Remaining Battery Life

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Week 10 Presentation

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Project & Design Overview

A. Data acquisition - Acquires data from battery cells
B. Data analytics - Forecasts capacity and predicts remaining useful lives (RULs)
C. Web-based UI - Plots measured and forecasted capacity, and predicted end of life (EOL) distribution

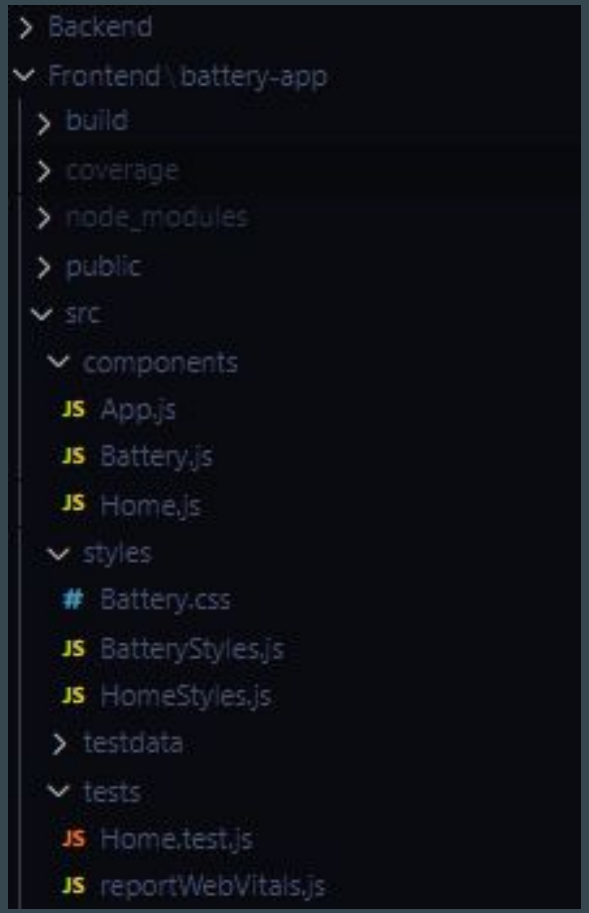
Frontend Design & Implementation

A. React using external packages

B. Custom components built on top of packages

C. Testing using react-scripts test

```
Open DepAxis in React Preview
export const DepAxis = (props) => (
    <VictoryAxis className='Dependent'
        dependentAxis={true}
        axisLabelComponent={<VictoryLabel dy={-5} />}
        style={graphTheme}
        {...props}
    />
);
```

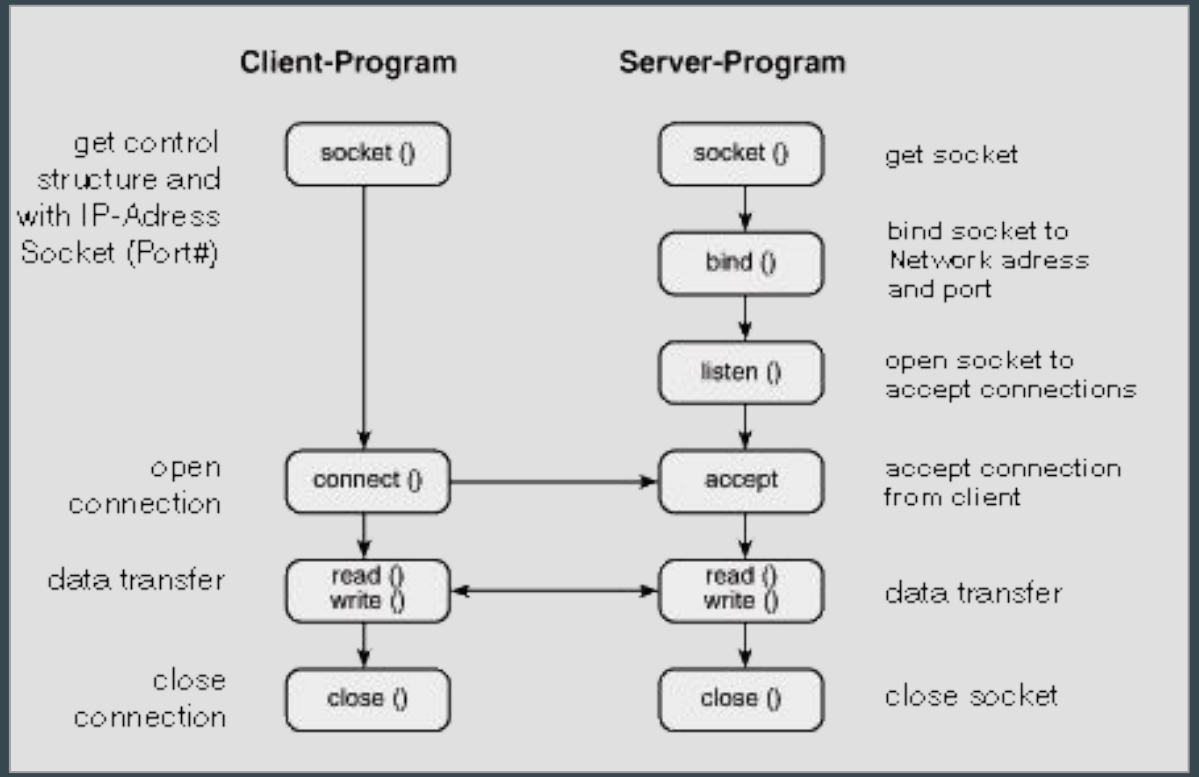


Backend Design & Implementation

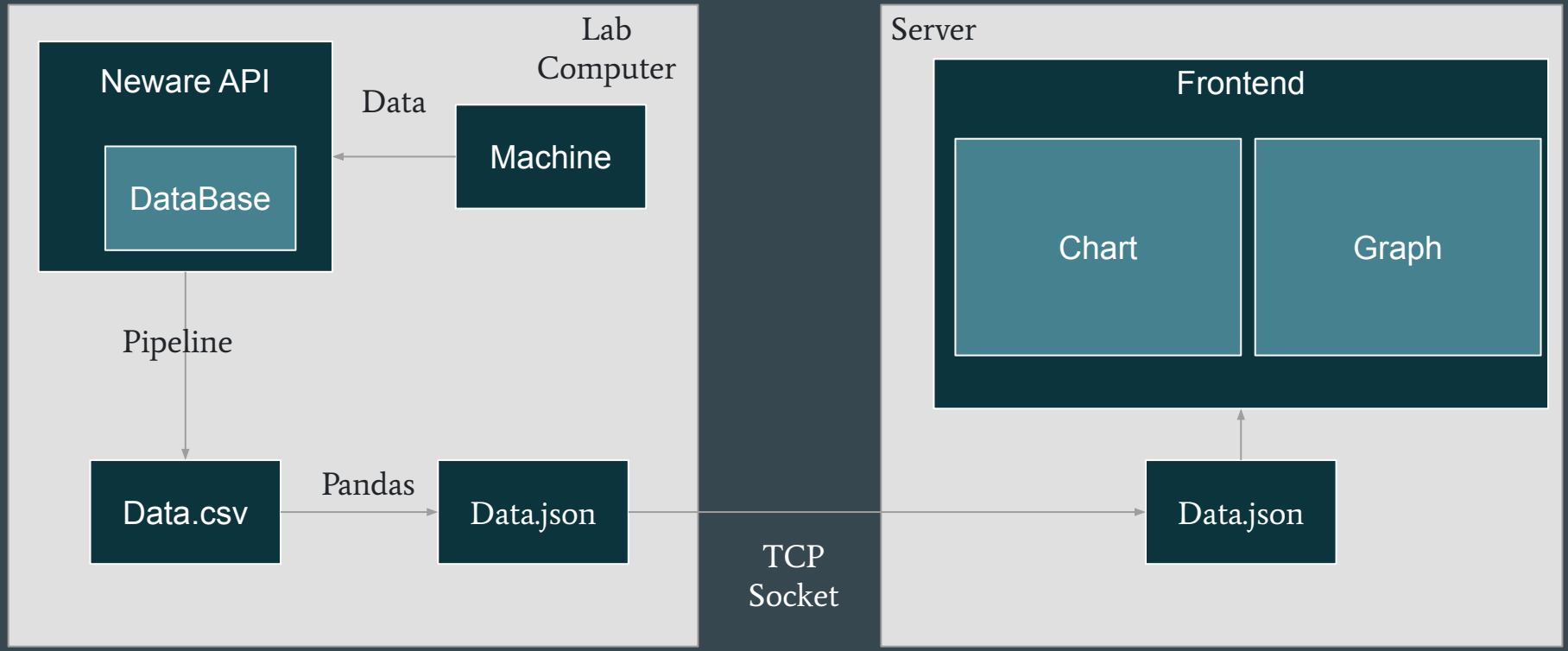
A. Fetch data through Neware API
    a. Connect via pipe
B. Preprocess data using pandas
    a. Take in xml data returned from API
    b. Load xml data into pandas dataframe
    c. Convert dataframe to JSON
    d. Properly format JSON for frontend use
C. Export processed data
    a. Place processed data file in appropriate location
    b. For now this is on local machine

Networking Design & Implementation

A. Socket Programming(Python)
B. TCP/IP based network environment
C. Client(Lab computer) run when there is file change
D. Server(Server) keep running



Design & Implementation



Obstacles & Challenges

A. Networking
   a. Setting up server in local network.
   b. Accepting local network connections.
   c. Connecting lab computer to server.

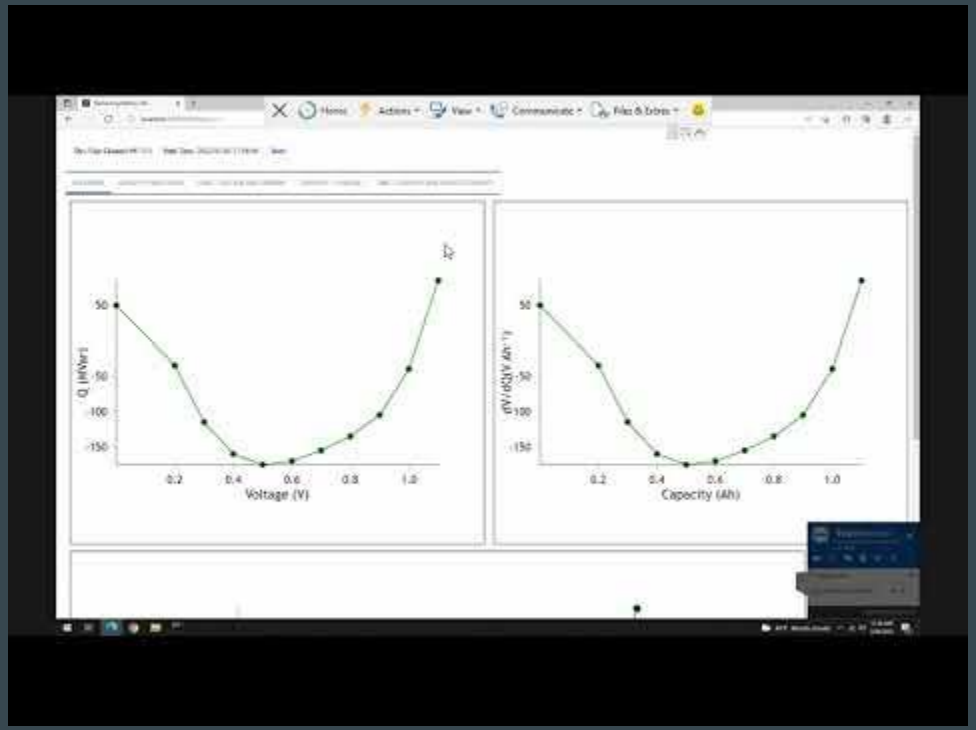
B. Sending correct data to the battery info page for each cell
   a. Data correctness.
   b. Efficient storage.

C. Tracking cycle number
   a. Distinguish time series with missing day over weekends.
   b. Group each cycle in an efficient way (for calculation)

Remaining Work

Work Item:	Expected Completion:
A. Update Graphs with real-time data	Week 12
B. Improve testing and CI/CD	Week 11
C. Track and name individual cells	Week 13
D. Move to server	Week 11
E. Final UI fixes/updates	Week 13

Demo


Home
Actions
View
Communicate
Files & Extras
50
0
-50
-100
-150
0.2
0.4
0.6
0.8
1.0
Voltage (V)
Capacity (Ah)