CDS528 Group Assignment - Blockchain DeFi Smart Contract Development

**Overview**:

The group assignment on Blockchain DeFi Smart Contract Development is designed to provide students with a comprehensive learning experience in the field of blockchain technology, decentralized finance (DeFi), and smart contract development. The assignment aims to deepen the understanding of these concepts through practical tasks and collaborative efforts within a group setting.

For students aiming for an 'A' grade, the project should include additional advanced functionalities such as automated smart contract vulnerability checking. The project will be divided into comprehensive sections, with 20% of the effort focused on developing a Solidity-based smart contract and 80% on written components, including problem definition, solution design, and presentation.

**Group Task Breakdown:**

1. **Problem Statement (10%)**

* This component evaluates how well the group identifies and articulates the problem or challenge they aim to address through their smart contract development project. Clear and concise problem statements demonstrate a deep understanding of the issue at hand and set the foundation for the subsequent design and implementation phases. Students will be assessed on the clarity, relevance, and significance of the problem statement they define for their project.

**2. Creative Solution Design (10%)**

* The Creative Solution Design aspect assesses the group's ability to devise innovative and effective solutions to the identified problem. This phase involves brainstorming, conceptualizing, and outlining a unique approach to address the problem using smart contract technology. Creativity, feasibility, and alignment with the problem statement are key factors that will influence the evaluation of this segment. Groups are encouraged to think outside the box and propose solutions that showcase their understanding of blockchain and DeFi principles.

**3. Implementation of a Blockchain Application (10%)**

* The Implementation phase focuses on how well the group translates their solution design into a functional blockchain application, specifically through the development and deployment of smart contracts. Students will be evaluated on their technical proficiency in coding smart contracts, adherence to best practices, efficiency of implementation, and the overall functionality of the blockchain application they create. Attention to detail, accuracy, and robustness of the implemented solution will be critical factors in determining the success of this phase.

Advanced Features for 'A' Grade (Optional but Recommended):

* Automated Smart Contract Vulnerability Checking: Integrate a tool or service that automatically checks the smart contract for common vulnerabilities, such as reentrancy attacks, overflow/underflow, and unauthorized access. Utilize tools like MythX, Slither, or Oyente for this purpose.

**4. Group Project Presentation (10%)**

* Presentation Structure: Prepare a clear and engaging presentation that summarizes the project's key components, including the problem definition, solution design, and implementation.
* Visual Aids: Utilize visual aids such as slides, diagrams to illustrate the system architecture, smart contract operation, and user interactions.
* Team Participation: Ensure each group member presents a section of the project, demonstrating a comprehensive understanding of their part.
* Q&A Session: Prepare for a Q&A session to address potential questions from instructors or peers. Demonstrate in-depth knowledge of the project and blockchain concepts.

Submission Details:

1. You must ensure that all your project files used for this task and the report sit in a directory called “Group Assignment – Your Assignment Name”.
2. All files are required to be uploaded and a link to the “Group Assignment” directory submitted to Moodle.
3. Please make sure that unit Instructor and TA have access to the folder.
4. A link to the demo video of your app running **must be submitted**.
5. It would be great if you could submit your GitHub link.
6. This is a **Group** assignment, and you should submit it **by 8 pm, Friday, Week 11**.