Hyperledger Mentorship Project Presentation

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Operate Blockchain Network in an Efficient Way

Introduction

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Hyperledger Project: Hyperledger Cello
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Project Description:

- Create a practical operational system equipped with distributed functionality to manage a large blockchain network.
  - Build blockchain network.
  - Connect blockchain network among multiple organizations.
- Help these users who don’t have blockchain background manage a large blockchain network with multiple organizations and nodes.
- Tools used to build this system include
  - Python, Django,
  - JavaScript, React,
  - and Docker.
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Project Objectives:

- Obj 1: Design and implement a visual interface dashboard to build and operate Fabric networks.
- Obj 2: Build a connection between the web application and the network.
- Obj 3: Ability to create Fabric channels and join organizations to the channel.
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Project Deliverables:

Deliverable 1: Miscellaneous PRs for fixing small bugs and errors.
- Fix #256 api-engine syntax error by zhuyuanmao · Pull Request #257 · hyperledger/cello (github.com)
- Fix #264: fix swagger api doc loading error. by zhuyuanmao · Pull Request #265 · hyperledger/cello (github.com)
- Fix #290 Can not get JWT token from obtain_jwt_token view by zhuyuanmao · Pull Request #296 · hyperledger/cello (github.com)
- Download binary files in docker image building process. by zhuyuanmao · Pull Request #337 · hyperledger/cello (github.com)
- Change Fabric nodes naming by zhuyuanmao · Pull Request #347 · hyperledger/cello (github.com)
- Correct the org field name and remove unused fields by zhuyuanmao · Pull Request #348 · hyperledger/cello (github.com)

Deliverable 2: Build a connection between the web application and Fabric network.
- Add ports number mapping feature when the agent creates nodes. by zhuyuanmao · Pull Request #339 · hyperledger/cello (github.com)
- Create a docker network by zhuyuanmao · Pull Request #345 · hyperledger/cello (github.com)

Deliverable 3: Implement Fabric channel create/edit/view API endpoints.
- Channel endpoints by zhuyuanmao · Pull Request #272 · hyperledger/cello (github.com)
- Refactor channel creating and channel cmd. by zhuyuanmao · Pull Request #346 · hyperledger/cello (github.com)
- Refactor configtx and configtxgen by zhuyuanmao · Pull Request #344 · hyperledger/cello (github.com)
- Implement channel creating operation with peer channel cli. by zhuyuanmao · Pull Request #328 · hyperledger/cello (github.com)
- Add channel updating operation by zhuyuanmao · Pull Request #307 · hyperledger/cello (github.com)
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Project Execution & Accomplishments:

- Create a web application that allows users to build a Fabric network.
- Create a Fabric channel and Join organizations to the Channel which can communicate with two or more specific network members.
- Unfortunately, I spent a lot of time on previous deliverables and the visual interface of Channel part wasn’t finished.
- This was my first blockchain related project, and I learned a lot from this project from concept to practice. Overall I found expanding on my knowledge of fabric blockchain and web development.
- It was also the most challenging along with understanding how to utilize fabric-tools and configure fabric network.
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Recommendations for future work:

- Finishing visual interface part of the channel for this application.
- Using fabric-python SDK to perform the operations of fabric network.
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Project Output or Results: Build and connect a Fabric network.
- Send network data to Create Network endpoint.
- Generate configtx.yaml.
- Store data in database.
- Use fabric-tools to create it.
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Project Output or Results: Create a Fabric channel and Join organizations.
- Send the new channel data.
- Regenerate configtx.yaml
- Use fabric-tools to perform this.
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› Insights Gained:
  ○ How to search a large codebase.
  ○ Gained blockchain knowledge.

› Advice:
  ○ Learn from existing resource and tutorials.
  ○ Attention to detail and Dive deep.
THANK YOU!