Overview

Medical Doctors in Malawi need a system that allows them to triage, track, store, and provide metrics on patients they assess in rural areas of Africa. This system must take into consideration the limited power and internet connection of these rural areas.

Mobile Clinic v1.0 provided a solution to this problem and was given to Orant Charities for use on the field. Upon return their mission, Orant charities provided feedback on features they would like to see introduced or improved.

Problem

- Cloud Server web application and database fail to handle multiple charities and permissions.
- Synchronization between Local Server and Cloud Server send all database every time.
- The information send over during synchronization has no encryption at all.

Version 1

- Replaces paper based system used to record patient information.
- Provides a central location to store all information gathered on the field.
- Allows users to access information gathered on the field at a remote location.
- Exclusive use by Orant Charities

Version 2

- Allows use of the system by multiple charities and clinics, providing a centralized medical records database.
- Improved performance of data synchronization.
- Added Security to prevent unauthorized access to confidential information.

Object Design

- DBRepository - Connects directly with the database. Works as a Model.
- DatabaseDriver - Serves as a controller between the database and the client.
- BaseObject - Abstracts the interaction between the database and network.
- WebGUI – Provides visual interface for web-based application. Works as a boundary or view.

System Design

System Design 3-Tier Architecture

System Chart

Requirements

As a Cloud Server User, I want to:

- Create and edit charity records.
- Create and edit other cloud server administrator accounts, and local charity administrator accounts.
- Push to Local Server the information that they need based on the timestamp received from Local Server.
- Save the information received from Local Server in an intelligent manner without overriding information.

Implementation

- Root Administrator has all the access. Create and edit charity, application users, local charity administrators, and medications.
- Local Charity administrator can only create, edit, or see other local charity administrators and applications users for their charity.
- Cloud will push only patients with updated date bigger than the timestamp received by the Local Server at the synchronization time.
- Cloud will only push to the Local Server active medication, and active application users based on the serial number of the Local Server, which will match a Charity on Cloud Server database.

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