EditField5.Value = changingValue;
                    app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
if(abs(app.initial_investment) > app.salvage_value && 0 > app.initial_investment && 
app.salvage_value > 0);app.CalculateDmBVmButton.Enable = 'on';app.ButtonTX.Enable = 'on';
else;app.CalculateDmBVmButton.Enable = 'off';app.ButtonTX.Enable = 'off';end
                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR, 
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW = 
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changed function: EditField0
        function EditField0ValueChanged(app, event)
            value = app.EditField0.Value;
            app.CashFlowPerPeriodSlider0.Value = value;
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;



                [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR, 
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW = 
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
```

```matlab
        end

        % Value changed function: EditField1
        function EditField1ValueChanged(app, event)
            value = app.EditField1.Value;
            app.CashFlowPerPeriodSlider1.Value = value;
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
app.mSpinner.Limits = [1 app.years];
app.mSpinner_2.Limits = [1 app.years];
            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changed function: EditField2
        function EditField2ValueChanged(app, event)
            value = app.EditField2.Value;
            app.CashFlowPerPeriodSlider2.Value = value;
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
if(abs(app.initial_investment) > app.salvage_value && 0 > app.initial_investment &&
app.salvage_value > 0);app.CalculateDmBVmButton.Enable = 'on';app.ButtonTX.Enable = 'on';
else;app.CalculateDmBVmButton.Enable = 'off';app.ButtonTX.Enable = 'off';end
            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changed function: EditField3
        function EditField3ValueChanged(app, event)
            value = app.EditField3.Value;
            app.CashFlowPerPeriodSlider3.Value = min(value,1);
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;


            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changed function: EditField4
        function EditField4ValueChanged(app, event)
            value = app.EditField4.Value;
```

```matlab
            app.CashFlowPerPeriodSlider4.Value = value;
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;


            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Value changed function: EditField5
        function EditField5ValueChanged(app, event)
            value = app.EditField5.Value;
            app.CashFlowPerPeriodSlider5.Value = value;
        app.initial_investment = app.EditField2.Value;
        app.A = app.EditField0.Value;
        app.G = app.EditField4.Value;
        app.years = app.EditField1.Value;
        app.MARR = app.EditField3.Value;
        app.salvage_value = app.EditField5.Value;
if(abs(app.initial_investment) > app.salvage_value && 0 > app.initial_investment &&
app.salvage_value > 0);app.CalculateDmBVmButton.Enable = 'on';app.ButtonTX.Enable = 'on';
else;app.CalculateDmBVmButton.Enable = 'off';app.ButtonTX.Enable = 'off';end
            [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)
        end

        % Callback function
        function SelectDropDownValueChanged(app, event)
%         value = app.SelectDropDown.Value;
%         switch value
%             case 'Project 1'
%                 app.index = 1;
%             case 'Project 2'
%                 app.index = 2;
%             case 'Project 3'
%                 app.index = 3;
%             case 'Project 4'
%                 app.index = 4;
%             case 'Project 5'
%                 app.index = 5;
%             case 'Project 6'
%                 app.index = 6;
%             case 'Project 7'
%                 app.index = 7;
%             case 'Project 8'
%                 app.index = 8;
%             case 'Project 9'
%                 app.index = 9;
%             case 'Project 10'
%                 app.index = 10;
%         end
%
```

```matlab
        % app.initial_investment = app.EditField2.Value;
        % app.A = app.EditField0.Value;
        % app.G = app.EditField4.Value;
        % app.years = app.EditField1.Value;
        % app.MARR = app.EditField3.Value;
        % app.salvage_value = app.EditField5.Value;
        %
        % app.ResultTextArea.Value = {['Project',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)]};
        % % [app.NPW,app.NEUA,app.NFW]=calc(app,app.initial_investment, app.A, app.G, app.MARR,
app.years, app.salvage_value);
        % Cashfplot(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value)

        end

        % Selection changed function: DepreciationMethodButtonGroup
        function DepreciationMethodButtonGroupSelectionChanged(app, event)
            selectedButton = app.DepreciationMethodButtonGroup.SelectedObject;
            if (selectedButton == app.SLButton); app.DMethod=1; elseif(selectedButton ==
app.SOYDButton); app.DMethod=2;else;app.DMethod=3;end
        end

        % Value changed function: mSpinner
        function mSpinnerValueChanged(app, event)
            value = app.mSpinner.Value;
            app.m = value;
        end

        % Button pushed function: CalculateDmBVmButton
        function CalculateDmBVmButtonPushed(app, event)
            [app.D,app.BV] =
Depreciation(app,abs(app.initial_investment),app.salvage_value,app.years,app.m);
            app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)];['@ m =
',num2str(app.m),' ==>',' D = ',num2str(app.D),'    BV = ',num2str(app.BV)]};
        end

        % Value changing function: range
        function rangeValueChanging(app, event)
            changingValue = event.Value;
            app.EditField_Range.Value = changingValue(1);
            app.EditField_Range_2.Value = changingValue(2);
            app.L = changingValue(1);
            app.U = changingValue(2);
        end

        % Value changed function: EditField_Range
        function EditField_RangeValueChanged(app, event)
            value = app.EditField_Range.Value;
            app.range.Value(1) = value;
            app.L = value;
        end

        % Value changed function: EditField_Range_2
        function EditField_Range_2ValueChanged(app, event)
            value = app.EditField_Range_2.Value;
            app.range.Value(2) = value;
            app.U = value;
        end

        % Value changed function: stEditField
        function stEditFieldValueChanged(app, event)
            value = app.stEditField.Value;
```

```matlab
            app.L1=value;
        end

        % Value changed function: ndEditField
        function ndEditFieldValueChanged(app, event)
            value = app.ndEditField.Value;
             app.L2=value;
        end

        % Value changed function: rdEditField
        function rdEditFieldValueChanged(app, event)
            value = app.rdEditField.Value;
             app.L3=value;
        end

        % Value changed function: mSpinner_2
        function mSpinner_2ValueChanged(app, event)
            value = app.mSpinner_2.Value;
            app.m2 = value;
        end

        % Button pushed function: ButtonTX
        function ButtonTXPushed(app, event)
            app.eachyear =
Cashf(app,app.years,app.A,app.G,app.initial_investment,app.salvage_value);
            app.eachyear(app.years+1) = app.eachyear(app.years+1)-app.salvage_value;
            [app.D,app.BV] =
Depreciation(app,abs(app.initial_investment),app.salvage_value,app.years,app.m2);
            app.eachyear(app.m2+1) = app.eachyear(app.m2+1) - app.D;
            results = TXX(app,app.L,app.U,app.L1,app.L2,app.L3,app.eachyear(app.m2+1));

            app.ResultTextArea.Value = {['Project Properties',num2str(app.index)]; ['NPW =
',num2str(app.NPW)];['NEUA = ',num2str(app.NEUA)]; ['NFW = ',num2str(app.NFW)];['@ m =
',num2str(app.m2),' ==>',' TAX = ',num2str(results)]};


        end

        % Button pushed function: SensivityGraphClickButton
        function SensivityGraphClickButtonPushed(app, event)
% P/A Factor:
function r = PA(i, n);r = ((1+i).^n - 1)./(i.*(1+i).^n);end

% P/G Factor:
function r = PG(i, n);r = (((1 + i).^n - i.*n - 1) ./ (i.^2 .* (1 + i).^n));end

% P/F Factor:
function r = PF(i, n);r = 1./(1 + i).^n;end

% NPW function:
            function r = NPW_f(P, G, i, A, SV, n)
    r = P + A.*PA(i,n) + G.*PG(i,n) + SV.*PF(i, n);
end

Percentage = [-50:10:+50];
figure(1);

% Initial values
P_base = app.initial_investment+0.00000001;
i_base = app.MARR+0.000000001 ;
G_base = app.G+0.000000001;

A_base = app.A+0.000000001;
```

```matlab
SV_base = app.salvage_value+0.000000001;
n_base = app.years+0.000000001;

% Plot for varying P
P_varied = P_base * (1 + Percentage/100);
NPW_P = NPW_f(P_varied, G_base, i_base, A_base, SV_base, n_base);
plot(Percentage, NPW_P, 'LineWidth', 1.2);
hold on;

% Plot for varying i
i_varied = i_base * (1 + Percentage/100);
NPW_i = NPW_f(P_base, G_base, i_varied, A_base, SV_base, n_base);
plot(Percentage, NPW_i, 'LineWidth', 1.2);
hold on;

% Plot for varying G
G_varied = G_base * (1 + Percentage/100);
NPW_G = NPW_f(P_base, G_varied, i_base, A_base, SV_base, n_base);
plot(Percentage, NPW_G, 'LineWidth', 1.2);
hold on;

% Plot for varying A
A_varied = A_base * (1 + Percentage/100);
NPW_A = NPW_f(P_base, G_base, i_base, A_varied, SV_base, n_base);
plot(Percentage, NPW_A, 'LineWidth', 1.2);
hold on;

% Plot for varying SV
SV_varied = SV_base * (1 + Percentage/100);
NPW_SV = NPW_f(P_base, G_base, i_base, A_base, SV_varied, n_base);
plot(Percentage, NPW_SV, 'LineWidth', 1.2);
hold on;

% Plot for varying n
n_varied = n_base * (1 + Percentage/100);
NPW_n = NPW_f(P_base, G_base, i_base, A_base, SV_base, n_varied);
plot(Percentage, NPW_n, 'LineWidth', 1.2);
hold on;

ylabel('NPW', 'FontWeight', 'bold');
xlabel('Changing Percentage', 'FontWeight', 'bold');
xtickformat("percentage");
legend({'P','i','G','A','SV','n'}, 'Location', 'best');
grid on; grid minor;


        end
    end

    % Component initialization
    methods (Access = private)

        % Create UIFigure and components
        function createComponents(app)

            % Get the file path for locating images
            pathToMLAPP = fileparts(mfilename('fullpath'));

            % Create EEProjectAliNaghilooUIFigure and hide until all components are created
            app.EEProjectAliNaghilooUIFigure = uifigure('Visible', 'off');
            app.EEProjectAliNaghilooUIFigure.Color = [0.902 0.902 0.902];
            app.EEProjectAliNaghilooUIFigure.Position = [40 40 1920 1080];
```

```matlab
            app.EEProjectAliNaghilooUIFigure.Name = 'EE Project @ Ali Naghiloo';
            app.EEProjectAliNaghilooUIFigure.Icon = fullfile(pathToMLAPP, 'Engineering
Economics.png');

            % Create UIAxes
            app.UIAxes = uiaxes(app.EEProjectAliNaghilooUIFigure);
            title(app.UIAxes, 'Cash Flow')
            xlabel(app.UIAxes, 'Years')
            ylabel(app.UIAxes, 'Money')
            app.UIAxes.NextPlot = 'replaceall';
            app.UIAxes.Position = [753 503 927 384];

            % Create Image
            app.Image = uiimage(app.EEProjectAliNaghilooUIFigure);
            app.Image.Position = [252 784 204 211];
            app.Image.ImageSource = fullfile(pathToMLAPP, 'Engineering Economics.png');

            % Create Image2
            app.Image2 = uiimage(app.EEProjectAliNaghilooUIFigure);
            app.Image2.Position = [596 118 1245 781];
            app.Image2.ImageSource = fullfile(pathToMLAPP, 'modern-laptop-mockup-template-
46i8fst48bo1rb5w-46i8fst48bo1rb5w.png');

            % Create AnnualRevenueLabel
            app.AnnualRevenueLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.AnnualRevenueLabel.HorizontalAlignment = 'right';
            app.AnnualRevenueLabel.FontName = 'Dosis ExtraBold';
            app.AnnualRevenueLabel.FontSize = 14;
            app.AnnualRevenueLabel.FontWeight = 'bold';
            app.AnnualRevenueLabel.Position = [237 694 121 22];
            app.AnnualRevenueLabel.Text = 'Annual Revenue (A)';

            % Create CashFlowPerPeriodSlider0
            app.CashFlowPerPeriodSlider0 = uislider(app.EEProjectAliNaghilooUIFigure);
            app.CashFlowPerPeriodSlider0.Limits = [-250 250];
            app.CashFlowPerPeriodSlider0.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider0ValueChanging, true);
            app.CashFlowPerPeriodSlider0.FontName = 'Dosis ExtraBold';
            app.CashFlowPerPeriodSlider0.FontSize = 14;
            app.CashFlowPerPeriodSlider0.FontColor = [0.502 0.502 0.502];
            app.CashFlowPerPeriodSlider0.Tooltip = {'Slide me !'};
            app.CashFlowPerPeriodSlider0.Position = [162 682 264 3];

            % Create EditField0
            app.EditField0 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.EditField0.ValueDisplayFormat = '%.0f';
            app.EditField0.ValueChangedFcn = createCallbackFcn(app, @EditField0ValueChanged, true);
            app.EditField0.HorizontalAlignment = 'center';
            app.EditField0.FontName = 'Dosis ExtraBold';
            app.EditField0.Position = [462 673 100 22];

            % Create NumberOfPeriodLabel
            app.NumberOfPeriodLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.NumberOfPeriodLabel.HorizontalAlignment = 'right';
            app.NumberOfPeriodLabel.FontName = 'Dosis ExtraBold';
            app.NumberOfPeriodLabel.FontSize = 14;
            app.NumberOfPeriodLabel.FontWeight = 'bold';
            app.NumberOfPeriodLabel.Position = [224 578 128 22];
            app.NumberOfPeriodLabel.Text = 'Number of Period (n)';

            % Create CashFlowPerPeriodSlider1
            app.CashFlowPerPeriodSlider1 = uislider(app.EEProjectAliNaghilooUIFigure);
            app.CashFlowPerPeriodSlider1.Limits = [1 40];
```

```
            app.CashFlowPerPeriodSlider1.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider1ValueChanging, true);
            app.CashFlowPerPeriodSlider1.MinorTicks = [1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40];
            app.CashFlowPerPeriodSlider1.FontName = 'Dosis ExtraBold';
            app.CashFlowPerPeriodSlider1.FontSize = 14;
            app.CashFlowPerPeriodSlider1.FontColor = [0.502 0.502 0.502];
            app.CashFlowPerPeriodSlider1.Tooltip = {'Slide me !'};
            app.CashFlowPerPeriodSlider1.Position = [164 566 264 3];
            app.CashFlowPerPeriodSlider1.Value = 1;

            % Create EditField1
            app.EditField1 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.EditField1.ValueDisplayFormat = '%.2f';
            app.EditField1.ValueChangedFcn = createCallbackFcn(app, @EditField1ValueChanged, true);
            app.EditField1.HorizontalAlignment = 'center';
            app.EditField1.FontName = 'Dosis ExtraBold';
            app.EditField1.Tooltip = {'Type or Slide !'};
            app.EditField1.Position = [462 557 100 22];
            app.EditField1.Value = 1;

            % Create Time0InvestmentLabel
            app.Time0InvestmentLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.Time0InvestmentLabel.HorizontalAlignment = 'right';
            app.Time0InvestmentLabel.FontName = 'Dosis ExtraBold';
            app.Time0InvestmentLabel.FontSize = 14;
            app.Time0InvestmentLabel.FontWeight = 'bold';
            app.Time0InvestmentLabel.Position = [240 462 115 22];
            app.Time0InvestmentLabel.Text = 'Time 0 Investment';

            % Create CashFlowPerPeriodSlider2
            app.CashFlowPerPeriodSlider2 = uislider(app.EEProjectAliNaghilooUIFigure);
            app.CashFlowPerPeriodSlider2.Limits = [-250 250];
            app.CashFlowPerPeriodSlider2.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider2ValueChanging, true);
            app.CashFlowPerPeriodSlider2.FontName = 'Dosis ExtraBold';
            app.CashFlowPerPeriodSlider2.FontSize = 14;
            app.CashFlowPerPeriodSlider2.FontColor = [0.502 0.502 0.502];
            app.CashFlowPerPeriodSlider2.Tooltip = {'Slide me !'};
            app.CashFlowPerPeriodSlider2.Position = [162 450 264 3];

            % Create EditField2
            app.EditField2 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.EditField2.ValueDisplayFormat = '%.2f';
            app.EditField2.ValueChangedFcn = createCallbackFcn(app, @EditField2ValueChanged, true);
            app.EditField2.HorizontalAlignment = 'center';
            app.EditField2.FontName = 'Dosis ExtraBold';
            app.EditField2.Tooltip = {'Type or Slide !'};
            app.EditField2.Position = [462 441 100 22];

            % Create ResultTextArea
            app.ResultTextArea = uitextarea(app.EEProjectAliNaghilooUIFigure);
            app.ResultTextArea.HorizontalAlignment = 'center';
            app.ResultTextArea.FontName = 'Dosis Medium';
            app.ResultTextArea.FontSize = 24;
            app.ResultTextArea.Position = [895 301 562 182];
            app.ResultTextArea.Value = {'Welcome to Naghiloo''s App!'};

            % Create DepreciationMethodButtonGroup
            app.DepreciationMethodButtonGroup = uibuttongroup(app.EEProjectAliNaghilooUIFigure);
            app.DepreciationMethodButtonGroup.SelectionChangedFcn = createCallbackFcn(app,
@DepreciationMethodButtonGroupSelectionChanged, true);
            app.DepreciationMethodButtonGroup.TitlePosition = 'centertop';
```

```matlab
app.DepreciationMethodButtonGroup.Title = 'Depreciation Method:';
app.DepreciationMethodButtonGroup.FontName = 'Dosis ExtraBold';
app.DepreciationMethodButtonGroup.Position = [1510 379 123 104];

% Create SLButton
app.SLButton = uitogglebutton(app.DepreciationMethodButtonGroup);
app.SLButton.Tooltip = {'Strait Line'};
app.SLButton.Text = 'SL';
app.SLButton.FontName = 'Dosis ExtraBold';
app.SLButton.Position = [11 51 100 22];
app.SLButton.Value = true;

% Create SOYDButton
app.SOYDButton = uitogglebutton(app.DepreciationMethodButtonGroup);
app.SOYDButton.Tooltip = {'Some Of The Years Digit'};
app.SOYDButton.Text = 'SOYD';
app.SOYDButton.FontName = 'Dosis ExtraBold';
app.SOYDButton.Position = [11 30 100 22];

% Create DBButton
app.DBButton = uitogglebutton(app.DepreciationMethodButtonGroup);
app.DBButton.Tooltip = {'Declining Balance'};
app.DBButton.Text = 'DB';
app.DBButton.FontName = 'Dosis ExtraBold';
app.DBButton.Position = [11 9 100 22];

% Create MARRLabel
app.MARRLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.MARRLabel.HorizontalAlignment = 'center';
app.MARRLabel.FontName = 'Dosis ExtraBold';
app.MARRLabel.FontSize = 14;
app.MARRLabel.FontWeight = 'bold';
app.MARRLabel.Position = [279 346 40 22];
app.MARRLabel.Text = 'MARR';

% Create ResultTextAreaLabel
app.ResultTextAreaLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.ResultTextAreaLabel.HorizontalAlignment = 'right';
app.ResultTextAreaLabel.FontName = 'Dosis ExtraBold';
app.ResultTextAreaLabel.FontSize = 36;
app.ResultTextAreaLabel.FontWeight = 'bold';
app.ResultTextAreaLabel.FontColor = [0.502 0.502 0.502];
app.ResultTextAreaLabel.Position = [772 367 109 50];
app.ResultTextAreaLabel.Text = 'Result:';

% Create CashFlowPerPeriodSlider3
app.CashFlowPerPeriodSlider3 = uislider(app.EEProjectAliNaghilooUIFigure);
app.CashFlowPerPeriodSlider3.Limits = [0 1];
app.CashFlowPerPeriodSlider3.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider3ValueChanging, true);
app.CashFlowPerPeriodSlider3.FontName = 'Dosis ExtraBold';
app.CashFlowPerPeriodSlider3.FontSize = 14;
app.CashFlowPerPeriodSlider3.FontColor = [0.502 0.502 0.502];
app.CashFlowPerPeriodSlider3.Tooltip = {'Slide me !'};
app.CashFlowPerPeriodSlider3.Position = [162 334 264 3];

% Create EditField3
app.EditField3 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
app.EditField3.Limits = [0 1];
app.EditField3.ValueDisplayFormat = '%.2f';
app.EditField3.ValueChangedFcn = createCallbackFcn(app, @EditField3ValueChanged, true);
app.EditField3.HorizontalAlignment = 'center';
app.EditField3.FontName = 'Dosis ExtraBold';
```

```matlab
app.EditField3.Tooltip = {'Type or Slide !'};
app.EditField3.Position = [462 325 100 22];

% Create mSpinnerLabel
app.mSpinnerLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.mSpinnerLabel.HorizontalAlignment = 'right';
app.mSpinnerLabel.FontName = 'Dosis ExtraBold';
app.mSpinnerLabel.FontSize = 14;
app.mSpinnerLabel.Position = [1522 349 25 22];
app.mSpinnerLabel.Text = 'm:';

% Create mSpinner
app.mSpinner = uispinner(app.EEProjectAliNaghilooUIFigure);
app.mSpinner.Limits = [1 1];
app.mSpinner.ValueDisplayFormat = '%.0f';
app.mSpinner.ValueChangedFcn = createCallbackFcn(app, @mSpinnerValueChanged, true);
app.mSpinner.FontName = 'Dosis ExtraBold';
app.mSpinner.Tooltip = {'The year you want to know'; 'Depreciation and Book Value!'};
app.mSpinner.Position = [1562 349 59 22];
app.mSpinner.Value = 1;

% Create CalculateDmBVmButton
app.CalculateDmBVmButton = uibutton(app.EEProjectAliNaghilooUIFigure, 'push');
app.CalculateDmBVmButton.ButtonPushedFcn = createCallbackFcn(app,
@CalculateDmBVmButtonPushed, true);
app.CalculateDmBVmButton.FontName = 'Dosis ExtraBold';
app.CalculateDmBVmButton.Enable = 'off';
app.CalculateDmBVmButton.Position = [1521 301 100 37];
app.CalculateDmBVmButton.Text = {'Calculate'; 'D(m) , BV(m)'};

% Create UniformGradientGLabel
app.UniformGradientGLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.UniformGradientGLabel.HorizontalAlignment = 'center';
app.UniformGradientGLabel.FontName = 'Dosis ExtraBold';
app.UniformGradientGLabel.FontSize = 14;
app.UniformGradientGLabel.FontWeight = 'bold';
app.UniformGradientGLabel.Position = [234 230 128 22];
app.UniformGradientGLabel.Text = 'Uniform Gradient (G)';

% Create CashFlowPerPeriodSlider4
app.CashFlowPerPeriodSlider4 = uislider(app.EEProjectAliNaghilooUIFigure);
app.CashFlowPerPeriodSlider4.Limits = [-50 50];
app.CashFlowPerPeriodSlider4.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider4ValueChanging, true);
app.CashFlowPerPeriodSlider4.FontName = 'Dosis ExtraBold';
app.CashFlowPerPeriodSlider4.FontSize = 14;
app.CashFlowPerPeriodSlider4.FontColor = [0.502 0.502 0.502];
app.CashFlowPerPeriodSlider4.Tooltip = {'Slide me !'};
app.CashFlowPerPeriodSlider4.Position = [162 218 264 3];

% Create EditField4
app.EditField4 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
app.EditField4.ValueDisplayFormat = '%.2f';
app.EditField4.ValueChangedFcn = createCallbackFcn(app, @EditField4ValueChanged, true);
app.EditField4.HorizontalAlignment = 'center';
app.EditField4.FontName = 'Dosis ExtraBold';
app.EditField4.Tooltip = {'Type or Slide !'};
app.EditField4.Position = [462 209 100 22];

% Create salvagevalueLabel
app.salvagevalueLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.salvagevalueLabel.HorizontalAlignment = 'right';
app.salvagevalueLabel.FontName = 'Dosis ExtraBold';
```

```matlab
app.salvagevalueLabel.FontSize = 14;
app.salvagevalueLabel.FontWeight = 'bold';
app.salvagevalueLabel.Position = [256 115 84 22];
app.salvagevalueLabel.Text = 'salvage value';

% Create CashFlowPerPeriodSlider5
app.CashFlowPerPeriodSlider5 = uislider(app.EEProjectAliNaghilooUIFigure);
app.CashFlowPerPeriodSlider5.Limits = [0 500];
app.CashFlowPerPeriodSlider5.ValueChangingFcn = createCallbackFcn(app,
@CashFlowPerPeriodSlider5ValueChanging, true);
app.CashFlowPerPeriodSlider5.FontName = 'Dosis ExtraBold';
app.CashFlowPerPeriodSlider5.FontSize = 14;
app.CashFlowPerPeriodSlider5.FontColor = [0.502 0.502 0.502];
app.CashFlowPerPeriodSlider5.Tooltip = {'Slide me !'};
app.CashFlowPerPeriodSlider5.Position = [162 103 264 3];

% Create EditField5
app.EditField5 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
app.EditField5.ValueDisplayFormat = '%.2f';
app.EditField5.ValueChangedFcn = createCallbackFcn(app, @EditField5ValueChanged, true);
app.EditField5.HorizontalAlignment = 'center';
app.EditField5.FontName = 'Dosis ExtraBold';
app.EditField5.Tooltip = {'Type or Slide !'};
app.EditField5.Position = [462 94 100 22];

% Create TAXSectionsSliderLabel
app.TAXSectionsSliderLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.TAXSectionsSliderLabel.HorizontalAlignment = 'center';
app.TAXSectionsSliderLabel.FontName = 'Dosis ExtraBold';
app.TAXSectionsSliderLabel.Position = [821 100 73 22];
app.TAXSectionsSliderLabel.Text = 'TAX Sections:';

% Create range
app.range = uislider(app.EEProjectAliNaghilooUIFigure, 'range');
app.range.Limits = [0 250];
app.range.MajorTicks = [0 25 50 75 100 125 150 175 200 225 250];
app.range.MajorTickLabels = {'0', '25', '50', '75', '100', '125', '150', '175', '200',
'225', '250'};
app.range.ValueChangingFcn = createCallbackFcn(app, @rangeValueChanging, true);
app.range.Step = 1;
app.range.FontName = 'Dosis ExtraBold';
app.range.Position = [918 109 334 3];
app.range.Value = [50 175];

% Create stEditFieldLabel
app.stEditFieldLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
app.stEditFieldLabel.HorizontalAlignment = 'center';
app.stEditFieldLabel.FontName = 'Dosis ExtraBold';
app.stEditFieldLabel.Position = [1290 124 25 22];
app.stEditFieldLabel.Text = '1st:';

% Create stEditField
app.stEditField = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
app.stEditField.Limits = [0 1];
app.stEditField.ValueDisplayFormat = '%.3f';
app.stEditField.ValueChangedFcn = createCallbackFcn(app, @stEditFieldValueChanged,
true);
app.stEditField.HorizontalAlignment = 'center';
app.stEditField.FontName = 'Dosis ExtraBold';
app.stEditField.Position = [1330 124 58 22];
app.stEditField.Value = 0.1;

% Create ndEditFieldLabel
```

```matlab
            app.ndEditFieldLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.ndEditFieldLabel.HorizontalAlignment = 'center';
            app.ndEditFieldLabel.FontName = 'Dosis ExtraBold';
            app.ndEditFieldLabel.Position = [1290 96 27 22];
            app.ndEditFieldLabel.Text = '2nd:';

            % Create ndEditField
            app.ndEditField = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.ndEditField.Limits = [0 1];
            app.ndEditField.ValueDisplayFormat = '%.3f';
            app.ndEditField.ValueChangedFcn = createCallbackFcn(app, @ndEditFieldValueChanged,
true);
            app.ndEditField.HorizontalAlignment = 'center';
            app.ndEditField.FontName = 'Dosis ExtraBold';
            app.ndEditField.Position = [1330 96 58 22];
            app.ndEditField.Value = 0.2;

            % Create rdEditFieldLabel
            app.rdEditFieldLabel = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.rdEditFieldLabel.HorizontalAlignment = 'center';
            app.rdEditFieldLabel.FontName = 'Dosis ExtraBold';
            app.rdEditFieldLabel.Position = [1290 68 25 22];
            app.rdEditFieldLabel.Text = '3rd:';

            % Create rdEditField
            app.rdEditField = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.rdEditField.Limits = [0 1];
            app.rdEditField.ValueDisplayFormat = '%.3f';
            app.rdEditField.ValueChangedFcn = createCallbackFcn(app, @rdEditFieldValueChanged,
true);
            app.rdEditField.HorizontalAlignment = 'center';
            app.rdEditField.FontName = 'Dosis ExtraBold';
            app.rdEditField.Position = [1330 68 58 22];
            app.rdEditField.Value = 0.3;

            % Create ButtonTX
            app.ButtonTX = uibutton(app.EEProjectAliNaghilooUIFigure, 'push');
            app.ButtonTX.ButtonPushedFcn = createCallbackFcn(app, @ButtonTXPushed, true);
            app.ButtonTX.FontName = 'Dosis ExtraBold';
            app.ButtonTX.Position = [1433 68 100 37];
            app.ButtonTX.Text = {'Calculate'; 'TAX(m)'};

            % Create mSpinner_2Label
            app.mSpinner_2Label = uilabel(app.EEProjectAliNaghilooUIFigure);
            app.mSpinner_2Label.HorizontalAlignment = 'right';
            app.mSpinner_2Label.FontName = 'Dosis ExtraBold';
            app.mSpinner_2Label.FontSize = 14;
            app.mSpinner_2Label.Position = [1428 118 25 22];
            app.mSpinner_2Label.Text = 'm:';

            % Create mSpinner_2
            app.mSpinner_2 = uispinner(app.EEProjectAliNaghilooUIFigure);
            app.mSpinner_2.Limits = [1 1];
            app.mSpinner_2.ValueChangedFcn = createCallbackFcn(app, @mSpinner_2ValueChanged, true);
            app.mSpinner_2.FontName = 'Dosis ExtraBold';
            app.mSpinner_2.Position = [1468 118 57 22];
            app.mSpinner_2.Value = 1;

            % Create EditField_Range
            app.EditField_Range = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.EditField_Range.ValueChangedFcn = createCallbackFcn(app,
@EditField_RangeValueChanged, true);
            app.EditField_Range.FontName = 'Dosis ExtraBold';
```

```matlab
            app.EditField_Range.Position = [992 124 35 22];
            app.EditField_Range.Value = 50;

            % Create EditField_Range_2
            app.EditField_Range_2 = uieditfield(app.EEProjectAliNaghilooUIFigure, 'numeric');
            app.EditField_Range_2.ValueChangedFcn = createCallbackFcn(app,
@EditField_Range_2ValueChanged, true);
            app.EditField_Range_2.FontName = 'Dosis ExtraBold';
            app.EditField_Range_2.Position = [1157 124 35 22];
            app.EditField_Range_2.Value = 175;

            % Create SensivityGraphClickButton
            app.SensivityGraphClickButton = uibutton(app.EEProjectAliNaghilooUIFigure, 'push');
            app.SensivityGraphClickButton.ButtonPushedFcn = createCallbackFcn(app,
@SensivityGraphClickButtonPushed, true);
            app.SensivityGraphClickButton.BackgroundColor = [0.902 0.902 0.902];
            app.SensivityGraphClickButton.FontName = 'Dosis ExtraBold';
            app.SensivityGraphClickButton.Position = [776 325 100 37];
            app.SensivityGraphClickButton.Text = {'Sensivity Graph'; 'Click!'};

            % Show the figure after all components are created
            app.EEProjectAliNaghilooUIFigure.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.EEProjectAliNaghilooUIFigure)

            if nargout == 0
                clear app
            end
        end

        % Code that executes before app deletion
        function delete(app)

            % Delete UIFigure when app is deleted
            delete(app.EEProjectAliNaghilooUIFigure)
        end
    end
end
```