Lab #3: Web Application with Genie

Abdelbacet Mhamdi
Senior-lecturer, Dept. of EE
ISET Bizerte — Tunisia
a-mhamdi

Saada Iheb
Dept. of EE
ISET Bizerte — Tunisia
saadaiheb5

Nahdi Asma
Dept. of EE
ISET Bizerte — Tunisia
nahdiasma2

I. Introduction

In this lab, we will using **Genie** framework in Julia to control some paramaters of a sine wave, given some adjustble parameters.for that we gonna need to employ julia REPL as in fig1

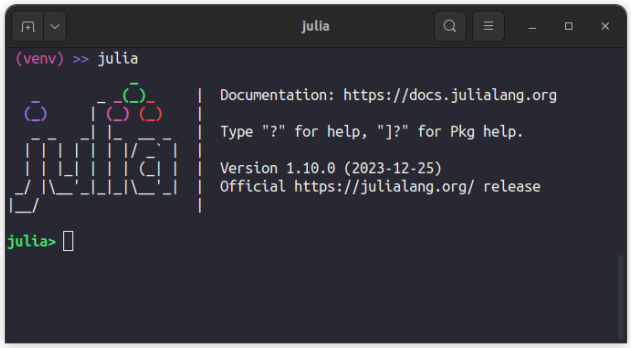

Figure 1: Julia REPL

II. Application

In this lab we gonna need two support programme to add , change and generate some sine parametre in GenieFramework beside following the steps underneath .

The first programme “app.jl”

```
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in ph ::Float32 = 0
    @in off::Float32 = 0
    @out my_sine = PlotData()

    @onchange N, amp, freq,ph , begin
        x = range(0, 1, length=N)
        y = amp*sin.(2*π*freq*x.+ph).+off

        my_sine = PlotData(x=x,
                           y=y,

plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
    end

end

@page("/", "app.jl.html")
```

the second programme is “app jl .html”

```
<header class="st-header q-pa-sm">
    <h1 class="st-header__title text-h3" Sinewave
Dashboard </h1>
</header>

<div class="row">
    <div class="st-col col-12 col-sm st-module">
        <p><b># Samples</b></p>
        <q-slider v-model="N"
    :min="10" :max="1000"
   :step="10" :label="true">
 </q-slider>
    </div>

    <div class="st-col col-12 col-sm st-module">
        <p><b>Amplitude</b></p>
        <q-slider v-model="amp"
   :min="0" :max="3"
   :step=".5" :label="true">
 </q-slider>
    </div>

    <div class="st-col col-12 col-sm st-module">
        <p><b>Frequency</b></p>
  <q-slider v-model="freq"
    :min="0" :max="10"
    :step="1" :label="true">
  </q-slider>
    </div>
    <div class="st-col col-12 col-sm st-module">
        <p><b>phase</b></p>
  <q-slider v-model="freq"
    :min="-3.14" :max="3.14"
```

```
    :step="0.314" :label="true">
  </q-slider>
    </div>
    <div class="st-col col-12 col-sm st-module">
        <p><b>offset</b></p>
 <q-slider v-model="freq"
    :min="-0.5" :max="1"
    :step="0.1" :label="true">
  </q-slider>
    </div>
</div>

<div class="row">
    <div class="st-col col-12 col-sm st-module">
  <p><b>Sinewave</b></p>
        <plotly :data="my_sine"> </plotly>
    </div>
<div>
```

First step:GenieFramework

- copy the path of web app

```
julia> cd("C:\\Users\\doctor\\Desktop\\infodev\
\Codes\\web-app")
```

- Openning Genie in julia REPL

```
julia> using GenieFramework
julia> Genie.loadapp() # Load app
```

Figure 2: Genie oppening

- Gettin GenieFramework link(http://127.0.0.1:8000) by typing this code in julia

```
julia> up() # Start server
```

- copy the link in the browser to get the graphical interface as in figure 3

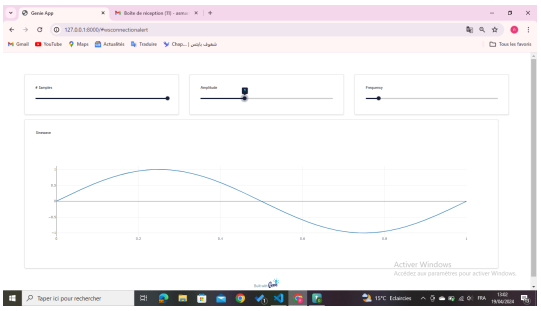

Figure 3: Genie gaphical interface

Second step:Adjust the phase

- adding the phase to “app.jl”

```
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in ph ::Float32 = 0
    @out my_sine = PlotData()

    @onchange N, amp, freq,ph , begin
        x = range(0, 1, length=N)
        y = amp*sin.(2*π*freq*x.+ph)

        my_sine = PlotData(x=x,
                           y=y,

plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
    end

end

@page("/", "app.jl.html")
```

- adding phase to “app jl.html “

```
<div class="st-col col-12 col-sm st-module">
        <p><b>phase</b></p>
  <q-slider v-model="freq"
    :min="-3.14" :max="3.14"
    :step="0.314" :label="true">
  </q-slider>
    </div>
```

- the result in genie graphical interface :

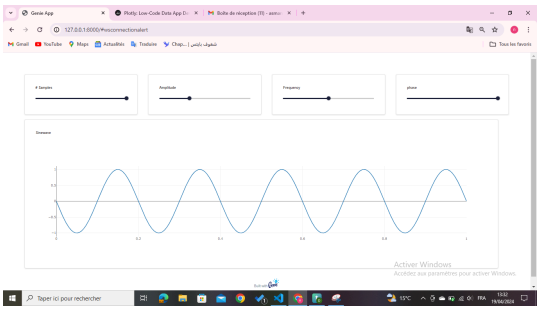

Figure 4: Adding phase parameter

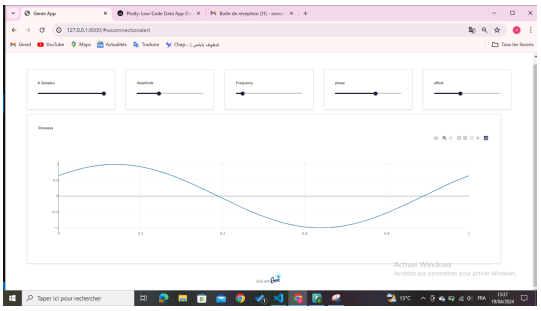

Figure 5: Adding the offset parameter

third step:Adjust the offset

- adding the offset to “app.jl”

```
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in ph ::Float32 = 0
    @in off::Float32 = 0
    @out my_sine = PlotData()

    @onchange N, amp, freq,ph , begin
        x = range(0, 1, length=N)
   y = amp*sin.(2*π*freq*x.+ph).+off

        my_sine = PlotData(x=x,
                           y=y,

plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
    end

end

@page("/", "app.jl.html")
```

- adding offset to “app jl.html “

```
<div class="st-col col-12 col-sm st-module">
        <p><b>offset</b></p>
  <q-slider v-model="freq"
    :min="-0.5" :max="1"
    :step="0.1" :label="true">
  </q-slider>
    </div>
```

- the result in genie graphical interface :