Full Stack Engineer (React + TypeScript + Backend)
Timebox: 3–4 hours
Difficulty: Real-world product problem
AI Usage: Allowed (see below)

Provided Data

You are given 5 JSON files representing 1 year of sales data:

- `accounts.json` – customer accounts
- `reps.json` – sales representatives
- `deals.json` – sales deals
- `activities.json` – calls/emails
- `targets.json` – monthly revenue targets

Assume this data comes from multiple real systems and may contain inconsistencies

Your Task

Build a **single-page Revenue Intelligence Console**.

It should help a CRO answer:

> "Why are we behind (or ahead) on revenue this quarter,
> and what should we focus on right now?"

Functional Requirements

Backend (TypeScript)

1. Summary - /api/summary

- Current Quarter Revenue
- Target
- Gap (%)
- YoY or QoQ change

2. Revenue Drivers - /api/drivers

Explain performance using:

- Pipeline size
- Win rate

- Average deal size
- Sales cycle time

3. Risk Factors - /api/risk-factors

Identify:

- Stale deals
- Underperforming reps
- Low activity accounts

4. Recommendations - /api/recommendations

Return 3–5 **actionable suggestions**, e.g:

- “Focus on Enterprise deals older than 30 days”
- “Coach Rep A on win rate”
- “Increase activity for Segment B”

Frontend (React + TypeScript)

Constraints

- You may use any SQL database (SQLite / Postgres / MySQL / in-memory)
- You need to use Material UI and D3 charting only
- You may use AI tools (ChatGPT, Copilot, Cursor)

Critical Deliverable – Reflection

Create a file:

`THINKING.md`

Answer:

1. What assumptions did you make?
2. What data issues did you find?
3. What tradeoffs did you choose?
4. What would break at 10× scale?
5. What did AI help with vs what you decided?

This document is **as important as your code**.

Submission

Share a GitHub repo with:

`/backend`
`/frontend`
`/data`
`THINKING.md`
`README.md`

`Also, API endpoints should be same as specified above.`