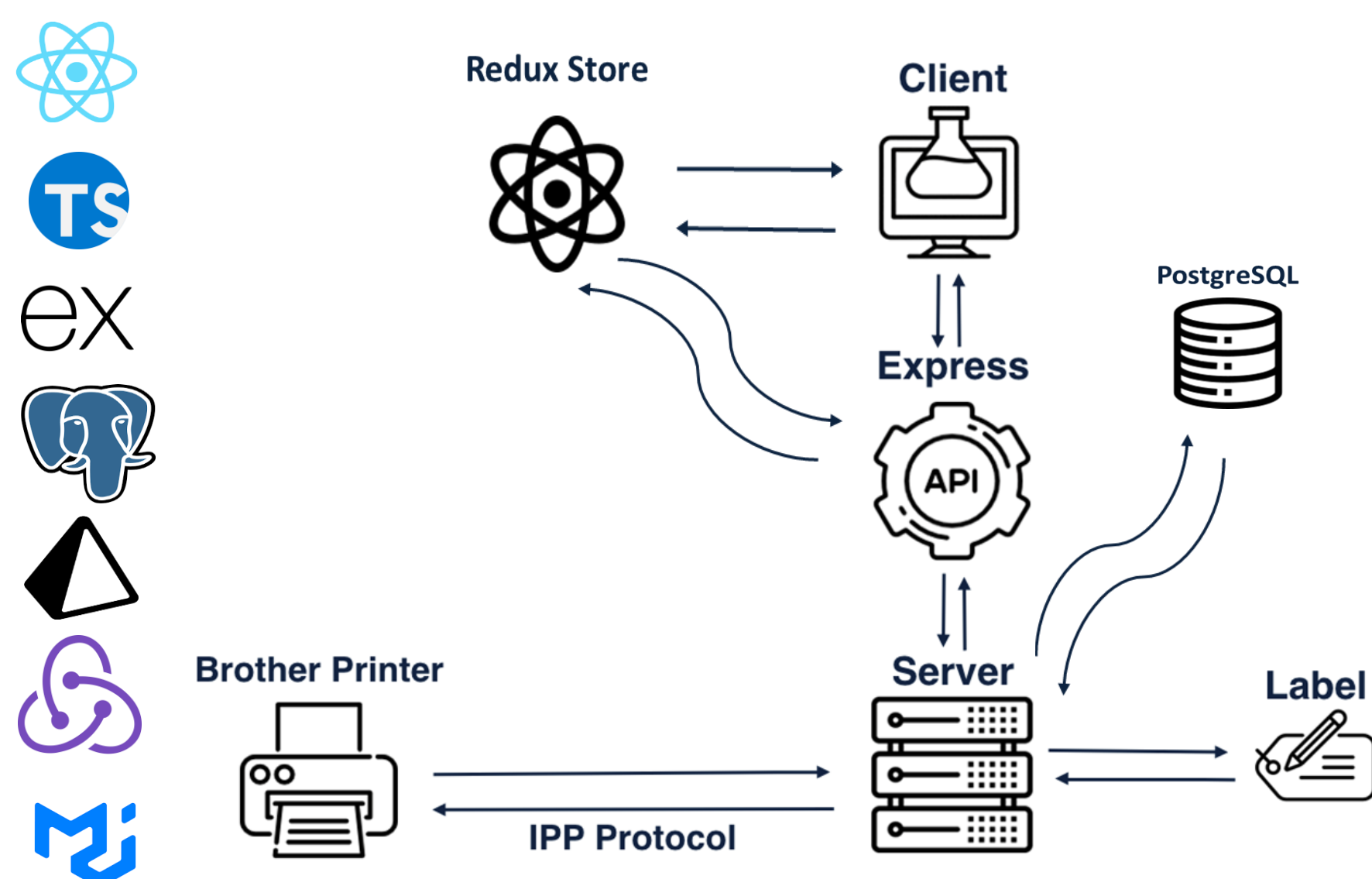


## Introduction

- 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

- Special thanks to:
- Our Merck mentors Jonathan Fine, PhD and Terri Bui, PhD
  - Mark Daniel Ward, PhD; Margaret Betz; Kevin Amstutz; Nick Rosenorn; David Glass and the accompanying Data Mine Staff

## 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

ID	Analyst	Experiment ID	Contents	Storage Condition	Date Created	Date Modified	Expiration Date
17724376-e7e7-4...	Thomas Hughes	RSE-E01	Potassium Chloride	Room Temp	02/26/2023	02/26/2023	03/05/2023
ca3ba0b2-d8a5-4...	Thomas Hughes	RSE-E02	Histidine	Room Temp	02/11/2023	02/15/2023	02/19/2023
b6b0b4b5-7191-4...	Thomas Hughes	RSE-E03	Citrate Buffer	Room Temp	02/26/2023	02/26/2023	04/02/2023

### 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

ID	Date Created	Date Modified	Expiration Date
7ad9a6b-a0ba-4...	02/26/2023	02/26/2023	03/10/2023
475954b-419d-4...	02/26/2023	02/26/2023	02/26/2023
70a80ea8-0a05-4...	02/26/2023	02/26/2023	03/11/2023
fa9b9d05-e043-4...	02/26/2023	02/26/2023	03/04/2023
14c5e74c-38e5-4e...	02/26/2023	02/26/2023	03/01/2023
8ca544a1-1a0e-4...	02/26/2023	02/26/2023	03/03/2023
59064ba-c05e-4...	02/26/2023	02/26/2023	02/26/2023
aa0acdc3-7a45-4...	02/26/2023	02/26/2023	02/26/2023

### Automated Email Generation to Notify Scientists of Expired Sample

