



Team Name : Group AP

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Problem Statement & Solution

Domain: Finance (F2-Portfolio Recommender Agent)

Problem Statement:

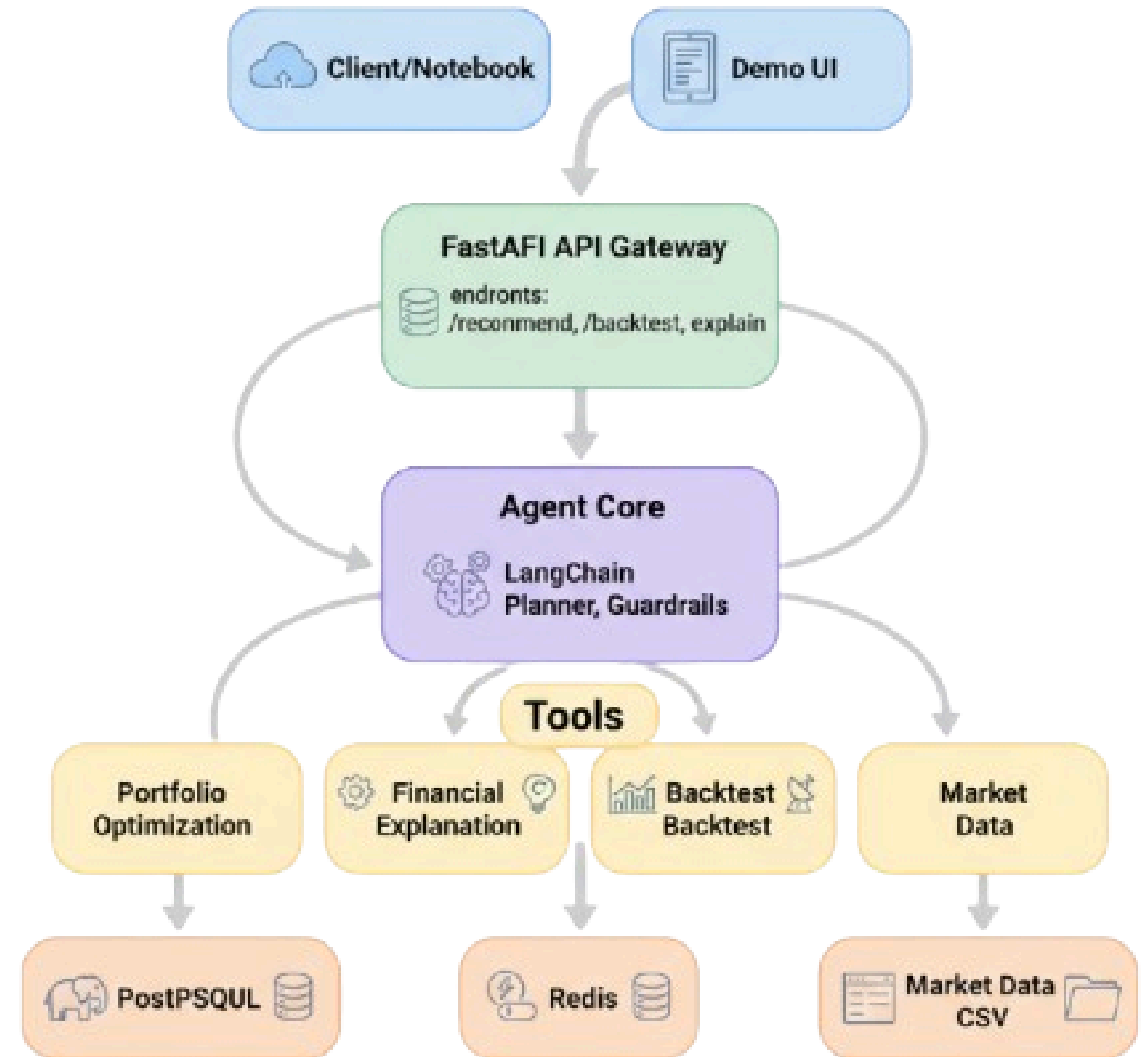
Non-technical investors struggle to craft optimized, transparent, and compliant portfolios. This solution applies quantitative optimization and AI-driven reasoning to deliver data-backed, auditable allocations with clear interpretability and risk alignment.

Proposed Solution:

The proposed system employs a hybrid AI and quantitative optimization framework that transforms investor profiles into balanced, data-grounded portfolios. It integrates machine learning, risk analytics, and explainable AI to deliver transparent, auditable asset allocations. Using tools like PyPortfolioOpt and reinforcement learning, the engine optimizes returns while maintaining compliance and stability under volatile conditions. Automated evaluation, guardrails, and backtesting ensure performance reliability, making it a production-ready, enterprise-grade portfolio management solution.



System Architecture





Feasibility & Viability



Viability.

01

INFRASTRUCTURE

Secure, scalable, and cloud-native framework



02

RISK & COMPLIANCE

Guardrails ensure reliability and safety.



03

HIGH ROI

Cost-efficient, adaptable, and sustainable system.



Feasibility Analysis

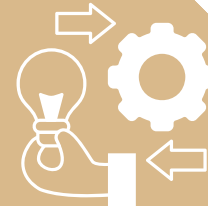
Technically Possible

Powered by LangChain, PyPortfolioOpt, and FastAPI, ensuring stable agentic logic, secure APIs, and efficient quantitative computation.



Operational Fit

Modular structure with Docker Compose and CI/CD pipelines enables smooth integration, easy debugging, and scalable cloud deployment.



Economically Viable

Built with open-source components and optimized compute usage to minimize cost while maintaining professional performance standards.



Scalability

Microservice architecture and async workers allow horizontal scaling and concurrent multi-user operations with minimal latency



Strategies to Overcome

1

Hybrid Validation



AI + Human oversight

2

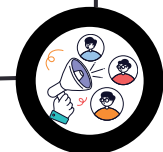
Data Governance



Secure Encryption and Access

3

Awareness Programs



Training & Campaigns

4

User Training



Data Caching & Access

5

Collaboration



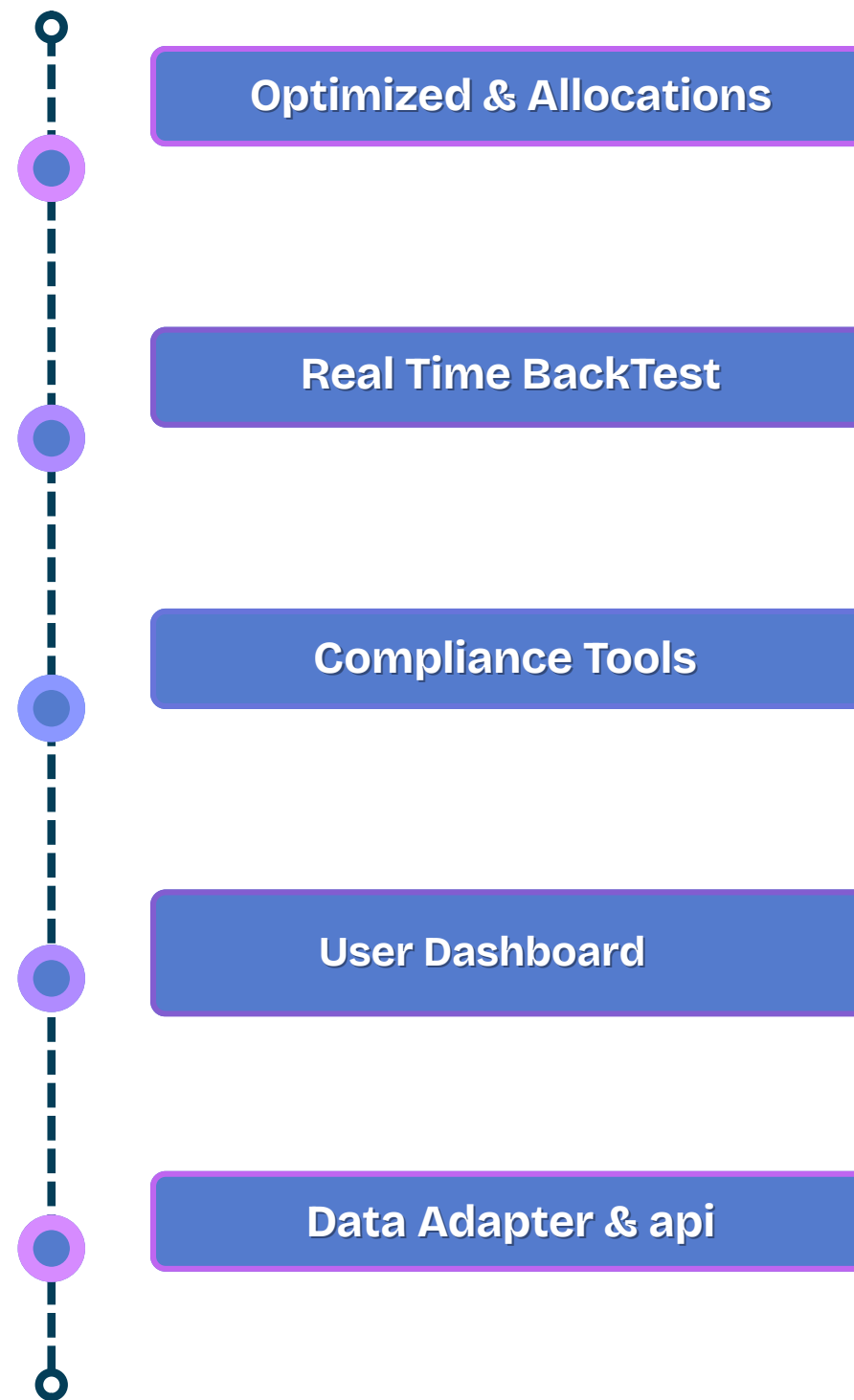
Strategic Partnerships



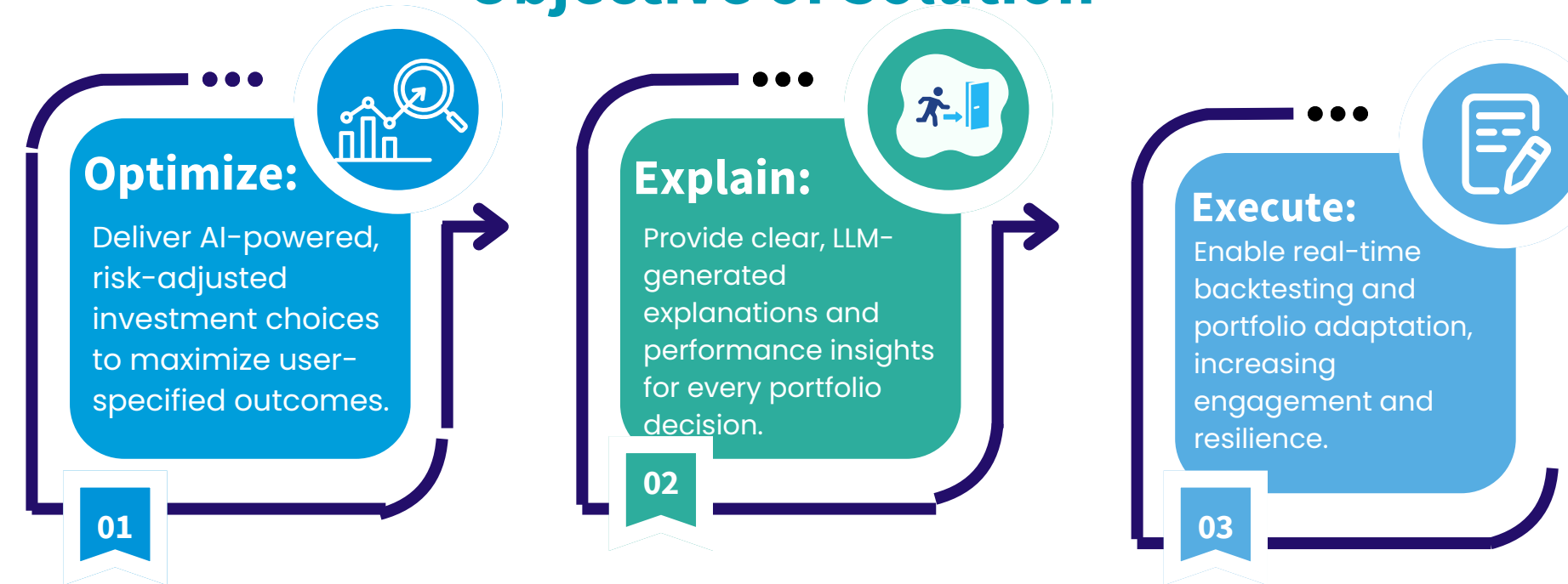
Objective & Scope of Solution



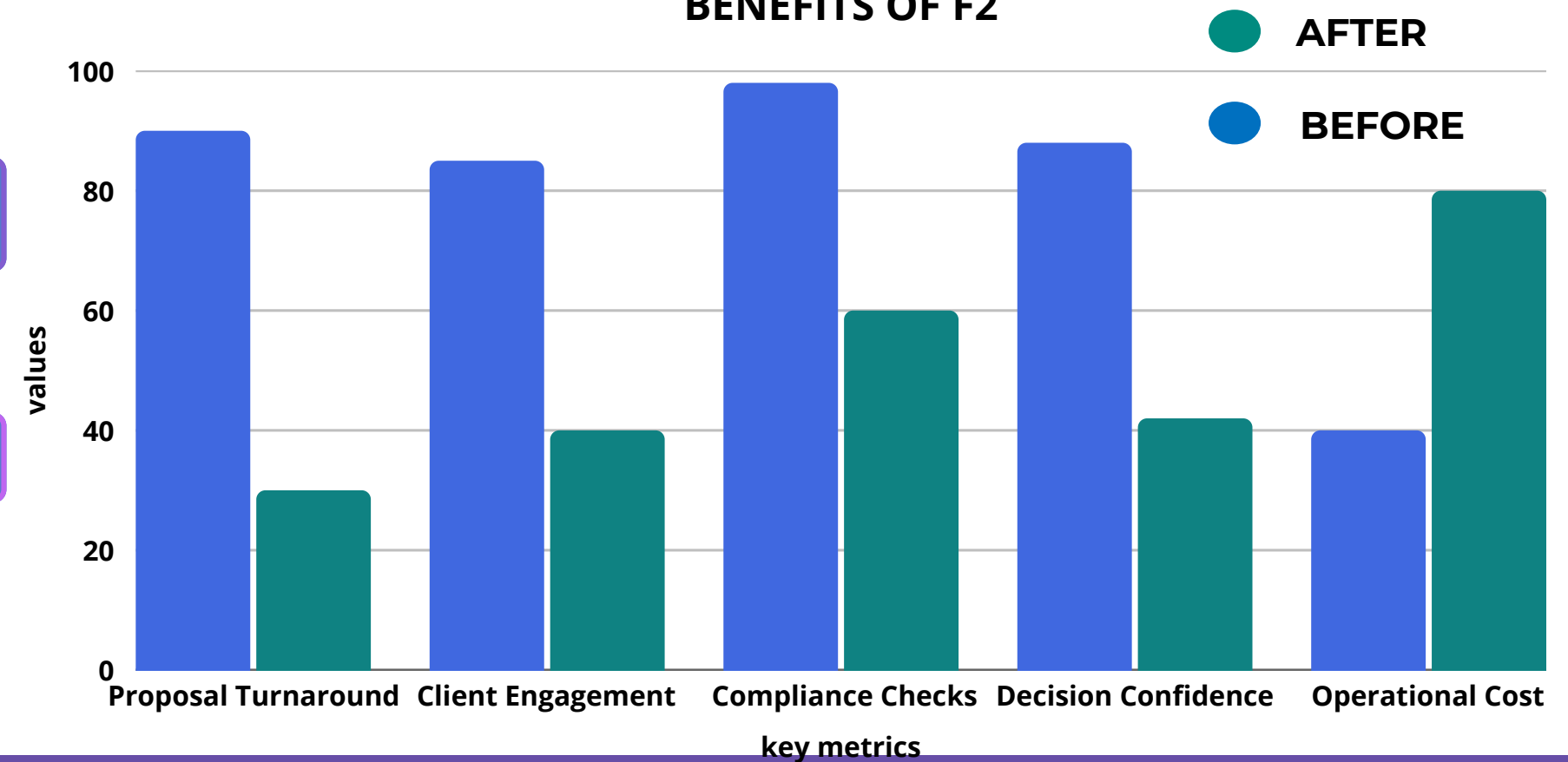
Scope of the Solution



Objective of Solution



BENEFITS OF F2





Resources Required



Support Needed

- Access to reliable financial datasets (historical market and returns data).
- Cloud credits or compute resources for model training and back testing.
- API access keys for market data providers (Yahoo Finance, Alpha Vantage).
- Expert feedback on financial model calibration and regulatory compliance.

Technology Stack

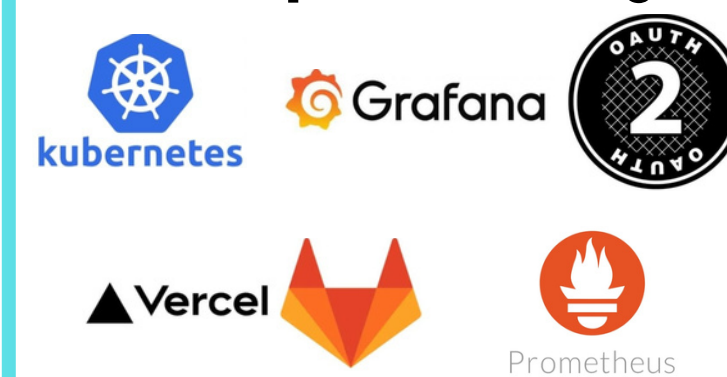
Frontend Development



Backend Development



Deployment/ DevOps/Security



Database Integration



AI/ML Frameworks



Other API's/Services

