User Portal for Saya.Life

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Background

Saya.Life leverages Internet of Things (IoT) technology to reduce water system related risk for residential and commercial properties. Saya.life provides a web portal for single household owners and multi-unit landlords to monitor water usage and make payments to water providers.

Objectives

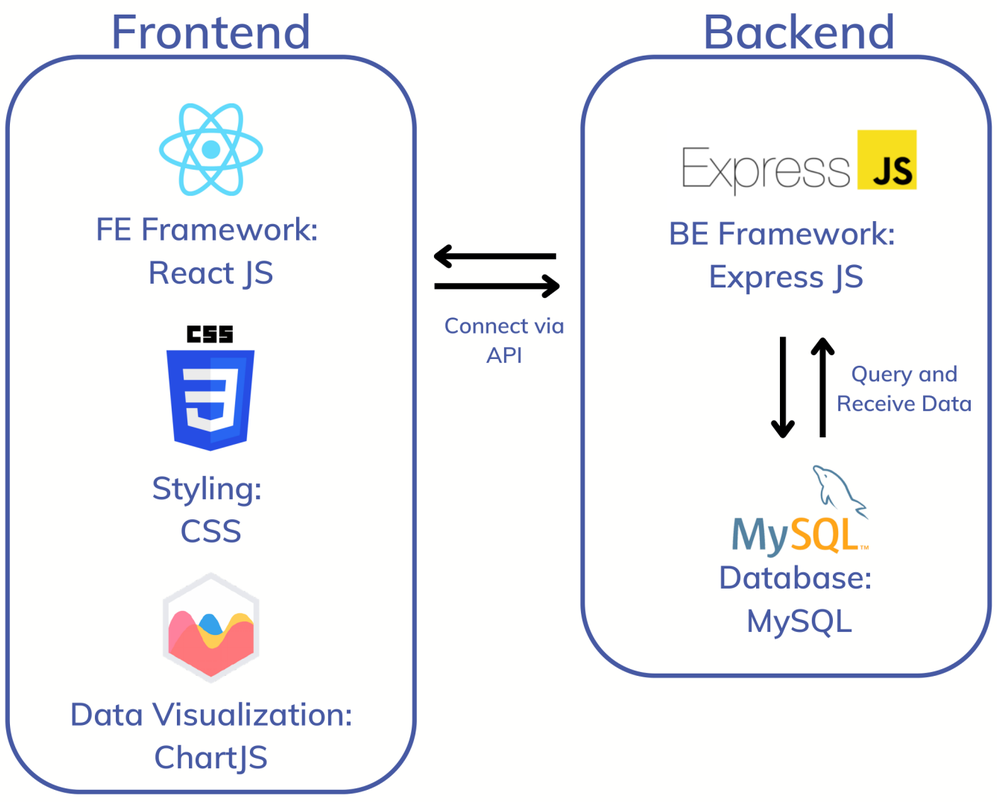
In collaboration with Saya.life executives, the CSULA Saya Team set to redesign the web portal with the following goals:

- Increase Modularity
- Improve User Experience
- Improve usability of water usage analytics

System Architecture

We interpreted Saya.Life's desire for modularity as flexibility and scalability. This in combination with research by LinkedIn indicating React JS[1] as the most popular front end web framework for 2023 made React JS the obvious choice for our front end.

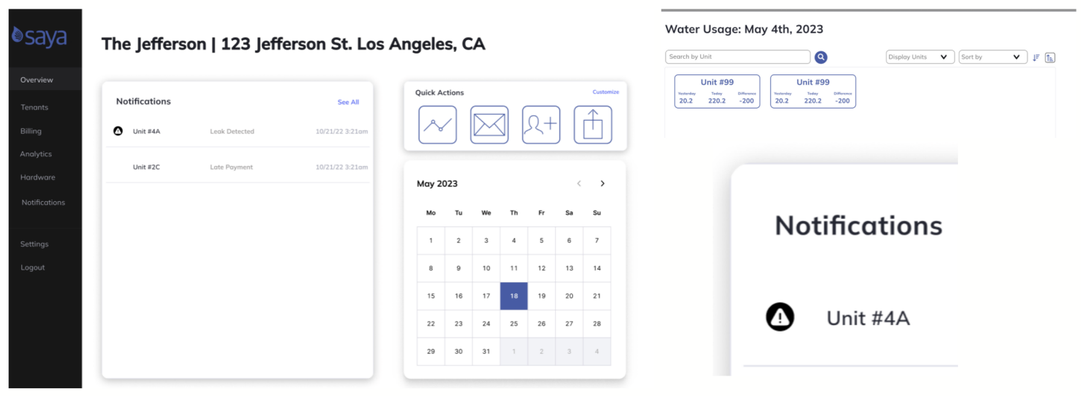
The rest of our stack was chosen primarily because of how well they interact with React JS. We used Express to create our server, MySQL as our database, ChartJS for analytics data visualization, and standard CSS for styling.



Redesign

In order to achieve our objectives, we leveraged research in the field of human centered computing. The following excerpt originates from Dr. Johanna M. Silvennoinen, and served as our design philosophy for this project:

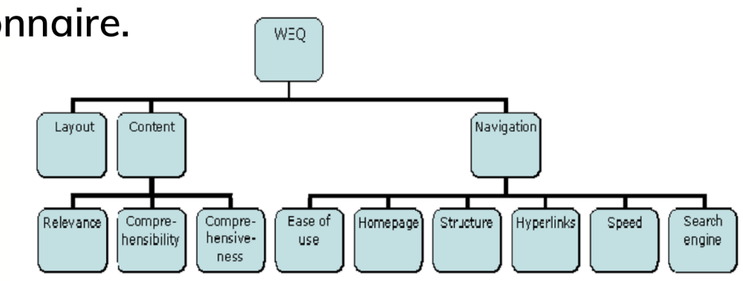
> *"Spatial organization through grouping with similar content and functions, appropriate use of negative space, and balance and symmetry contribute to the overall impression of the user interface as a clear and understandable totality."*[2]



As seen in the images above, a simple, modular design was implemented as to encourage a sense of calm while interacting with the application. While there is research to support the claim that using colors can be used to elicit certain emotions or draw attention[3], we opted against using a wide gamut of color. The primary color used throughout the site is Saya.Life's brand color. This design choice was intentional to remain accessible to those with color vision deficiency[4].

Conclusion & Future Work

Our team was successful in creating a strong starting point for future Saya.Life teams to create a robust, modern web application. By leveraging research done at Utrecht University, we have developed a questionnaire to assess the success of our website redesign[5]. This questionnaire asks users to rate categories listed below on a Likert scale (1-5). Future teams should use this to guide any changes going forward. Additionally, we suggest widening the age range of those taking the questionnaire.



[1] Ihtsham, A. (n.d.). The Top Web Development Frameworks of 2023. www.linkedin.com. https://www.linkedin.com/pulse/top-web-development-frameworks-2023-ali-ihtsham/
[2] Silvennoinen, J., & Jokinen, J. (2016). Appraisals of Salient Visual Elements in Web Page Design. Advances in Human-computer Interaction, 2016, 1–14. https://doi.org/10.1155/2016/3676704
[3]Singh, N., & Srivastava, S. C. (2011). Impact of Colors on the Psychology of Marketing — A Comprehensive over View. Management and Labour Studies, 36(2), 199–209. https://doi.org/10.1177/0258042x1103600206
[4] Martínez, R. M., Turró, M. R., & Saltiveri, T. G. I. (2019). Accessible statistical charts for people with low vision and colour vision deficiency. In International Conference on Human-Computer Interaction. https://doi.org/10.1145/3335595.3335618
[5] Elling, S., Lentz, L., & De Jong, M. (2007). Website evaluation questionnaire: development of a research-based tool for evaluating informational websites. In Electronic Government: 6th International Conference, EGOV 2007, Regensburg, Germany, September 3-7, 2007. Proceedings 6 (pp. 293-304). Springer Berlin Heidelberg.