Lab 3: Web Application with Genie

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I. Introduction

In this project, we employed the Genie Framework in Julia. Genie stands as a full-stack MVC web framework renowned for its streamlined and efficient workflow, tailored for crafting modern web applications. Leveraging Julia's inherent strengths—including its high-level nature, exceptional performance, dynamic capabilities, and JIT compilation—Genie exposes a rich API and a robust toolset, empowering developers for productive web development endeavors. [1]

II. Exercices

- enhancing the behavior of the sine wave graph by incorporating a new feature: Phase adjustment. This modification allows users to manipulate the phase of the sine wave within a range of -π to π, with increments or decrements occurring in steps of $\pi/100$. This added functionality provides users with greater control and versatility when analyzing and visualizing sine wave patterns.

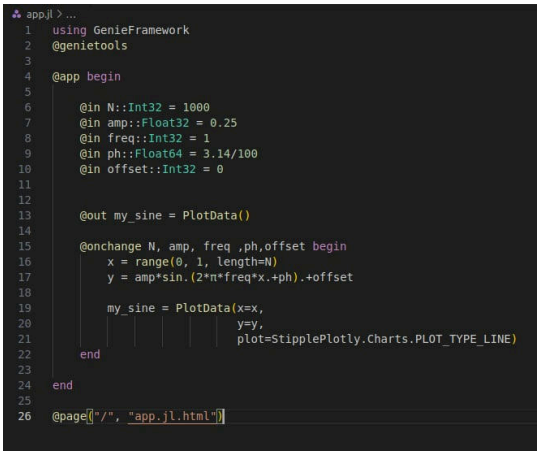

Figure 1: Adding the phase function

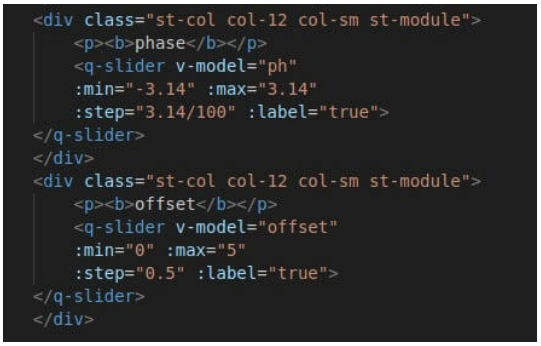

Figure 2: Adding the phase function in HTML(VSCODE)

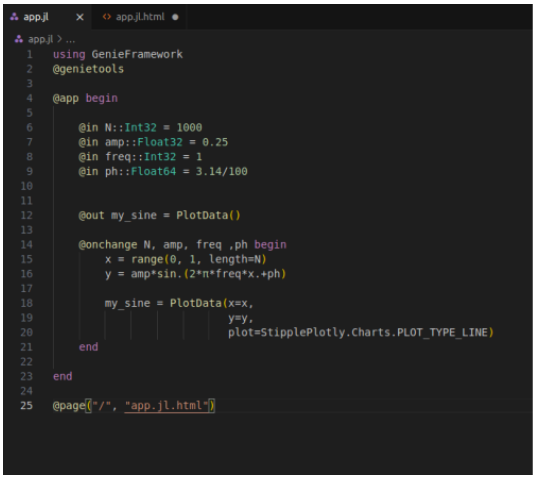

Figure 3: Adding the offset function in Julia

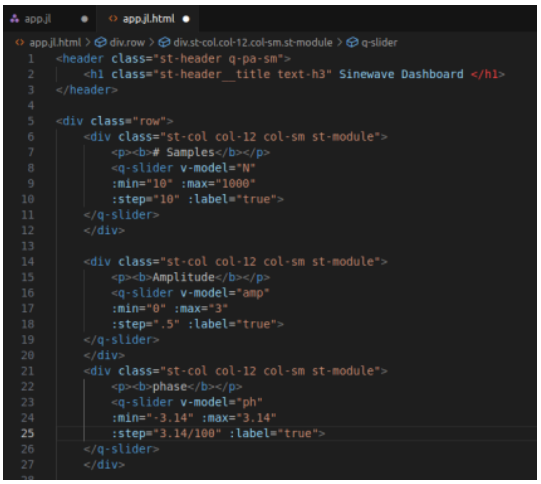

Figure 4: Adding the offset function in HTML

Figure 5: Julia REPL

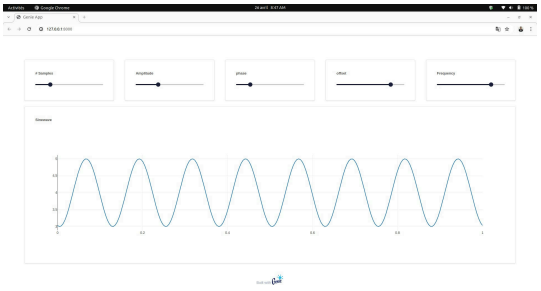

Figure 6: Sine Wave

III. Conclusion

-In this Lab, we had the privilege of leveraging the Genie Lab in Julia, empowering us to craft a mathematical web application with ease. Genie Lab, built on the robust Genie framework, provides a comprehensive platform tailored for mathematical applications. With its intuitive interface and powerful backend, Genie Lab enables seamless design and deployment of web-based mathematical tools and simulations. This combination of Julia's computational prowess and Genie's web development capabilities offers a compelling solution for creating dynamic and interactive mathematical applications on the web.

References

[1] R. Astley and L. Morris, "At-scale impact of the Net Wok: A culinarically holistic investigation of distributed dumplings," *Armenian Journal of Proceedings*, vol. 61, pp. 192–219, 2020.