

Team Name - SHINKANSEN

College - PANIPAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

Contact Details - 9067830001

Email id - sarthaksatyakaushik@gmail.com

Problem Statement - **Tracking spurious drugs & ensuring brand safety**

Idea/Approach Details

Organization : **Emcure Pharmaceutical Ltd**

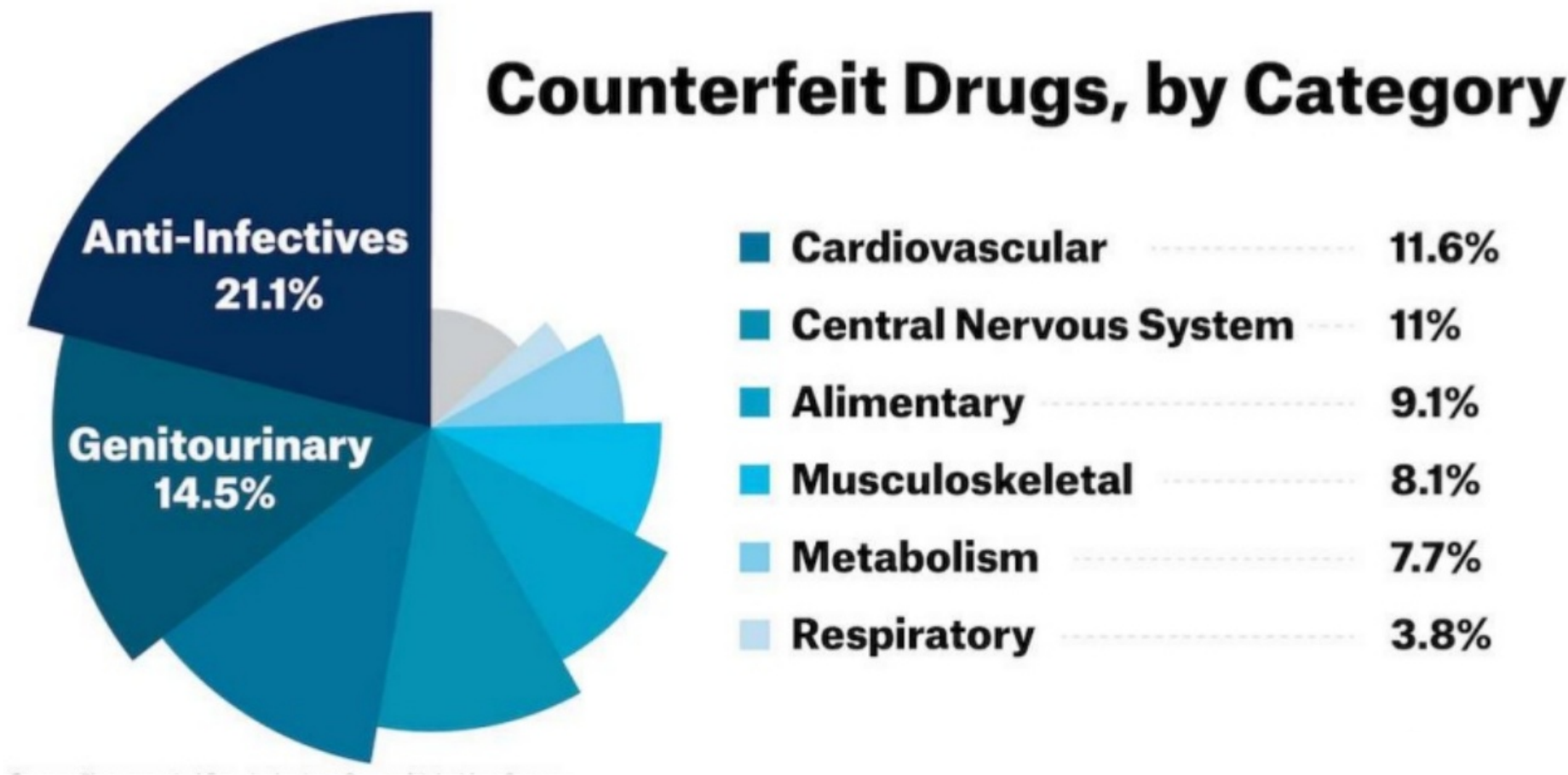
Problem Statement : **Tracking spurious drugs & ensuring brand safety**

Team Leader Name : **Sarthak Kaushik**

Current AICTE Application No : **1-3514050252**

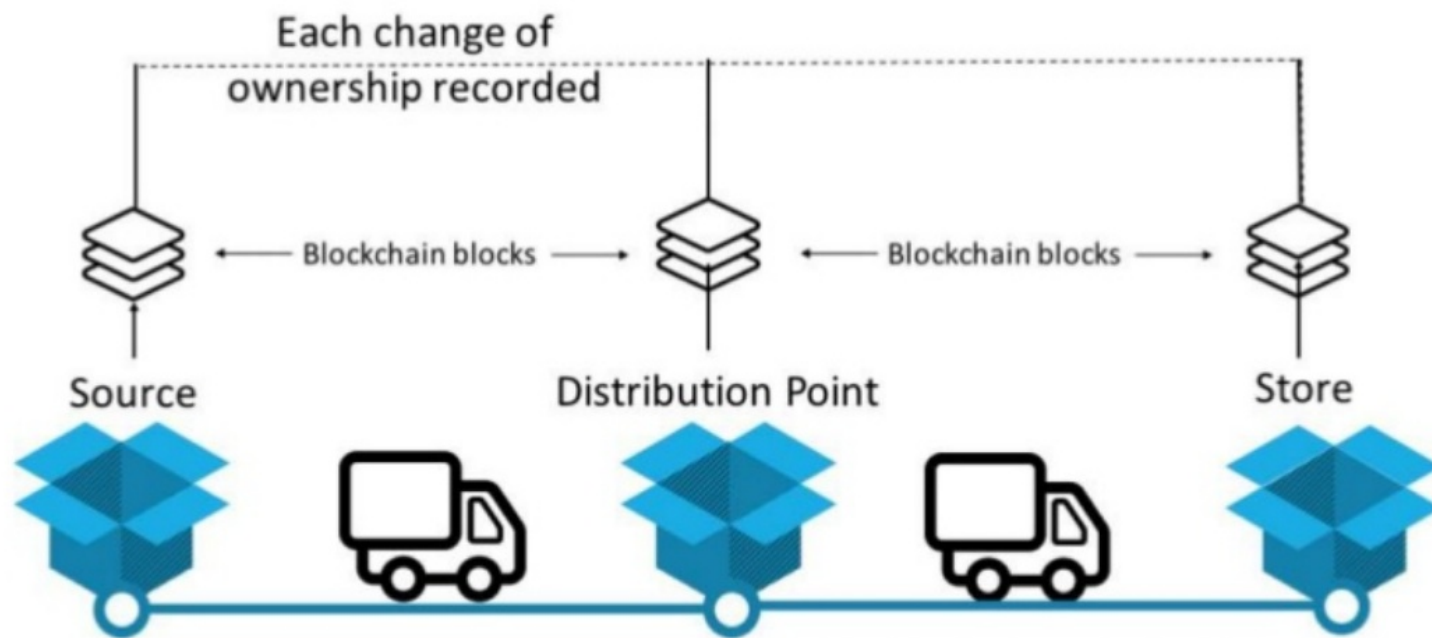
Problem Statement - The proliferation of counterfeit drugs is a serious concern for all pharmaceutical companies. We need to implement ways to integrate track and trace solutions in production and supply chain. We should be able to identify such spurious drugs which are deliberately or fraudulently mislabeled with respect to identity/source.

- **Current Problem Scenario - Centralised Solutionfor data relationships & information flows**
The graph represents real statistics -

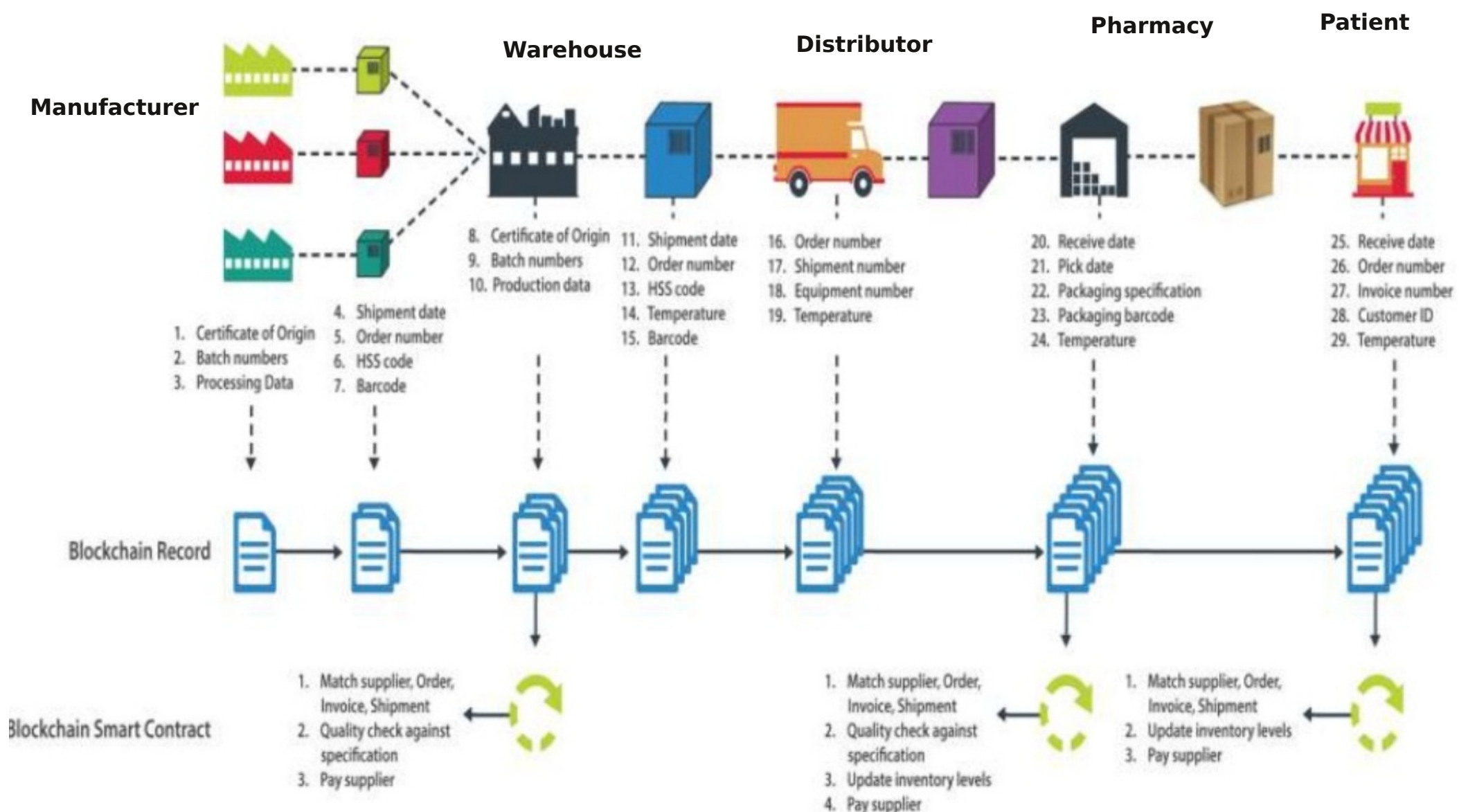


Ideation

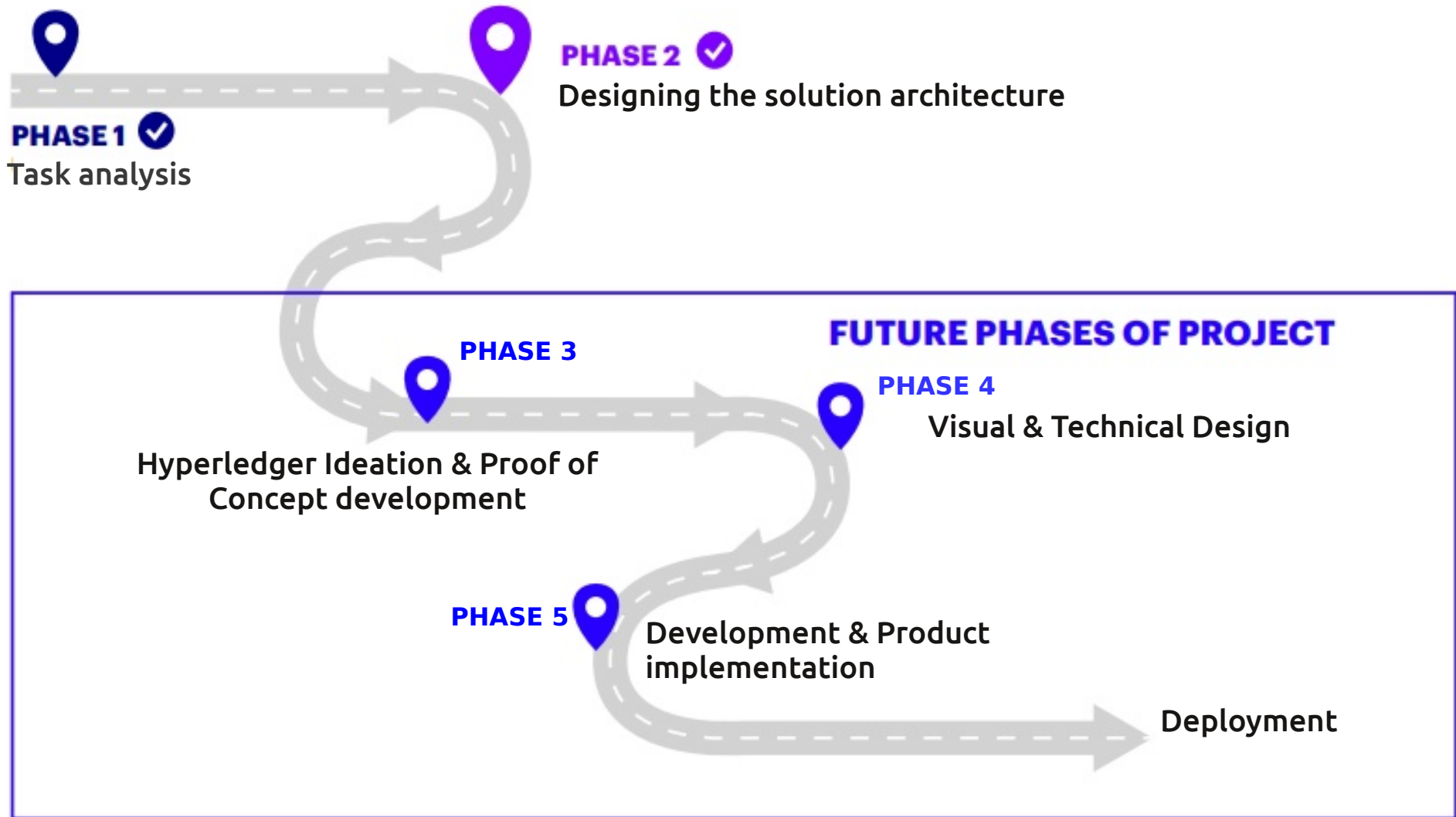
- A Permissioned Blockchain-enabled tracking spurious drugs & ensuring brand safety



- High Level Architecture of Solution



Phases for onboarding Blockchain solution for pharmaceutical companies



Key Components used

Interface Layer



Android



Web Stack

Transaction Layer



Hyperledger Composer is an extensive, open development toolset and framework to make developing blockchain applications easier.

Backend Layer



India Stack (set of APIs)



- Kafka® is used for building real-time data pipelines and streaming apps

- Cassandra database is the right choice when you need scalability and high availability without compromising performance

- Hyperledger is a multi-project open source collaborative effort hosted by The Linux Foundation, created to advance cross-industry blockchain technologies.

- IndiaStack is a set of APIs that allows governments, developers to utilise an unique digital Infrastructure to solve India's hard problems towards presence-less, paperless, and cashless service delivery.

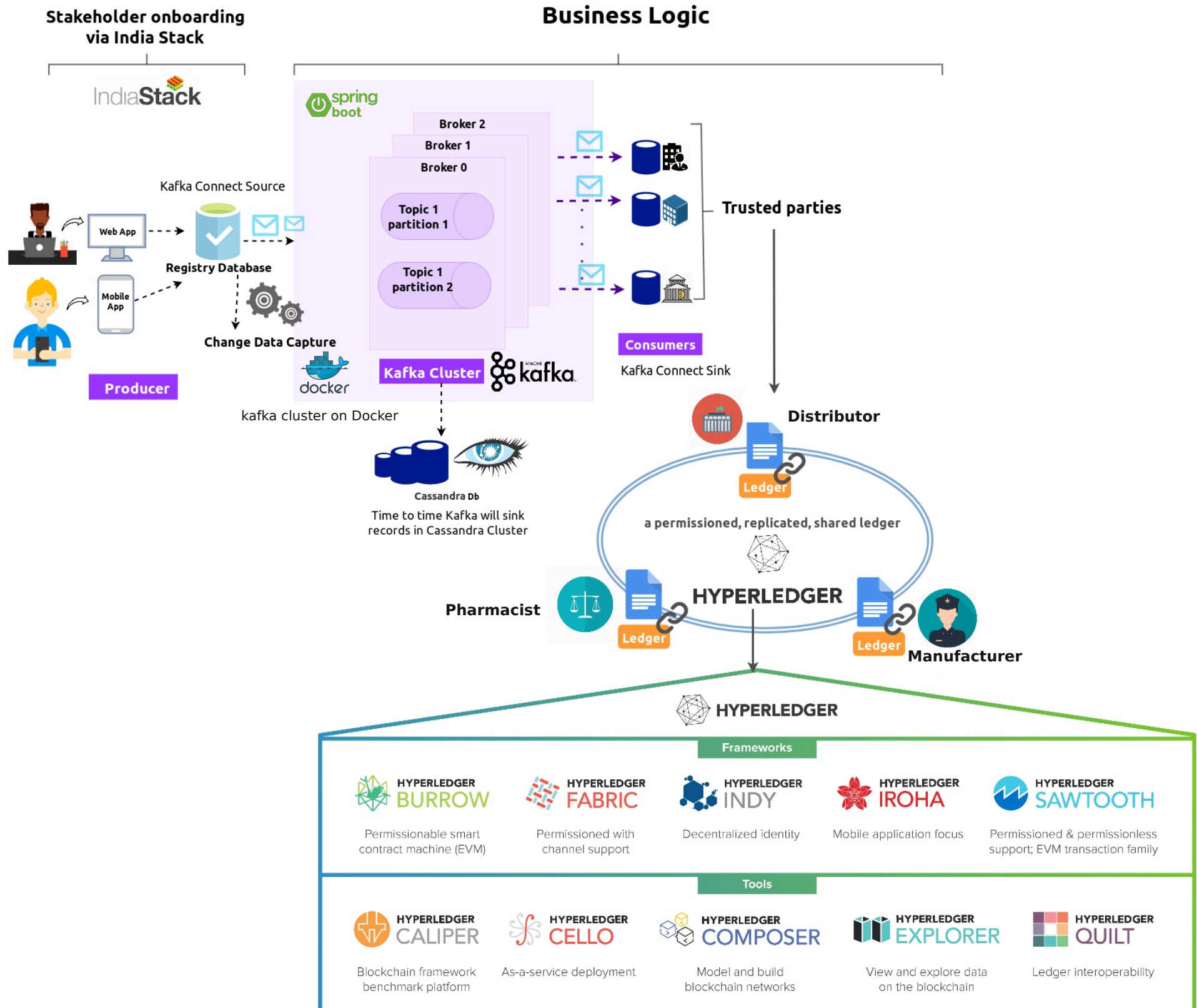
- The framework takes an opinionated approach to configuration, freeing developers from the need to define boilerplate configuration

Infrastructure Layer

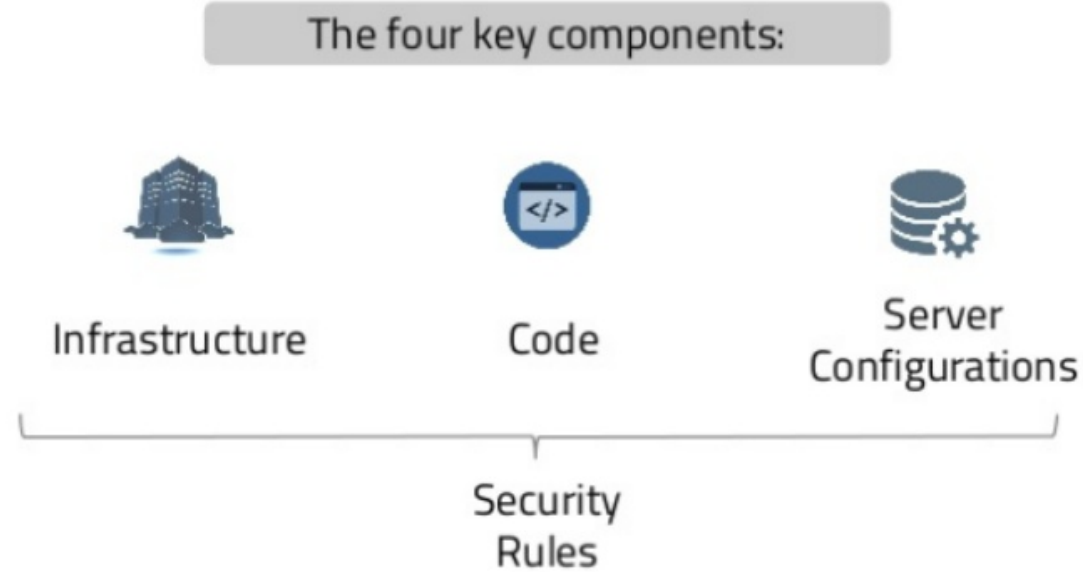


- Docker is a computer program that performs operating-system-level virtualization, also known as "containerization".

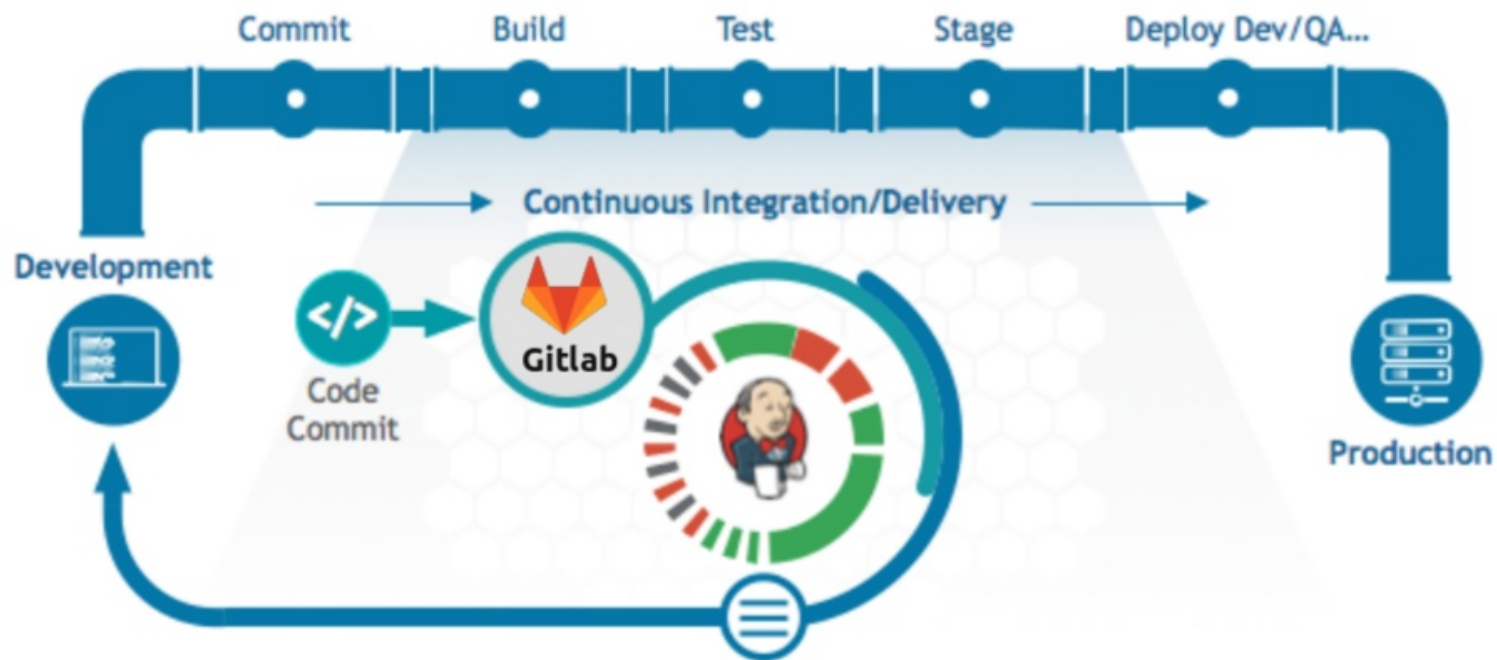
Technical Diagram



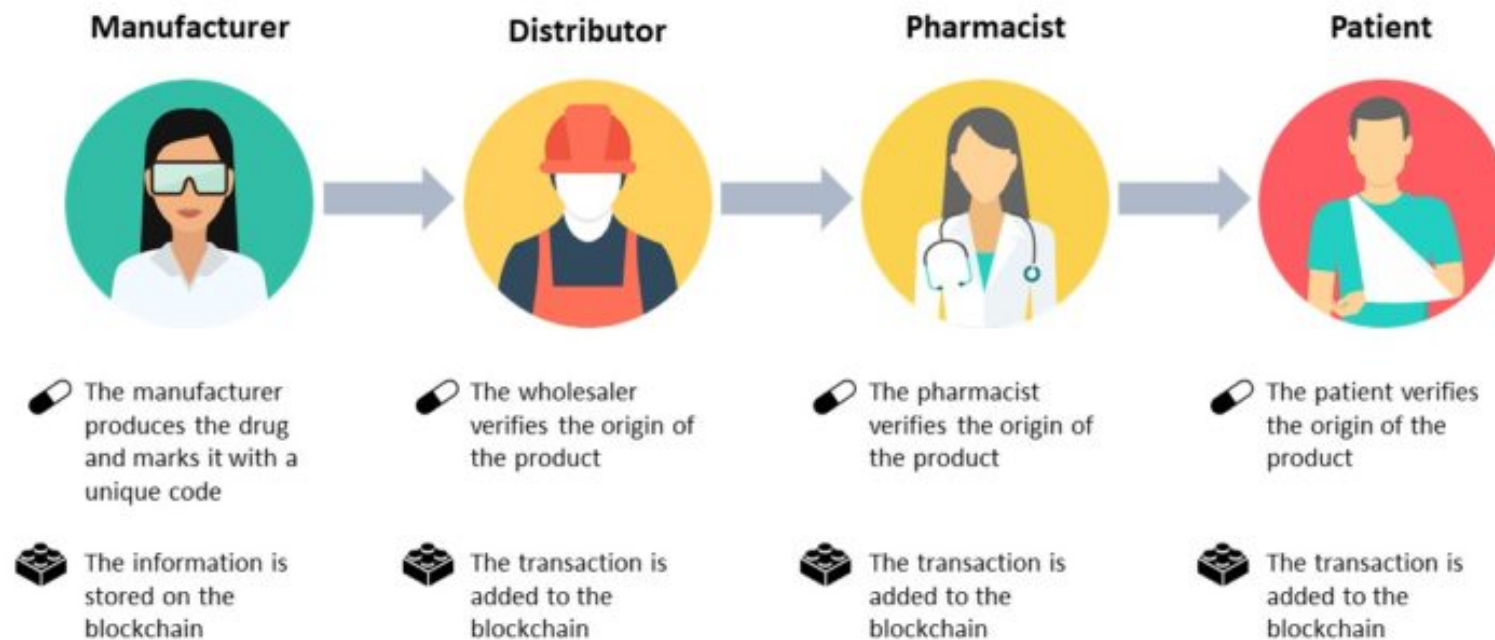
Technology Delivery Strategy :



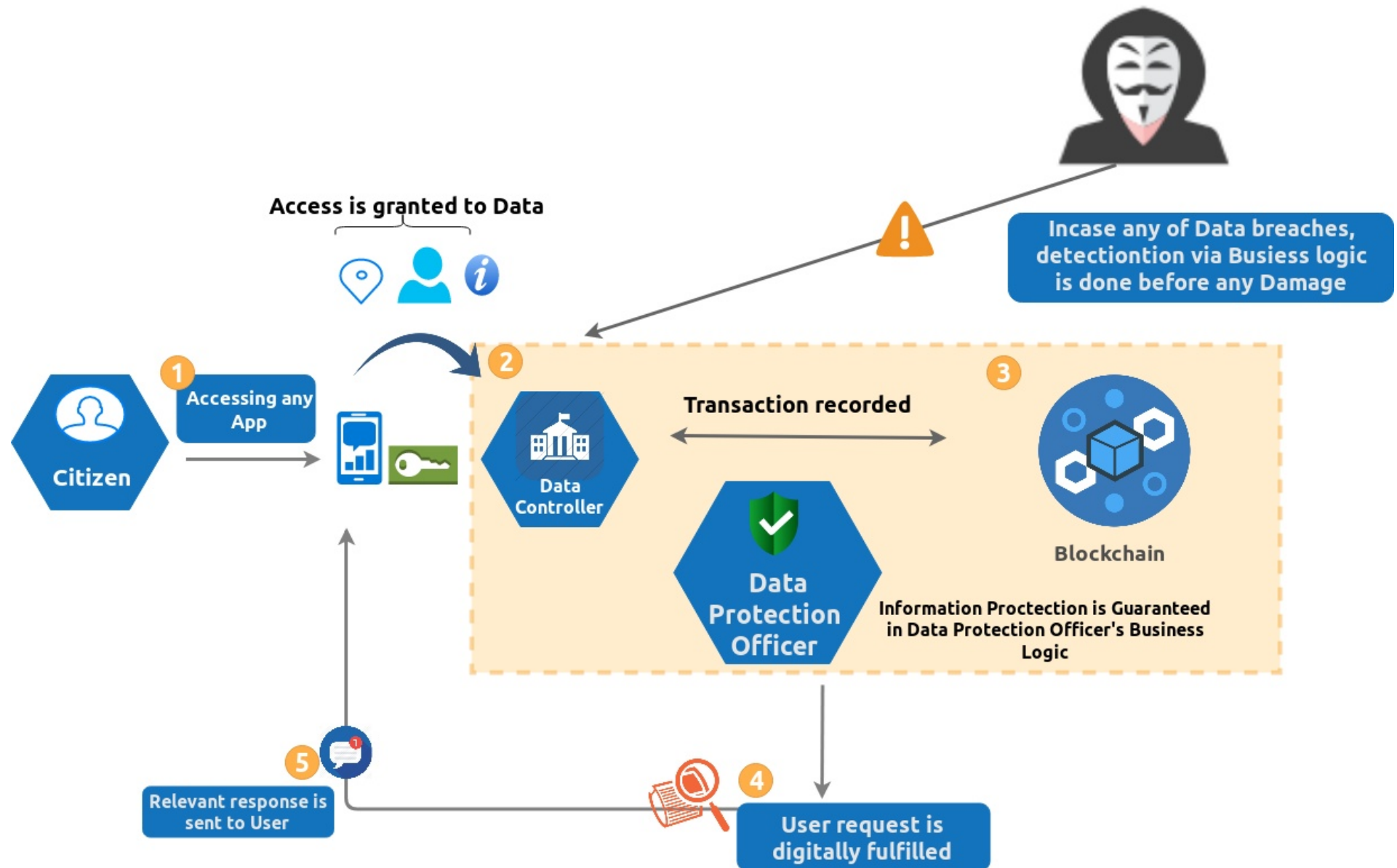
Technology Component Pipeline:



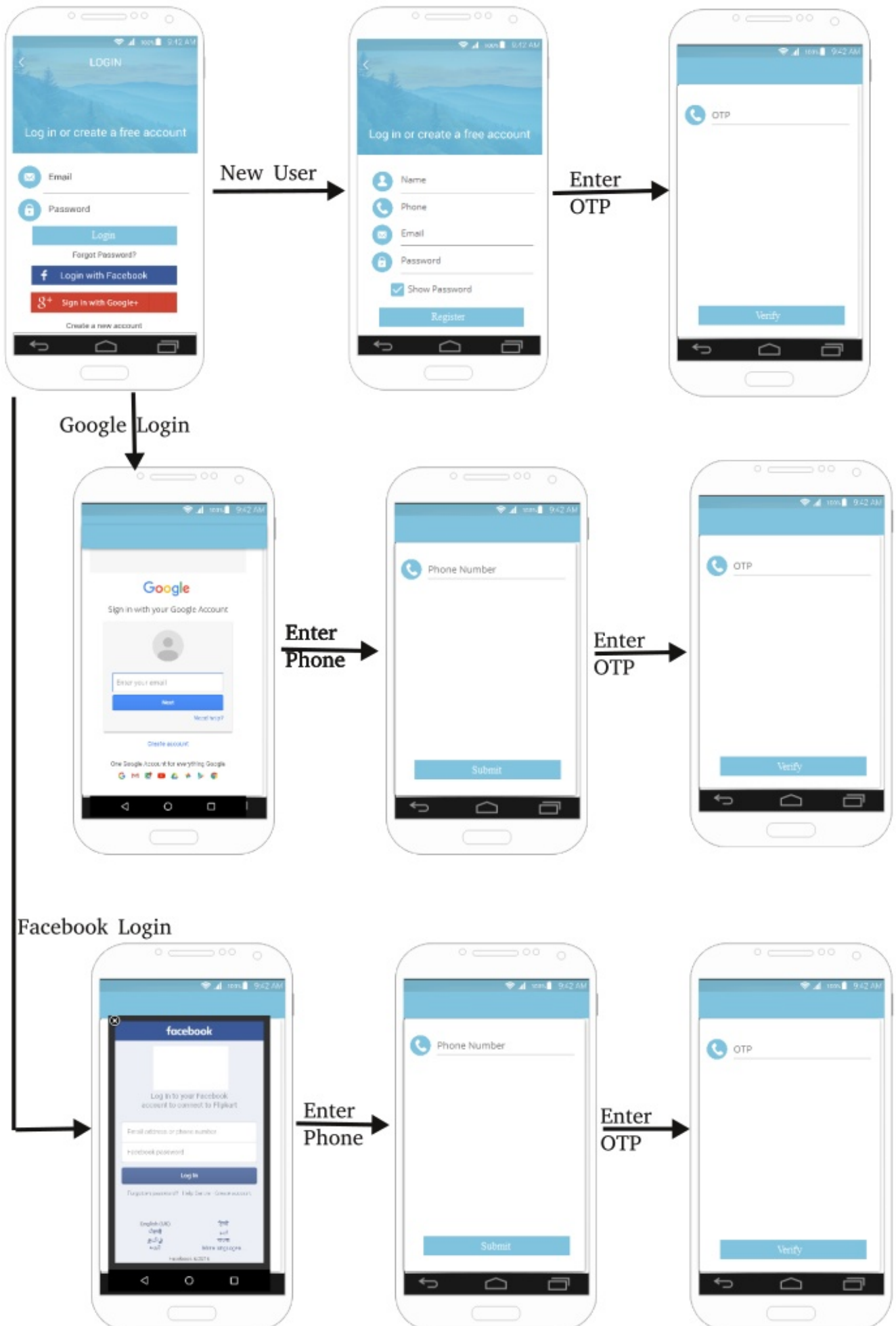
Stakeholders and Usecase



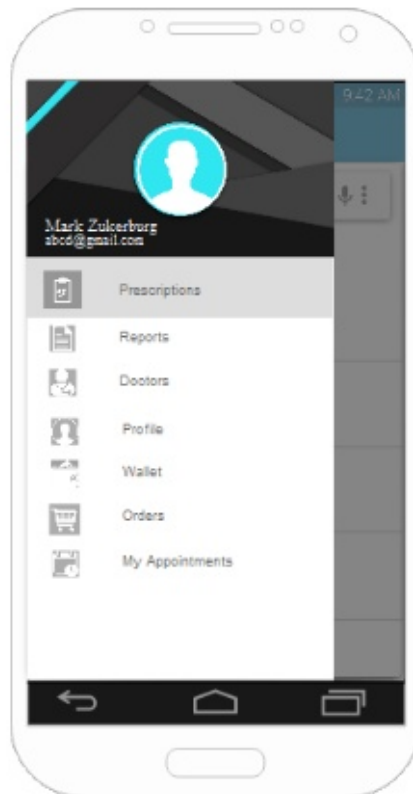
- **Usecase Scenario #1** - When user uses any App, one grants access to their sensitive data, the data Controller is responsible to access and verify medicinal data & id which is immutable, thus from Origin to patient the drug would be tracked via our Business logic and the private blockchain using Hyperledger would allow trusted parties to access and provide relevant ownership.



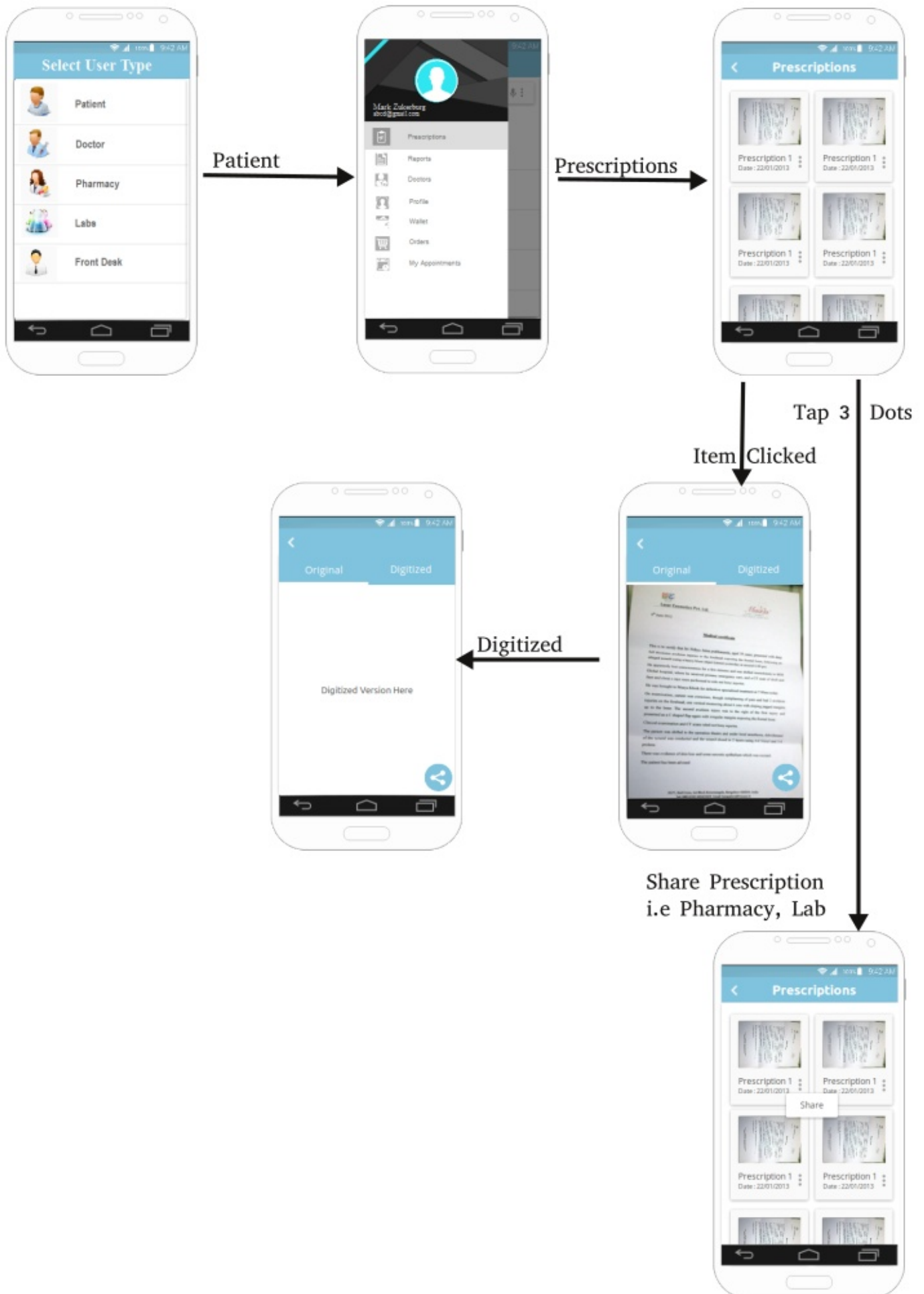
App Workflow



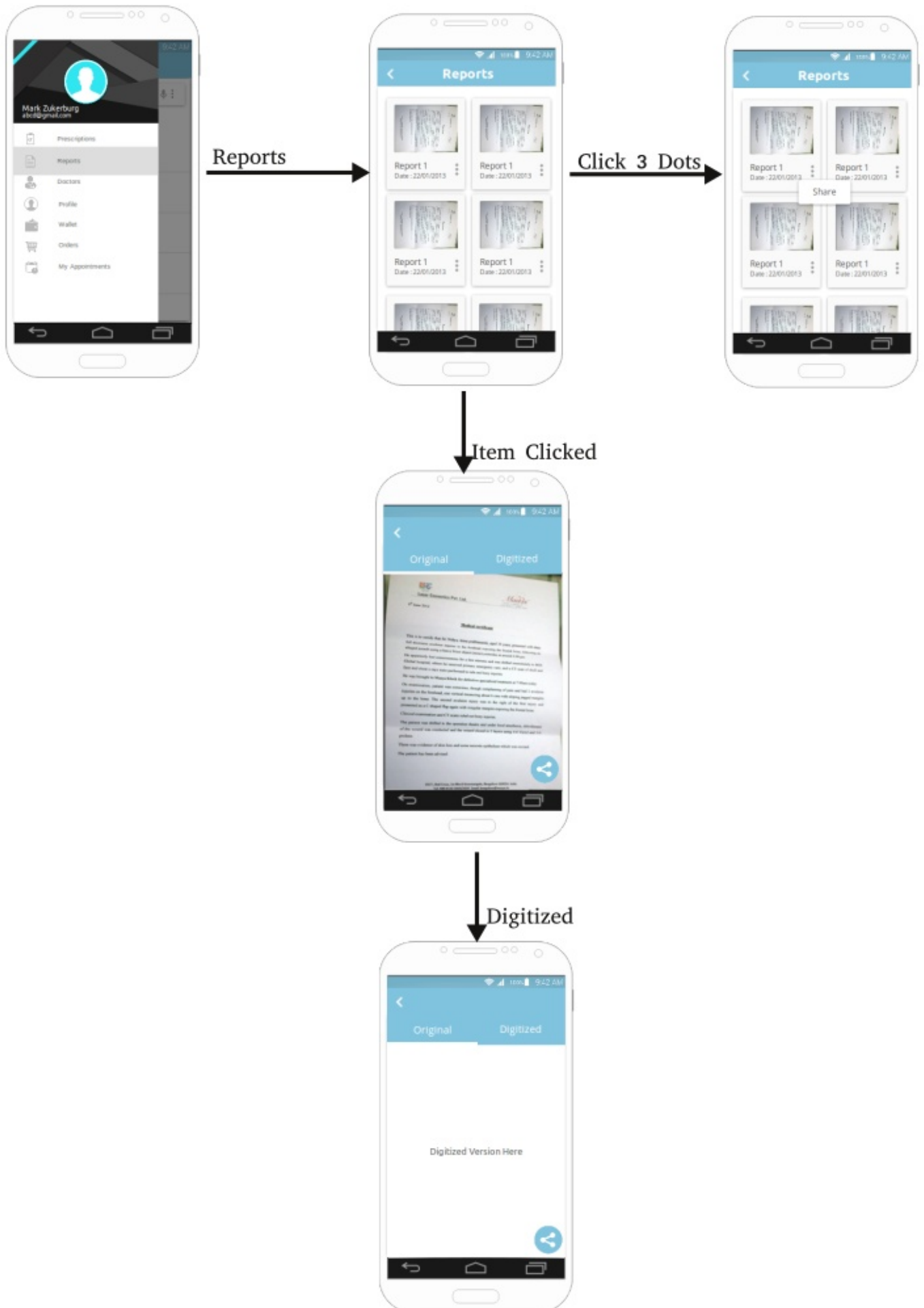
Patient Dashboard



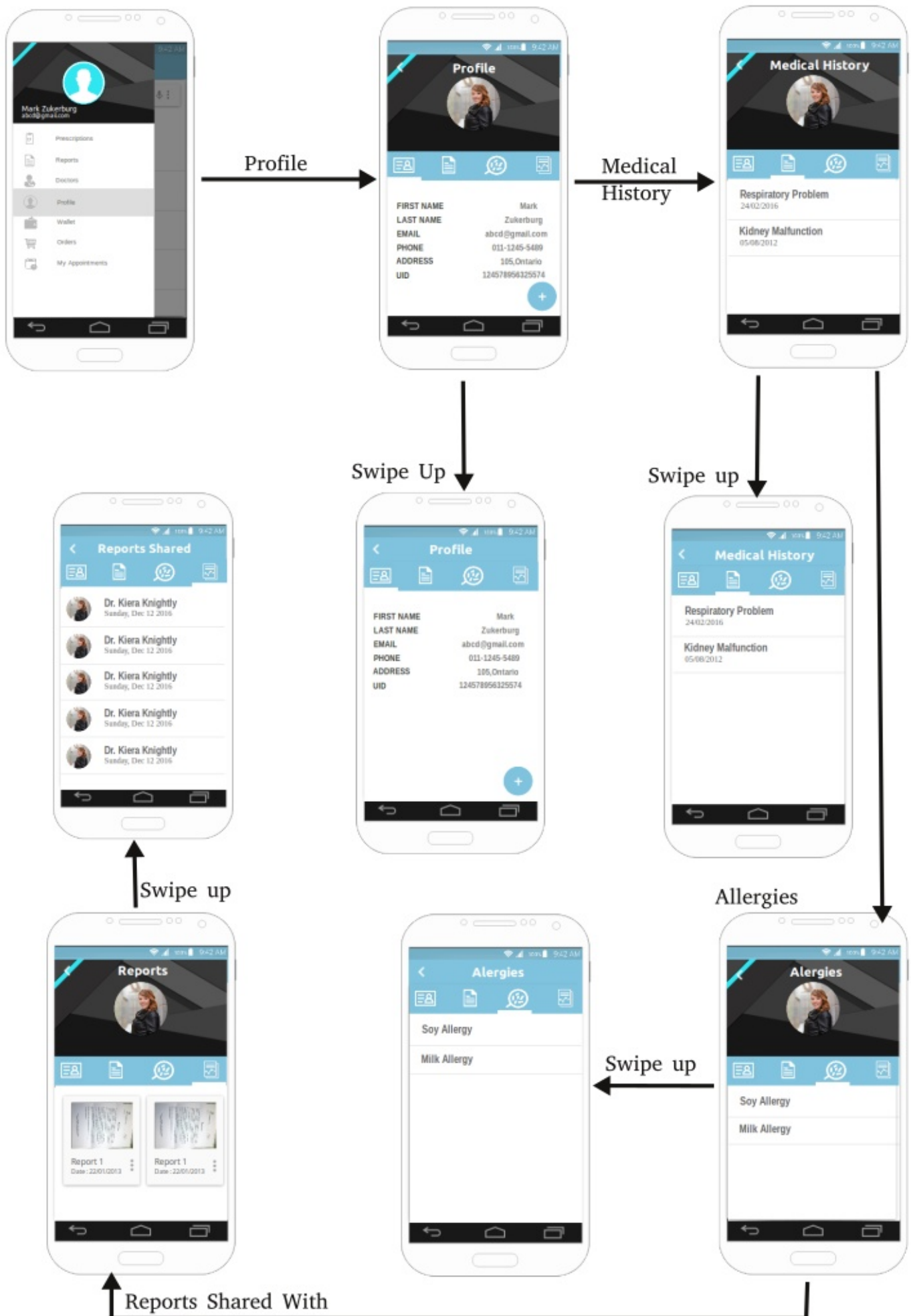
Patient Workflow



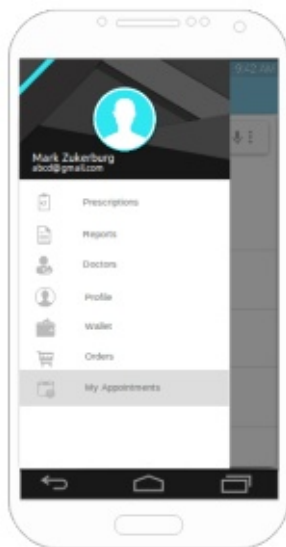
Patient Workflow



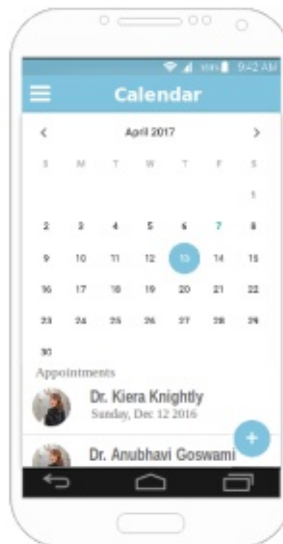
Patient Profile



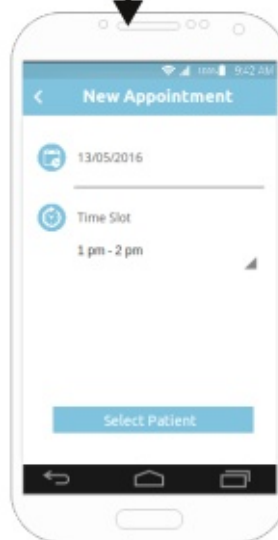
Patient: Appointments



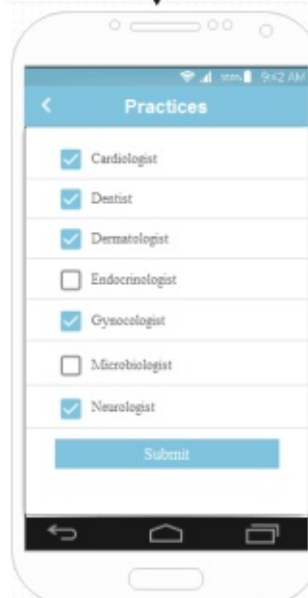
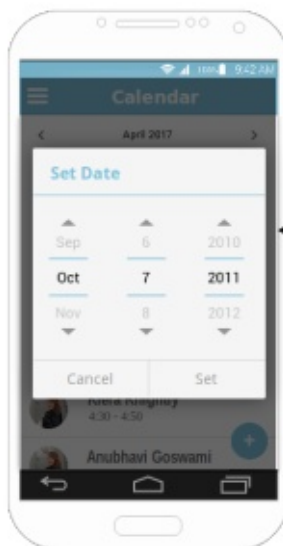
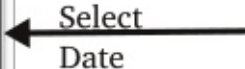
My Appointments



For new appointment / Click +



Select Date



Select Doctor

