Project Brief: Charity Donation Platform

A comprehensive guide for creating a transparent and secure donation platform using Solidity.

Overview

This project focuses on creating a Charity Donation Platform smart contract, leveraging the concepts and tools taught during the class.

Key Objectives:

- Enable transparent and secure donations
- Provide accountability and trust

Key Features

- Donation Management
- Campaign Creation and Management
- Fund Withdrawal
- Event Logging

Tools and Concepts to Use

- Remix and Hardhat for development
- Alchemy (Sepolia Testnet) for deployment
- Ethers.js for interaction
- Role-Based Access Control (RBAC)
- Event Logging for transparency

Smart Contract Structure

- Campaign: id, title, description, targetAmount, raisedAmount, owner, isCompleted
- Donor: donorAddress, amount
- Functions: createCampaign, donateToCampaign, withdrawFunds
- Events: CampaignCreated, DonationReceived, FundsWithdrawn

Deliverables

- A deployed smart contract on Sepolia testnet
- A project report including:
- Deployment steps
- Test cases (using Hardhat)
- Interaction examples (using Ethers.js)

Evaluation Criteria

- Functionality: All features implemented as described
- Security: Role-based access control and reentrancy protections
- Code Quality: Clean, modular, and follows best practices
- Documentation: Well-documented functions
- Test Coverage: Critical functionalities tested

Suggested Timeline

- Week 1: Build and test the core contract using Remix
- Week 2: Migrate to Hardhat, write tests, and deploy to Sepolia testnet
- Week 3: Interact with the contract using Ethers.js and finalize the project report

Good Luck!

Let’s build something impactful!