FIN555 Hands-on Lab with Multichain

Level: 5
Credit Units: 2.5 Credit Units
Language: ENGLISH
Presentation Pattern: EVERY JULY

Synopsis:

FIN555 Hands-on Lab with Multichain focuses on hands-on lab training and lay a solid foundation in the architecture of Multichain. Multichain is a fork of Bitcoin Core and is designed with maximal compatibility with the Bitcoin protocol in mind. Because the Bitcoin protocol is by far the most mature and proven public blockchain technology in the world, this makes Multichain a very suitable candidate for developing real world production-grade applications. After this course, students are expected to have grasped the knowledge and programming skills in building a private blockchain network, designing and transacting assets, as well as forking a new blockchain to specific use. The course aims to build students' capabilities in assessing and designing variants of Bitcoin in the market independently.

Topics:
- Concepts of the Bitcoin protocol
- Proof-of-Work consensus and mining
- Public and private blockchains
- Bitcoin address and wallet
- Transaction and block structure
- Bitcoin scripting language
- Multichain private blockchain platform
- Multichain consensus
- Multichain programming API
- Multisignature address and its usage
- Atomic exchange transaction

Learning Outcome:
- Appraise the key concepts of Bitcoin as a special case of Multichain
- Assess the differences between a private blockchain vs a public blockchain
- Evaluate the key concepts of Multichain including permissions management, native asset and data stream.
- Assess the advantages and limitations in applying private blockchains to solve real world problems
- Construct a private and permissioned blockchain network with Multichain
- Design and implement native assets in private network, where the assets can be managed and ransacted
- Design and develop a web-app to manage blockchain streams
- Develop applications using Multichain API

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
PARTICIPATION	10
GROUP BASED ASSIGNMENT	40

Sub-Total	**50**

Examinable Component	Weightage (%)
ECA	50
Sub-Total	**50**

Weightage Total   **100**