1. Problem & User

Modern portfolio managers operate across multiple asset classes — equities, rates, FX, and credit — each carrying complex, interacting sources of risk. Conventional risk systems quantify exposures numerically (e.g., delta, DV01, beta) but fail to *explain* them coherently. Managers often face questions like:

- *"Why is my book underperforming when rates rally?"*
- *"How does my credit curve exposure interact with my equity hedges?"*

These questions require multi-step causal reasoning: linking movements in rates to curve shifts, credit spread behavior, and cross-asset contagion. Existing tools either produce raw sensitivities or high-level dashboards without reasoning transparency.

Our user — the institutional portfolio manager — needs a system that not only *computes* risk but *interprets* it. The goal is to transform quantitative analytics into structured, explainable reasoning so that risk decisions are made with understanding, not guesswork.

---

2. What We'll Build

K2 Risk is an intelligent reasoning layer that sits atop existing risk data.

It takes as input a portfolio's exposures — positions, factor sensitivities, yield curves, FX deltas, and credit spreads — and uses **K2 Think** to construct *natural-language explanations* of multi-asset risk dynamics.

Example:

> "Your portfolio is long duration via 10-year Treasuries, but short convexity through credit swaps. If yields fall 50 bps, duration gains may be offset by widening credit spreads due to recession risk."

We'll design structured prompts that translate portfolio risk vectors into reasoning graphs.

K2 Think's chain-of-thought ability enables *cross-domain inference*: linking rates to FX carry, credit spreads to default probability, and equities to macro factors.

Outputs will include:

- **Narrative risk reports** ("why risk exists")
- **Counterfactual reasoning** ("what if rates rise?")
- **Visual causal diagrams**

An intuitive web UI (Streamlit or lightweight React) will show each reasoning step transparently, creating an *interpretable portfolio copilot* rather than a black-box analytics dashboard.

---

3. Why K2 Think

K2 Think excels at structured reasoning and mathematical inference — critical for understanding interacting risk factors.

Its high inference speed (~2,000 tokens/sec) allows real-time "why-chain" explanations across large portfolios.

Unlike standard LLMs, K2's reasoning depth lets it decompose exposures hierarchically (rates → curve → spread → credit loss), giving portfolio managers interpretability at human speed.

---

4. Demo Vision

We'll demo a live dashboard where the user uploads a mock multi-asset portfolio and queries:

> "Why did my P&L drop today?"

K2 Think will produce a structured causal explanation — combining math, text, and graphs — showing exposures, correlations, and reasoning steps, all within seconds.