Optimizing Laboratory Management: A Digital Solution for Logistics and Safety

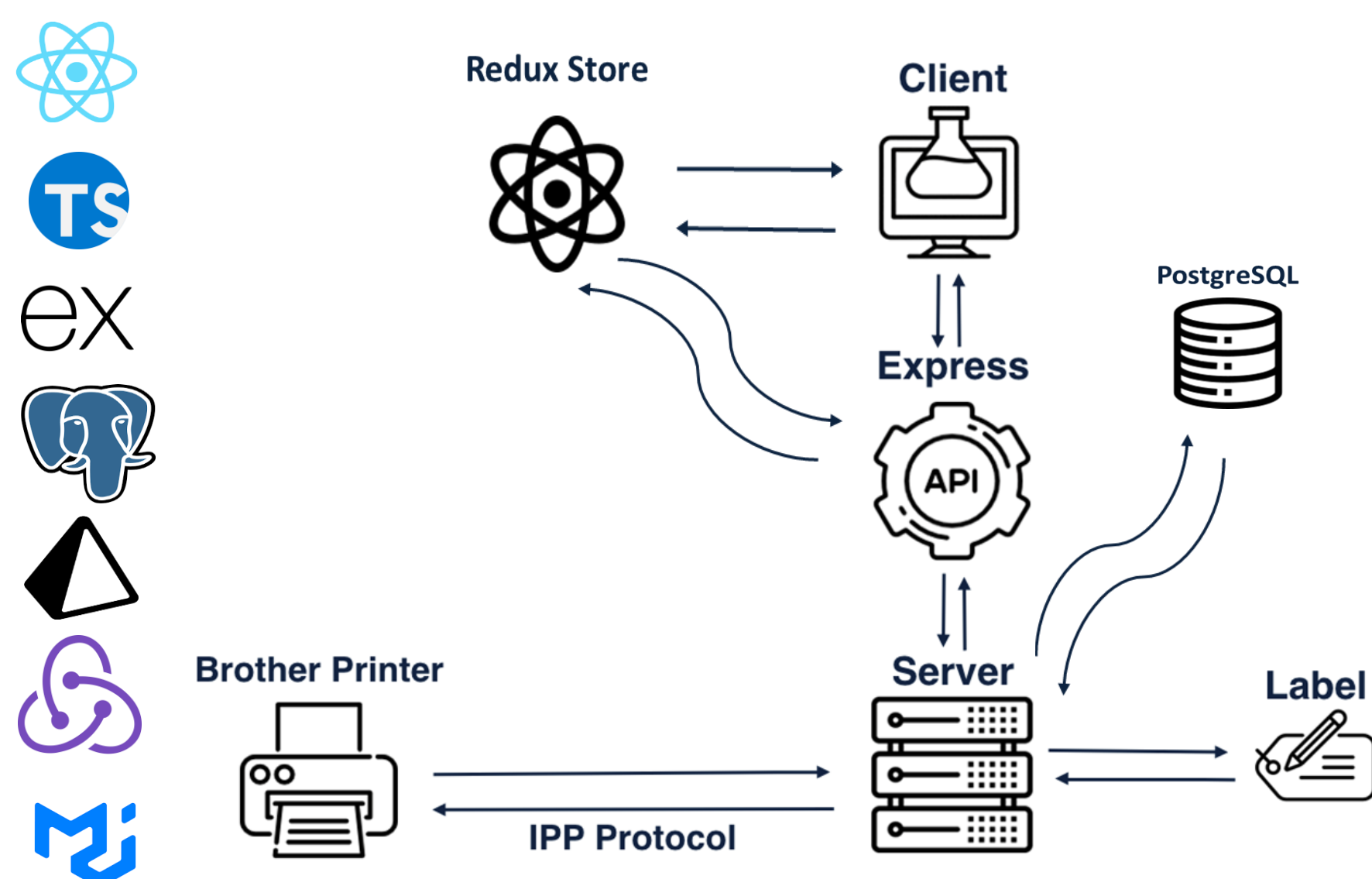PURDUE UNIVERSITY | The Data Mine

MERCK

Introduction

- **Motivation**: Manually created labels create additional challenges in readability, consistency, and reproducibility; additionally, people can forget to discard expired samples, which causes lab safety violations.
- **Goal**: To build a platform tool that can handle lab logistics to streamline day-to-day scientific operation through QR codes and sample tracking.
- **Objectives**: 1) Develop a method to create, manage, and print QR codes; 2) design a user-friendly interface; 3) develop general server architecture and connections.

Project Workflow (Methodology)

Conclusion & Future Goals

- The Merck Label Application will reduce the number of expired samples via proper labelling and email reminders.
- Labels are easy to print, apply, and read, allowing for easy organization of samples.
- QR codes provide a direct route to the sample's digital data, allowing for easier viewing and linkage
- In the future, we plan to create a label size for HPLC vials and support more administrator functionality
- We also plan to link into Merck's notebooks in order to provide programmatic expiration date calculations

References & Acknowledgements

Enhancing Logistics: Scannable QR Code Labels and Searchable Database for All Samples

Create A Team and Assign Unique Sample Fields

Custom Design Label for Sample in Label Editor

Create Sample

View All Samples and Audit Table History

Print Sample Labels in Bulk

Impact: Improving Safety Through Handling Expired Samples

Approximately **66%** of lab safety violations are due to solutions not being discarded on time

Quickly Filter for Expired Samples

Automated Email Generation to Notify Scientists of Expired Sample

Kihunn Anderson ~ Thomas Hughes ~ Alexis Hvostal ~ Zihao Liang ~ Justin Smith ~ Zixiao Wang