

Lab 3:Wep application with genie

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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 exercise 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
1 using GenieFramework
2 @genietools
3
4 @app begin
5
6     @in N::Int32 = 1000
7     @in amp::Float32 = 0.25
8     @in freq::Int32 = 1
9     @in pha::Float64 = 3.14/100
10    @out my_sine = PlotData()
11
12    @onchange N, amp, freq, pha begin
13        x = range(0, 1, length=N)
14        y = amp*sin.(2*pi*freq*x + pha )
15
16        my_sine = PlotData(x=x,
17                           y=y,
18                           plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
19    end
20
21 end
22
23 @page("/", "app.jl.html")
24
25
26
```

- figure 1: Adding the phase function in julia

```
C: > Users > Asus > Downloads > app.jl.html > div.row
1 <header class="st-header q-pa-sm">
2   <h1 class="st-header_title text-h3" Sinewave Dashboard </h1>
3 </header>
4
5 <div class="row">
6   <div class="st-col col-12 col-sm st-module">
7     <p><b># Samples</b></p>
8     <q-slider v-model="N"
9       :min="10" :max="1000"
10      :step="10" :label="true">
11   </q-slider>
12 </div>
13
14   <div class="st-col col-12 col-sm st-module">
15     <p><b>Amplitude</b></p>
16     <q-slider v-model="amp"
17       :min="0" :max="3"
18      :step="0.5" :label="true">
19   </q-slider>
20 </div>
21
22   <div class="st-col col-12 col-sm st-module">
23     <p><b>phases</b></p>
24     <q-slider v-model="pha"
25       :min="3.14" :max="3.14"
26      :step="0.0314" :label="true">
27   </q-slider>
28 </div>
29
30   <div class="st-col col-12 col-sm st-module">
31     <p><b>Frequency</b></p>
32     <q-slider v-model="freq"
33       :min="0" :max="10"
34      :step="1" :label="true">
35   </q-slider>
36 </div>
37 </div>
```

- figure 2: Adding the phase function in HTML

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

```
C: > Users > Asus > Downloads > app.jl
1 using GenieFramework
2 @genietools
3
4 @app begin
5
6     @in N::Int32 = 1000
7     @in amp::Float32 = 0.25
8     @in freq::Int32 = 1
9     @in freq::Float64 = 3.14/100
10    @in freq::Int32 = 0
11    @out my_sine = PlotData()
12
13    @onchange N, amp, freq , pha , off begin
14        x = range(0, 1, length=N)
15        y = amp*sin.(2*pi*freq*x + pha ) + off
16
17        my_sine = PlotData(x=x,
18                           y=y,
19                           plot=StipplePlotly.Charts.PLOT_TYPE_LINE)
20    end
21
22 end
23
24 @page("/", "app.jl.html")
25
26
```

- Figure 3: Adding the offset function in Julia

```

1 <header class="st-header q-pa-sm">
2 <h1 class="st-header__title text-h3" Sinewave Dashboard </h1>
3 </header>
4
5 <div class="row">
6 <div class="st-col col-12 col-sm st-module">
7 <p><b># Samples</b></p>
8 <q-slider v-model="N"
9 :min="10" :max="1000"
10 :step="10" :label="true">
11 </q-slider>
12 </div>
13
14 <div class="st-col col-12 col-sm st-module">
15 <p><b>Amplitude</b></p>
16 <q-slider v-model="amp"
17 :min="0" :max="3"
18 :step=".5" :label="true">
19 </q-slider>
20 </div>
21
22 <div class="st-col col-12 col-sm st-module">
23 <p><b>phase</b></p>
24 <q-slider v-model="pha"
25 :min="-3.14" :max="3.14"
26 :step="0.0314" :label="true">
27 </q-slider>
28 </div>
29
30 <div class="st-col col-12 col-sm st-module">
31 <p><b>offset</b></p>
32 <q-slider v-model="off"
33 :min="-0.5" :max="1"
34 :step="0.1" :label="true">
35 </q-slider>
36 </div>
37
38 <div class="st-col col-12 col-sm st-module">
39 <p><b>Frequency</b></p>
40 <q-slider v-model="freq"
41 :min="0" :max="10"
42 :step="1" :label="true">
43 </q-slider>
44 </div>
45 </div>
46
47 <div class="row">
48 <div class="st-col col-12 col-sm st-module">
49 <p><b>Sinewave</b></p>
50 <plotly :data="my_sine"> </plotly>
51 </div>
52 </div>

```

- Figure 4: Adding the offset function in HTML

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

```

Documentation: https://docs.julialang.org
Type "?" for help, "]" for Pkg help.
Version 1.10.2 (2024-03-01)
Official https://julialang.org/ release

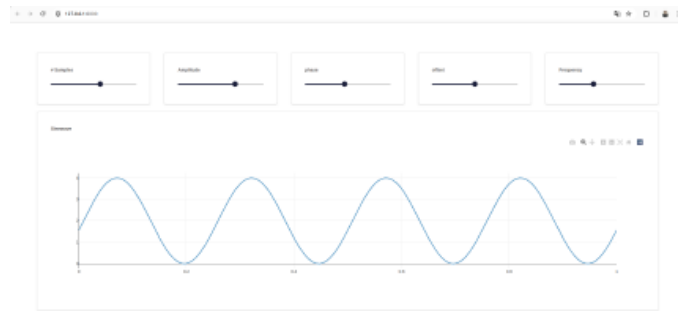
julia> cd("/home/nedraed/Bureau/correctionTAB3")
julia> using GenieFramework
julia> Genie.loadapp()

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```

- 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.