Crypto Volatility and Risk Analyzer

Infosys Springboard Virtual Internship 6.0

MILESTONE - 3

Presented by:

- Manya Bhat
- Shreeja H S
- Priyanka Jonnalagadda
- Ravi Chandrika

Project Overview

- The objective of this project is to design a system for **quantitative risk analysis and prediction** in cryptocurrency markets
- The system evaluates risk at both **individual coin level** and **portfolio level**
- Emphasis is placed on volatility analysis, risk scoring, and predictive modeling using machine learning techniques

Milestone 3 (Ongoing):

1. Coin-level and portfolio-level risk analysis
2. Alert logic for abnormal volatility and price movements
3. Machine learning–based future risk prediction

Completed System Components

- Market data ingestion
- Feature extraction and volatility analysis
- Risk scoring and classification
- Alert generation mechanism
- Coin-level and portfolio-level evaluation
- Machine learning–based prediction
- Output generation for visualization and reporting

Key Technical Contributions

- Quantitative transformation of market data into interpretable risk metrics
- Portfolio-level risk evaluation rather than isolated asset analysis
- Integration of predictive modeling for future risk estimation
- Modular architecture supporting scalability and extension

System Architecture and Workflow

- Data preprocessing and feature engineering pipeline
- Risk score and stability computation modules
- Coin-level risk classification
- Portfolio-level risk aggregation
- Rule-based alert generation
- Machine learning models for risk prediction
- Structured outputs for dashboard integration

Future Scope

- Development of an interactive front-end interface
- Enhancement of user experience and interpretability
- Support for:
    - User-defined coin selection
    - Portfolio customization
    - Real-time alert visualization
- Integration of live market data APIs
- Deployment as a complete end-to-end analytical system




Conclusion

- The core analytical and machine learning pipeline has been successfully implemented
- The system demonstrates functional stability at **75% project completion**
- Completion of front-end integration and deployment will enable real-world usability

THANK YOU !