

Live Data Feed System: Real-Time Stock Price Stream

Scenario:

Design and implement a real-time system that receives stock price updates from a simulated external service (e.g., a mock API or random generator). The system must stream updates to clients, process these updates, and allow users to subscribe to specific stock symbols for Real-time updates.

Instructions:

1. Stock Price Stream:

- Build a simple process that simulates receiving real-time stock price updates for multiple stock symbols.
- The stock prices can be randomly generated or fetched periodically from a mock API. For each update, it should be broadcasted to subscribers who are interested in that stock symbol.

2. Client Simulation:

- For this exercise, a simulated client can be a simple process that subscribes to a stock symbol and prints any updates received. This simulates how clients (e.g., browsers, other services) would receive real-time data.

3. Error Handling and Fault Tolerance:

- Ensure that the system can recover gracefully from failures. For example, a stock price update process can crash, but the system should keep running without affecting the rest of the operations.