Lindenshore Technical Assessment: Blockchain Data Discovery

Background

Every day, millions of transactions are sent to blockchain networks from around the world. Transactions can vary in complexity; some chains simply facilitate transfers between two accounts, while others allow for entire programs (known as "smart contracts") to be executed. Regardless, what makes blockchains unique is that these transactions are immutably embedded into the chain, providing a cryptographically secure and auditable record of those which have occurred.

This record is globally distributed and accessible to anyone with an internet connection. There are a number of services which provide free RPC access to these blockchains, allowing anyone to query the vast history of transactions.

Objective

Choose a blockchain network (Ethereum, BSC, Arbitrum, Solana, Base, Hyperliquid, or another of your choice). Your goal is to conduct a discovery project using a free RPC endpoint for that chain.

You must:

1. Connect to the chain via RPC.

2. Query and collect on-chain data of your choosing. Examples include (but are not limited to):
    - transactions related to a specific DEX (Uniswap v2/v3/v4, Curve, Paradex, dYdX v3, Phoenix, Aave, etc.)
    - Orders or fills from a perpetual exchange
    - Liquidation events in lending protocols
    - Yield, staking, or validator reward data
    - Arbitrage or MEV-related signals across liquidity pools

Feel free to leverage any of the following tools for inspiration:

- https://defillama.com/protocols
- https://www.coingecko.com/
- https://dexscreener.com/
- https://eigenphi.io/

3. Store and analyze the data locally in a format of your choice (e.g., JSON, SQLite, Postgres, CSV).

4. Explain:

    - **Why you selected this dataset** (what makes it interesting or useful).

    - **What insights you discovered** after collecting and analyzing it.
    - **How it could be applied** (e.g., to arbitrage, MEV detection, yield optimization, risk analysis).

Requirements

- Use any programming language you prefer.
- Use only publicly available RPC endpoints or APIs (free tier is fine).
- The project should include:
    - A working script/program to query the data.
    - Documentation (README) explaining:
        - How to run your code
        - What data it collects.
        - What you learned from the data.

Deliverables

- A GitHub repo (or zip file) containing your code, instructions, and findings.
- A short write-up (1–2 pages max or README section) answering:
    - *Why this data is interesting.*
    - *What you learned after exploring it.*
    - *Potential applications of your findings.*

Notes

- The following links provide documentation about the RPC APIs for various chains:
    - Ethereum-based chains: https://ethereum.org/developers/docs/apis/json-rpc/
    - Solana: https://solana.com/docs/rpc
- There are no restrictions on the complexity of your project — simple is fine if the insights are thoughtful.
- Bonus: Cross-chain comparisons (e.g., the same token/pair on Ethereum vs. BSC) or advanced mechanics (e.g., concentrated liquidity in Uniswap v3).
- We're especially interested in **original insights** around arbitrage, MEV, liquidations, staking, or yield.