Assessment

Overview:
Build an application that fetches live cryptocurrency price data from a public API and simulates trades based on simple moving averages (SMAs). The application should efficiently manage recent price data using a circular buffer and log simulated buy/sell trades. (Preferred languages: Rust or JavaScript)

Objectives:

- **API Integration:**
    - Connect to a public crypto price API (e.g., CoinGecko or CoinCap).
    - Poll for real-time price data (e.g., every minute).
- **Trade Simulation:**
    - **SMA Calculation:**
        - Compute a short-term SMA (average of the last 5 prices) and a long-term SMA (average of the last 20 prices).
    - **Signal Generation:**
        - **Buy Signal:** When the short-term SMA rises above the long-term SMA.
        - **Sell Signal:** When the short-term SMA falls below the long-term SMA.
    - **Execute Trades:**
        - Simulate trades upon signal detection, logging the timestamp, trade type (buy/sell), price, and quantity.
- **Efficient Data Handling:**
    - Use a circular buffer (or deque) to store only the most recent 5 and 20 prices for SMA calculations, ensuring constant-time updates.
- **Testing & Documentation:**
    - Include a README with setup instructions, design decisions, and assumptions.

Submission Guidelines:

- **Repository:** Provide a link to your complete source code (GitHub preferred).
- **Documentation:** Include a comprehensive README with:
    - Setup and dependency installation instructions.
    - How to run the application.
    - An explanation of your design decisions.
- **Time:** This assignment is designed to be completed in 3–5 hours.