

Phase 1

- **Project Overview**

Title

Analysis/Categorization of Smart Contracts on EVM-based Blockchain Network (Binance, Polygon, Optimism)

Objective

The main objective of the project is to analyze different types of recently deployed smart contracts, for example: NFT, wallet, security, etc. on three platforms, namely. Polygon, Binance, and Optimism. Using relevant APIs and analytical tools, this study will categorize smart contracts and also provide a detailed analysis report including the types, trends, and behaviors of these contracts.

- **Problem Understanding:**

Description

The project focuses on the analysis and comparison of smart contracts, with an emphasis on their functionality on these platforms. These contracts target specific use cases, raising questions about frequently deployed types.

Relevance

This problem is significant due to the expanding needs of blockchains that demand more relevant, useful, and secure smart contracts to meet performance and security standards across various EVM-based platforms. It can help to study the behavior of Smart Contracts on EVM-based Blockchain Networks Polygon, Binance, and Optimism.

Expected Outcomes

Expected outcomes include collecting data using APIs, analysis of smart contracts across platforms, identifying usage trends, and compiling a detailed report containing categorizations of smart contract types, behaviors, and trends across EVM-based platforms.

- **Literature Review**

Related Work

A research paper published in 2023 highlighted the common vulnerabilities for Smart Contracts on Polygon and Binance Platforms. In this study, a large number of Smart

Contracts were collected from Polygon and Binance using APIs. Many Smart Contract analysis tools, mainly Slither, Mythril, and Manticore were used to find the vulnerabilities of the collected Smart contracts. Then a common set of vulnerabilities of Smart contracts of both Platforms was summarized.

Another study related to the categorization of Ethereum Smart Contracts was published in 2021. It grouped the smart contracts based on their categories.

Technological Foundation

Smart Contracts, EVM, Polygon, Binance, Optimism

Research Papers and Articles

1. GVSD: Common Vulnerability Dataset for Smart Contracts on BSC and Polygon

<https://csitcp.com/paper/13/136csit01.pdf>

2. Smart Contracts Categorization With Topic Modeling Techniques

https://ceur-ws.org/Vol-3031/paper_6.pdf

- **Project Requirements**

Functional Requirements

- Smart Contracts data collection from the Binance, Optimism, and Polygon using APIs Bscscan, OP Mainnet Etherscan, and Polygonscan respectively.
- Categorization of Smart Contracts collected from all platforms using the scripts into categories like NFT, Game Router, Wallet, etc.
- Analysis of Smart Contracts using tools and an analysis report defining the trends across platforms and other details.

Non-Functional Requirements

Efficient data collection keeping in check the API limit of Polygonscan, Bscscan, and OP Mainnet Etherscan.

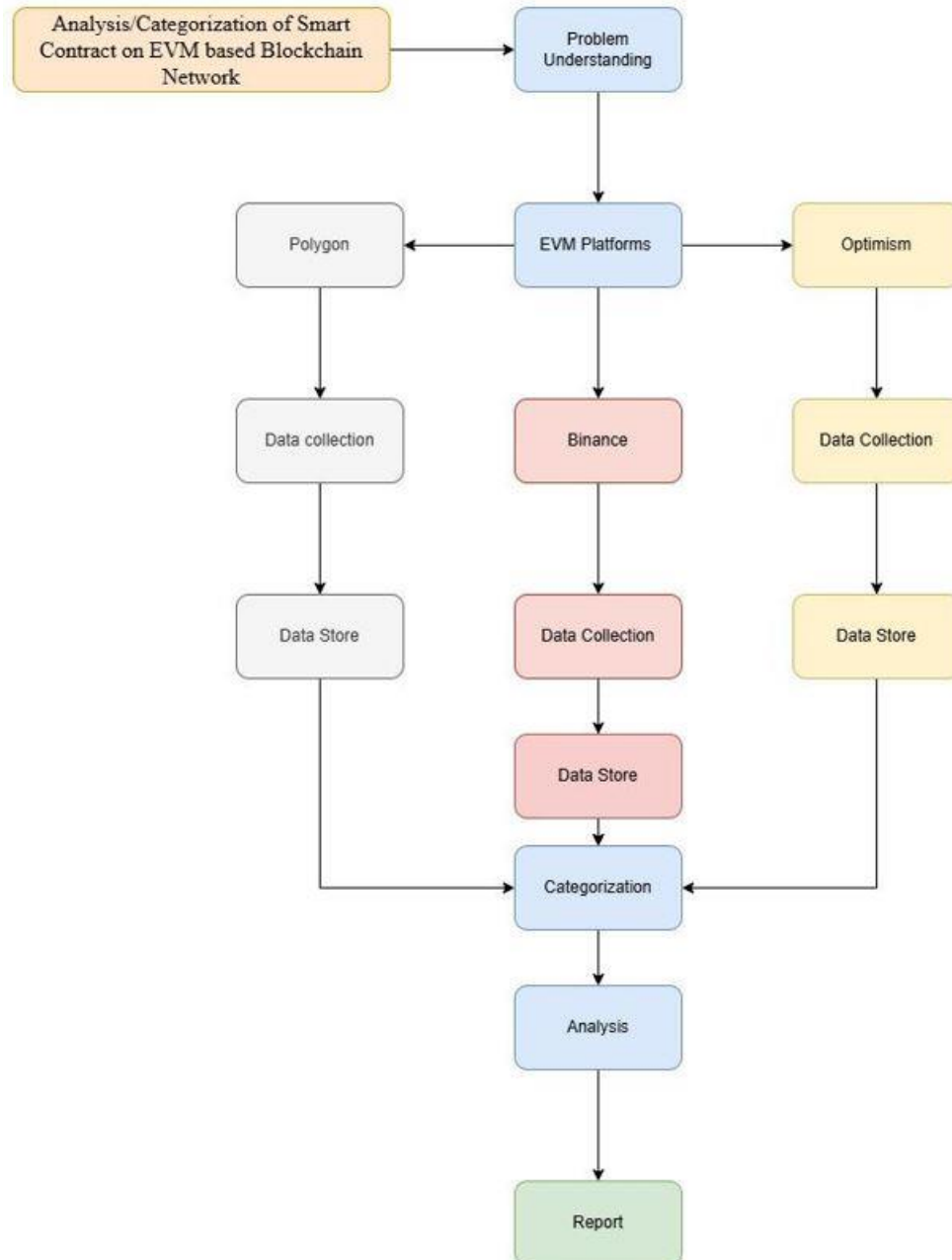
- Ensure the safety of the API Keys and collected data.
- Prepare a report summarizing all the project's key points, which is easy for any non-technical individual to understand.

Resource Requirements

Libraries & Tools: Polygonscan, optimism.etherscan and Bscscan APIs and other Python Libraries for data collection and categorization scripts. Smart Contracts analysis tools to perform analysis on collected contracts.

Hardware: Disk Space to store the collected Smart Contracts.

- **High-Level Diagram:**



References

1. Shen, Z., Chen, Y., & Zhang, W. (2023). GVSD: *Common vulnerability dataset for smart contracts on BSC and Polygon*. *Computer Science & Information Technology (CS & IT)*, 13(6). Retrieved from <https://csitcp.com/paper/13/136csit01.pdf>
2. Ibba, G., Ortu, M., & Tonelli, R. (2021). *Smart contracts categorization with topic modeling techniques*. *CEUR Workshop Proceedings*, 3031, 51-61. Retrieved from https://ceur-ws.org/Vol-3031/paper_6.pdf
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