COMP3000 project initiation

Project vision

Providing end-to-end visibility into the manufacturing and distribution processes of all pharmaceutical medications. This service will build consumer trust in the vital medications they take on a daily basis and defend against counterfeit production slipping into mainstream supply chains. This system will work by creating a digital record for each drug batch including batch ID, timestamp, and the manufacturer's signature as a hash on a blockchain. The system will implement a hybrid storage system with off-chain data being raw and on-chain being hashed. Being hybrid allows for better scalability and cost effectiveness whilst also complying to important data security regulations such as GDPR with sensitive data that needs to be deletable to comply can be stored off-chain.

Scope

Objectives

Core objective: Design & develop a blockchain enabled pharmaceutical supply chain tracking system.
Tech objectives:

1. Implement a hyperledger fabric blockchain.
   - This will allow the system to implement an immutable record system for medication records.
2. Develop a hybrid storage system.
   - This will be made up of on-chain hashed data as well as off-chain documentation.
3. Create a scalable RESTful api back-end server.
   - This is important for interfacing between the blockchain network, ipfs storage system, and the portals for each user base.
4. Implement role-accessability.
   - This will be implemented to manage access levels for each user base (GPs, distributors, patients, etc..).

Constrains

1. Time constraint.
   - One time constraint to consider is the project duration - being approx 9 months (~late September 2025 – May 2026).
2. Resource constraint.
   - As a solo development project (with some help from another similarly overlapping dissertation project) as well as having other module commitments there will be a distinct human resources constraint.
   - There will also be a limited amount of computing resources, with all development and testing having to go through my personal machine.
   - Finally, the last resource constraint will be my limited access to infrastructure. This will cause constraint due to lack of access to hosting infrastructure.

3. Infrastructure constraint.
   - Something
4. Reach constraint
   - Something
5. Knowledge constraint.
   - Something
6. Ethical constraint
   - Something

Budget

Deadlines

Justification

Justification

Deliverables

Exclusions

Gantt chart