

Assignment Overview

Objective: Create a Cardano smart contract that allows users to deposit ADA into the contract and only the owner of the contract can withdraw it.

Purpose: This task is designed to introduce you to Cardano smart contract development and assess your ability to learn Cardano development tools, understand the basics of Plutus, Aiken, and implement a straightforward smart contract.

Task Requirements

1. Research Phase:

- Familiarize yourself with the Cardano blockchain.
- Learn about Aiken, a smart contract language for Cardano, by reviewing the official documentation, tutorials, and any relevant developer resources.
- Understand the concept of eUTxO as it applies to Cardano.

2. Development Phase:

- Install necessary development tools for Cardano and Aiken smart contract development.
- Set up a nodejs repository with Lucid for interacting with the on-chain contract.
- Develop a smart contract using Aiken that allows users to deposit ADA into the contract.
- Implement a withdrawal feature that is only callable by the depositor, allowing them to withdraw ADA from the contract.

3. Testing and Documentation:

- Write unit tests for your smart contract to ensure that deposits and withdrawals work as expected, and that unauthorized users cannot withdraw funds.
- Document your learning process, any challenges you encountered, and how you overcame them. Also, include instructions on how to set up, test, and interact with your smart contract.

Deliverables

- A GitHub repository containing:
 - The Aiken smart contract code.
 - Unit tests for the smart contract written in TypeScript.
 - A README file with:
 - A brief overview of the smart contract's functionality.
 - Instructions for setting up the development environment, deploying the smart contract, and running the tests.
 - A summary of your learning experience, including resources that you found helpful and any difficulties you faced.

Evaluation Criteria

- **Learning and Research:** Ability to understand and apply new concepts related to Cardano and Plutus development.
- **Problem Solving:** Effectiveness in creating a solution that meets the given requirements.
- **Code Quality:** Readability, structure, and adherence to best practices in software development.
- **Documentation and Communication:** Clarity in documentation, including the setup process, how to interact with the contract, and insights into the learning journey.

Note to Candidates

This assignment is designed to be an introductory task to Cardano development. It's okay if you're new to this blockchain or smart contract development in general. What we're looking for is your ability to learn and apply new technologies, your problem-solving approach, and how you document and communicate your process. Good luck!