Lab 3:Wep application with genie

Neder ouni
Dept. of EE(AII21)
ISET BIZERTE
bizerte,tunisia
Nederouni123@gmail.com

I. Introduction:

In our lab, we employed the Genie Framework in Julia. Genie is a complete MVC web framework that streamlines and streamlines the workflow for developing modern web applications. It leverages Julia's strengths (high-level, high-performance, dynamic, JIT-computed), revealing a rich API and a powerful toolset for efficient web development.

II. . Exercices:

• In the first exercice we add extra slide that modify the behaviour of the sine wave graph by adding : Phase ranging between $-\pi$ and π, changes by a step of $\pi/100$.

C: > Users > Asus > Downloads > app.jl

```julia
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in pha::Float64 = 3.14/100
    @out my_sine = PlotData()

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

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

end

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

- figure 1: Adding the phase function in julia

C: > Users > Asus > Downloads > app.jl.html > div.row

```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>phase</b></p>
        <q-slider v-model="pha"
        :min="-3.14" :max="3.14"
        :step="0.0314" :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>
```

- figure 2: Adding the phase function in HTML

Then in the second apllication we add the offset function : Offset varies from -0.5 to 1, by a step of 0.1

C: > Users > Asus > Downloads > app.jl

```julia
using GenieFramework
@genietools

@app begin

    @in N::Int32 = 1000
    @in amp::Float32 = 0.25
    @in freq::Int32 = 1
    @in freq::float64 = 3.14/100
    @in freq::Int32 = 0
    @out my_sine = PlotData()

    @onchange N, amp, freq , pha , off  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.jl.html")
```

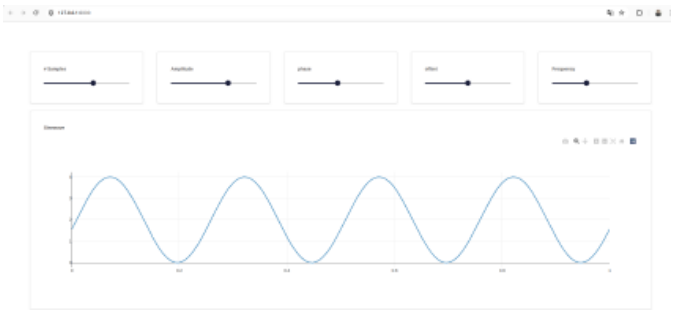
- Figure 3: Adding the offset function in Julia

- Figure 4: Adding the offset function in HTML

After that we open the Julia REPL in order to open the web app

- Figure 5: Julia REPL

-Now we have the sine wave and we can change every parameter thanks to the graphic interface



- Figure 6: Sine Wave

III. Conclusion:

-This lab has the ability to utilize Genie Lab in Julia to design a mathematical web app.