Project / Process Presentation

Indigenous Tech Circle
Sep 25 2024

Progress

1. Weekly Meetings and Stakeholder Communication
2. Data Analysis on Federal Websites
3. Literature Review and Sustainability Focus

-Jun

1. Draw information architecture
2. Prototyping
3. Literature Review

-Ruijin

1. Draw block diagram and propose a greener implementation
2. Literature Review focusing on energy patterns in Web Development

-Liyao

1. Literature Review on ICT Sustainable Procurement
2. Established the GitHub repository to organize the project and track progress

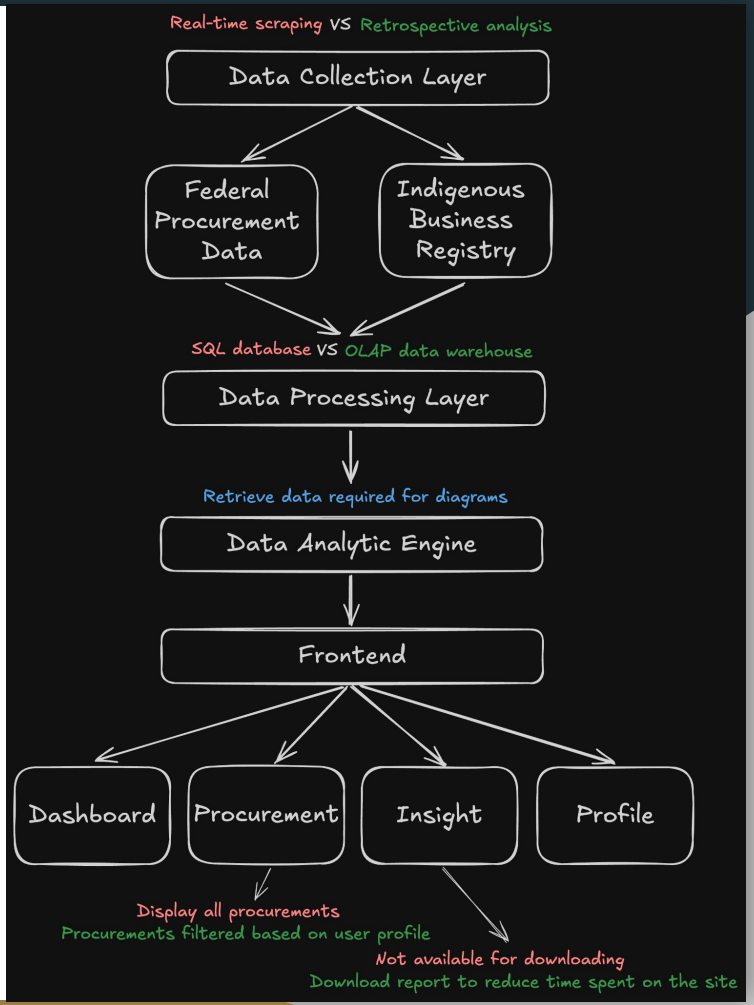
-Wei

What we learned from panel reviews

1. **Refining the Solution:**
   - The reviews emphasized the importance of focusing on refining the solution.
   - This includes paying attention to specific implementation details, particularly data visualization and decision-making tools that will directly benefit Indigenous businesses.
2. **Sustainability Focus:**
   - There is a need to continue integrating sustainability into the platform's development.
   - The platform should align with both academic insights and sustainability goals to ensure long-term value and relevance.
3. **Quantitative Assessment:**
   - The platform's effectiveness should be quantitatively assessed.
   - This involves measuring how well it creates value for Indigenous businesses, ensuring that the platform's success can be demonstrated through clear, data-driven results.

Solution

- Same data flow & UI with different design choices
- Identify key patterns in energy saving
- Qualitative comparison in “greenness”



Literature Review

- **Reduce unnecessary data flowing into the frontend**
  (RMVRVM - A Paradigm for Creating Energy Efficient User Applications Connected to Cloud through REST API)

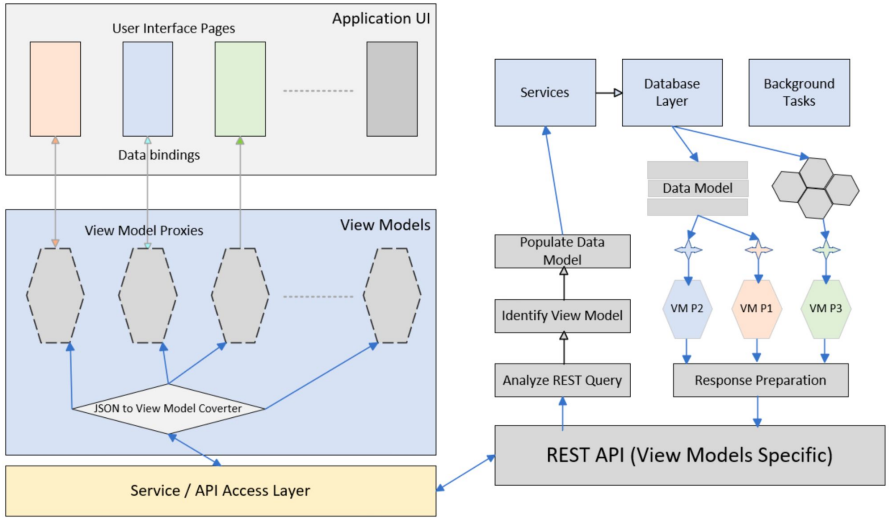


Figure 3: RMVRVM Architecture

Literature Review

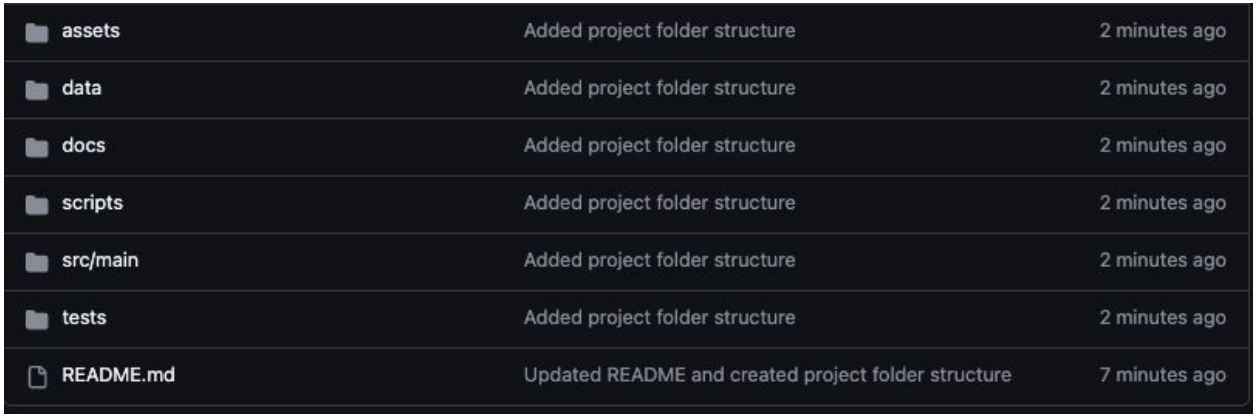
- **Follow best practices in terms of energy saving**
  (Energy Patterns for Web: An Exploratory Study)

Avoid Extraneous Work	✔	S	Present only relevant data or perform tasks that have a direct impact on the user experience. *e.g.*, Mozilla's API in Listing 1 informs users for the page visibility to let audio/video pause.
Batch Operations	✔	S	Combine multiple operations to perform batch processing. *e.g.*, Web API from Microsoft to group several operations into a single HTTP request [12].
Cache	✔	C	Utilize caching mechanisms to reduce network load. *e.g.*, A code example to cache an API response in the local storage [31].
Dark UI Colors	✔	C	Provide a web application with the dark UI color theme. *e.g.*, Facebook provides an option on the website to switch to a dark theme.
Decrease Rate	✔	S	Increase the time interval between requests to the backend. *e.g.*, Library website refreshes the book availability only a few times a day.
Dynamic Retry Delay	✔	S	Use a systematic retry increasing time interval after each failed attempt to a resource, such as a database, or network. *e.g.*, In the Fibonacci series utilize a retry mechanism API to handle abnormal conditions [31].

Github

- **how will it be organized**
  - /assets: Stores images, design assets, or other static resources.
  - /data: Contains data files, separated into /raw for raw data and /processed for processed data.
  - /docs: Holds project documentation, including requirement specs, meeting notes, and design documents.
  - /scripts: Includes automation or data processing scripts.
  - /src/main: The main source code directory where the core project code resides.
  - /tests: Stores test code, including unit tests and integration tests.
- **what will you put in there**
  - The project will include a README file, source code, data files, documentation, test scripts, and automation scripts.
- **what will it be "tracking"**
  - The project will track code changes, data updates, documentation, and project progress.

Github


assets
Added project folder structure
2 minutes ago
data
Added project folder structure
2 minutes ago
docs
Added project folder structure
2 minutes ago
scripts
Added project folder structure
2 minutes ago
src/main
Added project folder structure
2 minutes ago
tests
Added project folder structure
2 minutes ago
README.md
Updated README and created project folder structure
7 minutes ago

Reference

Singh, L. (2022). RMVRVM – A Paradigm for Creating Energy Efficient User Applications Connected to Cloud through REST API. *Proceedings of the 15th Innovations in Software Engineering Conference*, 1–11. https://doi.org/10.1145/3511430.3511434

Rani, P., Zellweger, J., Kousadianos, V., Cruz, L., Kehrer, T., & Bacchelli, A. (2024). Energy Patterns for Web: An Exploratory Study. *Proceedings of the 46th International Conference on Software Engineering: Software Engineering in Society*, 12–22. https://doi.org/10.1145/3639475.3640110