



ANASTASIA LABS

Design Patterns - Final Milestone

Project Close-out Report

Project Number	1000012
Project manager	Jonathan Rodriguez
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Project Name: Streamlining Development: A User-Friendly Smart Contract Library for Plutarch and Aiken Design Patterns & Efficiency

URL: [Project Catalyst Proposal](#)

List of KPIs

Challenge KPIs

Performance Optimization

- Optimized [mapping functions](#) to reduce complexity and cost of smart contracts
- Managed [script size and execution budgets](#) to reduce transaction fees
- [Reduced ExUnits cost](#) compared to traditional checks

Security Enhancement

- Measures against known exploits like [double satisfaction](#)
- Comprehensive validation by incorporating [UTxO indices](#) within the redeemer

Consistency

- Predictable [compilation outcomes](#)
- Provided a normalized representation of [validity ranges](#)

Project KPIs

Library Completeness

- Inclusion of key [design patterns](#) for [Plutarch](#) and [Aiken](#)

Documentation Quality

- High-quality, detailed documentation for each smart contract library with detailed flow charts/images displaying solution architectures

Engagement

- Active participation in social networks, GitHub, and community events

Key achievements

Development of Comprehensive Libraries

User-friendly libraries for Plutarch and Aiken, simplifying complex design patterns without sacrificing readability and circumventing repetitive boilerplate.

A comprehensive testing suite has been developed utilizing unit and property based tests. More on it can be observed on our extensive **Milestone-4 report**

Exemplary use of these libraries are found for 7 different validator scenarios in:

- **For Aiken**
- **For Plutarch**

Engagement

This year presentation on design patterns was given in Buidlfest, a community event specifically scheduled for 100 developers on Cardano. Communication with the developer community is really important to us, as we create tools specifically to make development on Cardano easier day by day.

Examples of the feedback we received during our presentations/on-stage (Toulouse, Buidlfest)

Key learnings

User Feedback

Incorporated feedback from developers/users to improve the libraries

Process Improvements

Development process has been improved based on insights gained during the project development

Best Practices

Documenting best practices for smart contract development and future maintainability

Next steps

Feature Enhancements

We will maintain and further optimize our existing libraries created for the developers.

Additional design pattern libraries that streamline the implementation process for other existing smart contract languages might come to life as the needs of our developer community requires it. (Such as [Scalus](#), Helios, Plu-ts ...)

Expansion

Targeting a wider developer audience through increased outreach. We are utilizing our design patterns in other tools we develop on Cardano too. For example, Lucid Evolution will be displaying design patterns in our tutorial series. We strive to create value by making our tools complimentary to each

Final thoughts

The project successfully addressed its purpose by creating a freely accessible library of design patterns for Cardano developers. Initiatives alike help best practices and already solved puzzles of development on Cardano spread and create ecosystem-wide returns.

We would like to believe our long-lasting open-source efforts have simplified design decisions and improved developer accessibility.

Resources

Project

- [GitHub Repository](#)
- [Catalyst Proposal](#)

Aiken

- [Aiken - Design Patterns](#)
- [Test Results / GIF](#)

Plutarch

- [Plutarch - Design Patterns](#)
- [Test Results / GIF](#)

Close-out Video

- [Youtube](#)