

## Slice Phase 3 – Dev B Responsibilities (Risk, Analytics & Scenario Engine)

This document defines the scope, responsibilities, and interfaces for Developer B, responsible for risk analytics, factor models, and scenario engine in Phase 3.

### ROLE OVERVIEW:

Dev B consumes Dev A outputs and transforms them into portfolio analytics, risk diagnostics, and scenario simulations.

### SCOPE OF WORK:

#### 1. Portfolio Aggregation & Risk Engine

- Combine asset/strategy returns into a unified portfolio return series.
- Compute volatility, Sharpe, drawdown, rolling metrics.

#### 2. Correlation & Factor Analysis

- Correlation matrices for assets/strategies.
- Factor regressions using statsmodels OLS.

#### 3. Scenario Engine

- Build linear sensitivity shock model.
- Estimate P&L; impact per asset and aggregated portfolio.
- Output ScenarioResultJSON.

#### 4. Risk Rails

##### Implement:

- concentration screens
- correlation clustering flags
- VaR (historical)
- regime-based warnings

#### 5. Interfaces

Primary output: RiskReportJSON.

NOTES:

Dev B must not call Backtrader. All work begins at BacktestResultJSON.