LAB #3: WEB APPLICATION WITH GENIE

Omar Majdoub
Dept. of EE (AII21)
ISET Bizerte — Tunisia
omajdoub911@gmail.com

I. INTRODUCTION

In this lab,i createD a basic web application using **Genie framework** in **Julia**. The application will allow us to control the behaviour of a sine wave, given some adjustble parame- ters

Figure 1: Genie framework

II. EXERCISE

Were going to add two extra sliders that modify the behaviour of the sine wave graph:

- **First** : adding a slide that will modify the Phase *Phase* ranging between $-\pi$ and π, changes by a step of $\frac{\pi}{100}$

```
app.html   app.jl
app.jl > ...
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in pha::Float32 = 1

    @out my_sine = PlotData()

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

        my_sine = PlotData(x=x,
                           y=y,
                           plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
    end

end

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

Figure 2: Adding the phase function in julia

```
app.html   app.jl
app.html > div.row
<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>Phase</b></p>
        <q-slider v-model="pha"
        :min="-3.14" :max="3.14"
        :step=".5" :label="true">
    </q-slider>
    </div>
    <div class="st-col col-12 col-sm st-module">
        <p><b>Offset</b></p>
        <q-slider v-model="off"
        :min="-0.5" :max="1"
        :step=".5" :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">
```

Figure 3: Adding slide for phase

- **Second** : Adding a slide that will modify the offset *Offset* varies from -0.5 to 1, by a step of 0.1.]

```
app.html   app.jl
app.jl > ...
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in pha::Float32 = 1
    @in off::Float32 = 1

    @out my_sine = PlotData()

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

        my_sine = PlotData(x=x,
                           y=y,
                           plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
    end

end

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

Figure 4: Adding the offset function in julia

app.html app.jl

app.html > div.row

```
<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>Phase</b></p>
        <q-slider v-model="pha"
        :min="-3.14" :max="3.14"
        :step=".5" :label="true">
    </q-slider>
    </div>
    <div class="st-col col-12 col-sm st-module">
        <p><b>Offset</b></p>
        <q-slider v-model="off"
        :min="-0.5" :max="1"
        :step=".5" :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">
```

Figure 5: Adding slide for offset

III. Result

- Before

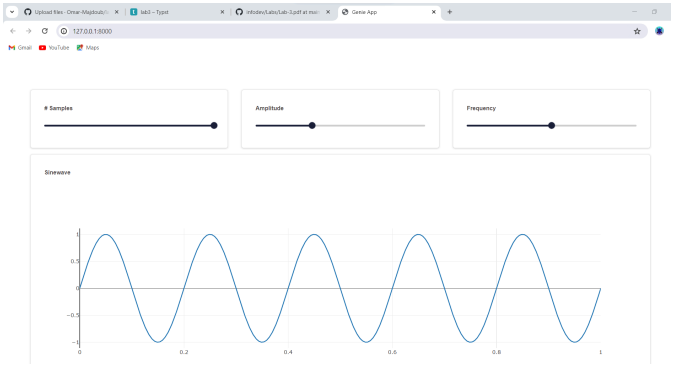

Figure 6: Before Adding the two slide

- After

Figure 7: After Adding the two slide

References