

Take-Home Assignment

Objective:

The goal of this project is to assess your ability to research, design, and partially implement an MEV strategy in the Sui ecosystem. Specifically, you need to design a framework for an MEV bot that detects profitable arbitrage opportunities against a given opportunity transaction and executes an arbitrage transaction accordingly.

Problem Definition:

Given an opportunity transaction occurring on the Sui blockchain, design a system that:

- Identifies the transaction's impact on asset prices.
- Finds a viable arbitrage opportunity based on that impact.
- Constructs and submits a profitable arbitrage transaction.

Deliverables:

- Trading Strategy & Arbitrage Search
 - Find an opportunity transaction on Sui, either by Shio or a raw transaction.
 - What are your criteria for determining whether an arbitrage is possible and profitable?
 - How would you efficiently search for the best arbitrage transaction?
 - What assumptions are you making about slippage, latency, and other trading constraints?
- Transaction Execution & MEV Bot Architecture
 - Outline the architecture of the MEV bot, detailing how each component interacts.
 - Describe how you would integrate with Sui's execution layer and submit transactions.
 - Discuss how you handle gas optimization and transaction fees.
 - What risks and failure modes do you foresee, and how would you mitigate them?
- Implementation & Code Framework
 - Code a basic framework for the MEV bot (in Python, Rust, or Move, as appropriate). You don't need to fully implement a working MEV bot, but the framework should be detailed enough to demonstrate your understanding. Key components can include (but are not limited to):
 - A transaction monitoring module.
 - A price-impact analysis module.
 - A trading strategy module
 - A transaction construction and submission module.

Timeline & Submission

- Estimated time: 3-4 days
- Submit a GitHub repository or a zip file containing your research write-up and code.
- A short README explaining how to run your code and any assumptions made.