Assessment: Bitcoin Staking Script with Babylon Testnet 4 Integration

Objective:
To create a Go Lang script that monitors Bitcoin deposits into a specific address and stakes the deposited Bitcoin against Babylon Testnet 4 by selecting a random finality provider.

Duration:
5 Days,

Task Description

Part 1: Bitcoin Deposit Monitoring

1. Monitor Deposits
   - Implement a mechanism to continuously monitor and detect Bitcoin deposits made to a specified address controlled by the code.
   - Ensure the detection mechanism is reliable and can handle multiple concurrent deposits.

Part 2: Bitcoin Staking with Babylon Testnet 4

1. Stake Deposited BTC
   - Upon detecting a deposit, the script should stake the deposited Bitcoin (sBTC) against Babylon Testnet 4.
   - The staking process should be automated and should select a random finality provider from the list of available providers.

2. Communication with Babylon Testnet 4
   - Implement communication between the Go script and Babylon Testnet 4 contracts.
   - Ensure that the script can interact with the Babylon Testnet 4 to complete the staking process.

Requirements

1. GitHub Repository
   - You will be provided with a GitHub repository by [Your Company Name], and access will be granted to your email address.
   - Push your code daily to this repository with descriptive commit messages.
   - Ensure the project is properly structured with clear directories for scripts, tests, and documentation.

2. Documentation
   - `README.md` explaining the project, how to set it up, and how to use it.
   - A separate document detailing the research and the development process.

Evaluation Criteria

1. Problem-Solving Skills
   - Ability to understand and research new concepts.
   - Effectiveness in breaking down the problem into manageable phases.

2. Programming Skills
   - Proficiency in Go.
   - Quality and readability of the code.
   - Proper use of version control with meaningful commit messages.

3. Documentation
   - Clarity and comprehensiveness of documentation.
   - Ability to communicate technical details effectively.

Steps to Follow

1. Access the GitHub Repository
   - You will receive an invitation to access a GitHub repository created by Bitquid Labs
   - Accept the invitation and set up your local development environment.

2. Start the Research and Development
   - Research Bitcoin staking mechanisms and Babylon Testnet 4.
   - Document your findings in a `research.md` file.

3. Daily Progress
   - Commit your code daily to the provided repository with detailed commit messages.
   - Update the documentation daily, reflecting the progress and any challenges faced.

4. Development Process
   - Implement the mechanism to monitor Bitcoin deposits.
   - Ensure the script can accept and process sBTC from users' public addresses.
   - Implement communication between the Go script and Babylon Testnet 4 contracts.
   - Automate the selection of a random finality provider and the staking process.
   - Test the script for functionality and security, and debug any issues found during testing.

5. Final Submission
   - Ensure the GitHub repository is complete with all the code and documentation.
   - The `README.md` should provide a comprehensive guide on setting up and running the script.
   - Include a final summary in the documentation detailing the overall development experience and any future improvements or features that could be added.