

Alva Dynamics, LLC
MedVoice (Health Awareness Mobile Application)
Software Design Document

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1. INTRODUCTION

1.1 Purpose

The purpose of this Software Design Document is to ensure that database transactions with the MedVoice mobile application meets its requirements outline in the MedVoice SRS document.

1.2 Scope

MedVoice will have the ability to retrieve and send data to and from a selected database upon logging into the mobile application. Using the collected data, users will be grouped according to interests and similarities.

This Software Design Document will focus solely on aggregating user data upon logging into the mobile application via Facebook, and describe transactions between MongoDB and the mobile application.

1.3 Overview

This document will

1.4 Reference Material

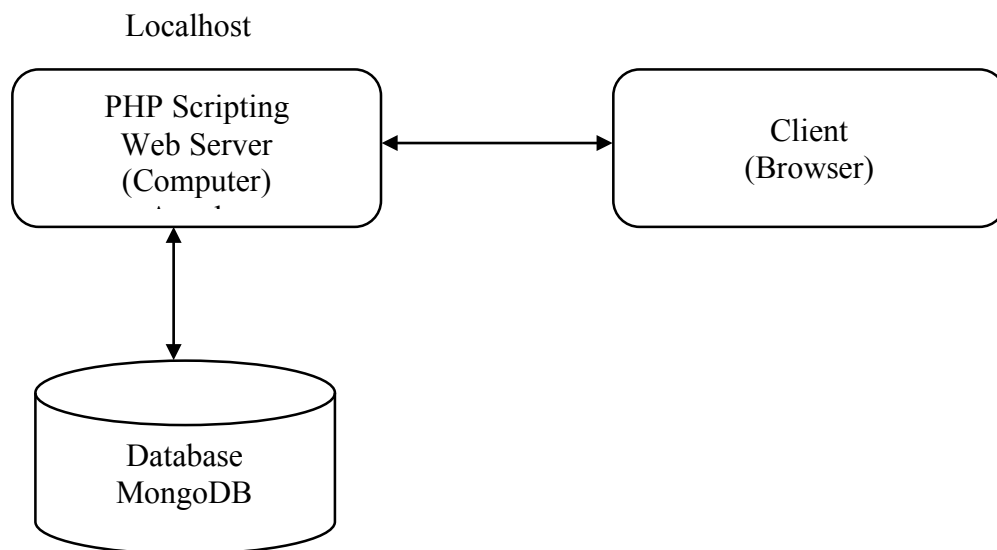
- [1] Docs.mongodb.org, "The MongoDB 3.2 Manual — MongoDB Manual 3.2", 2015. [Online]. Available: https://docs.mongodb.org/manual/?_ga=1.115763206.1624318876.1449113191. [Accessed: 18- Dec- 2015].
- [2] C. Sears, "Components · Ratchet", *Goratchet.com*, 2015. [Online]. Available: <http://goratchet.com/components/>. [Accessed: 18- Dec- 2015].
- [3] Getbootstrap.com, "Components · Bootstrap", 2015. [Online]. Available: <http://getbootstrap.com/components/>. [Accessed: 18- Dec- 2015].
- [4] W3schools.com, "W3Schools Online Web Tutorials", 2015. [Online]. Available: <http://www.w3schools.com/>. [Accessed: 18- Dec- 2015].
- [5] Facebook Developers, "Facebook Login for Apps - Developer Documentation - Facebook for Developers", 2015. [Online]. Available: <https://developers.facebook.com/docs/facebook-login>. [Accessed: 18- Dec- 2015].

1.5 Definitions and Acronyms

SRS	Software Requirements Specification.
SDD	Software Design Document
XAMPP	X("Cross"-platform), Apache HTTP Server, MariaDB (MongoDB), PHP and Perl
GUI	Graphical User Interface
DB	Database; a place where data is stored for a web server.
RDBS	Relational Database

NoSQL	Refers to a database that is “non relational”, provides a mechanism for storage and retrieval of data that is modeled in means other than tabular relations used in relational databases.
HTML	Hypertext Markup Language
CSS	Cascading Style Sheets
JS	JavaScript
PHP	PHP Hypertext Preprocessor
Client	Remote server; any software application that requests data from a web server.
Browser	A software application for retrieving, presenting, and traversing information resources on the World Wide Web.
Web Server	A computer that is configured to be a web server whose job is to serve web pages when a request is made by a client.

2. SYSTEM OVERVIEW



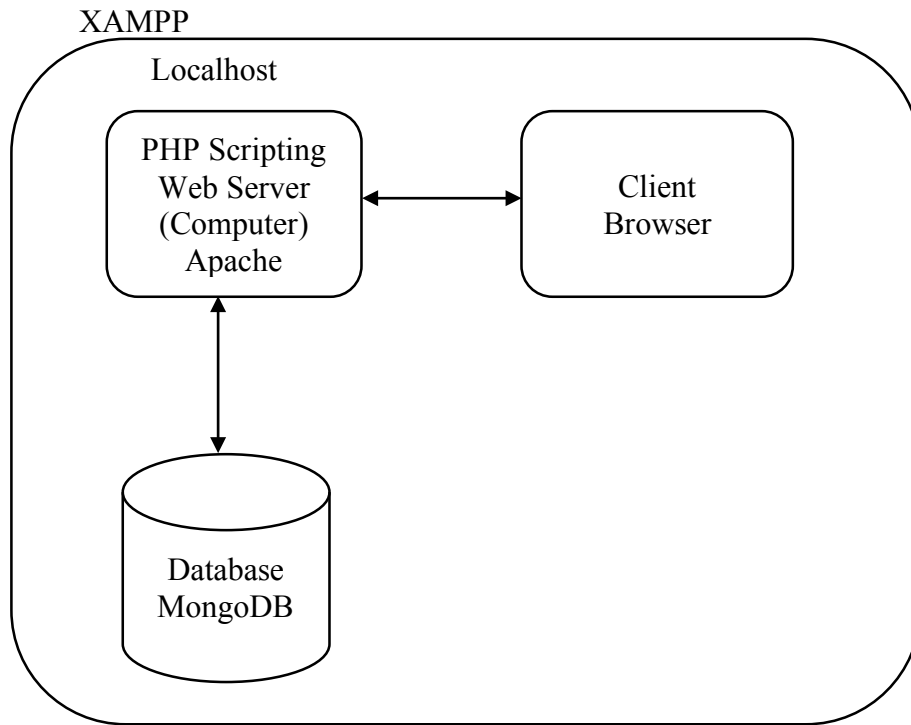
3. SYSTEM ARCHITECTURE

3.1 Architectural Design

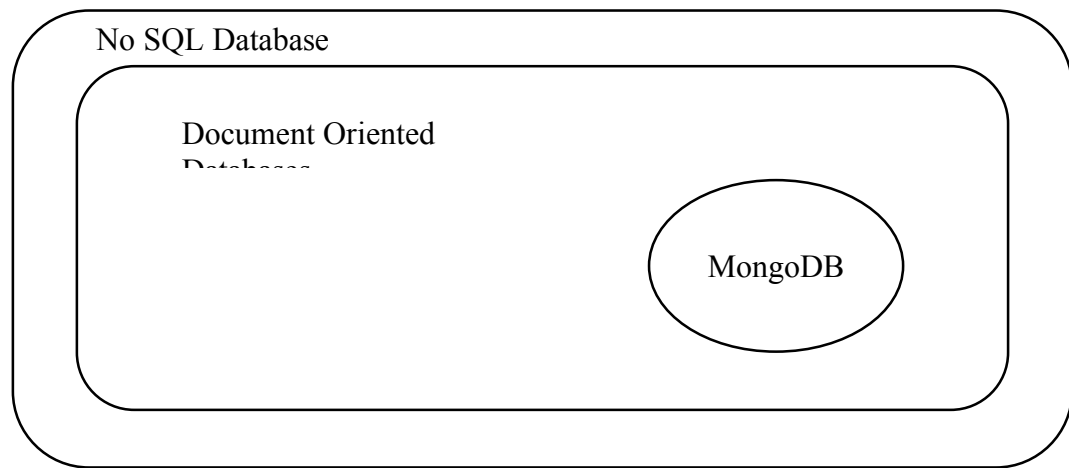
System Overview	Details
GUI	<ul style="list-style-type: none">• Register an account to collect data• Sign into app with existing user account<ul style="list-style-type: none">○ Check Credentials○ Forgot Password?○ (Edit) User Profile○ Send data to MongoDB• Ability to login through Facebook<ul style="list-style-type: none">○ Permissions○ Send data to MongoDB
XAMPP	<ul style="list-style-type: none">• Creation and Test Environment<ul style="list-style-type: none">○ Apache HTTP Server<ul style="list-style-type: none">▪ Localhost○ Connect to database○ Serve Website (GUI)
MongoDB	<ul style="list-style-type: none">• Store data for web server/ Communicate with web werver• Render Data• Data Modeling

3.2 Decomposition Description

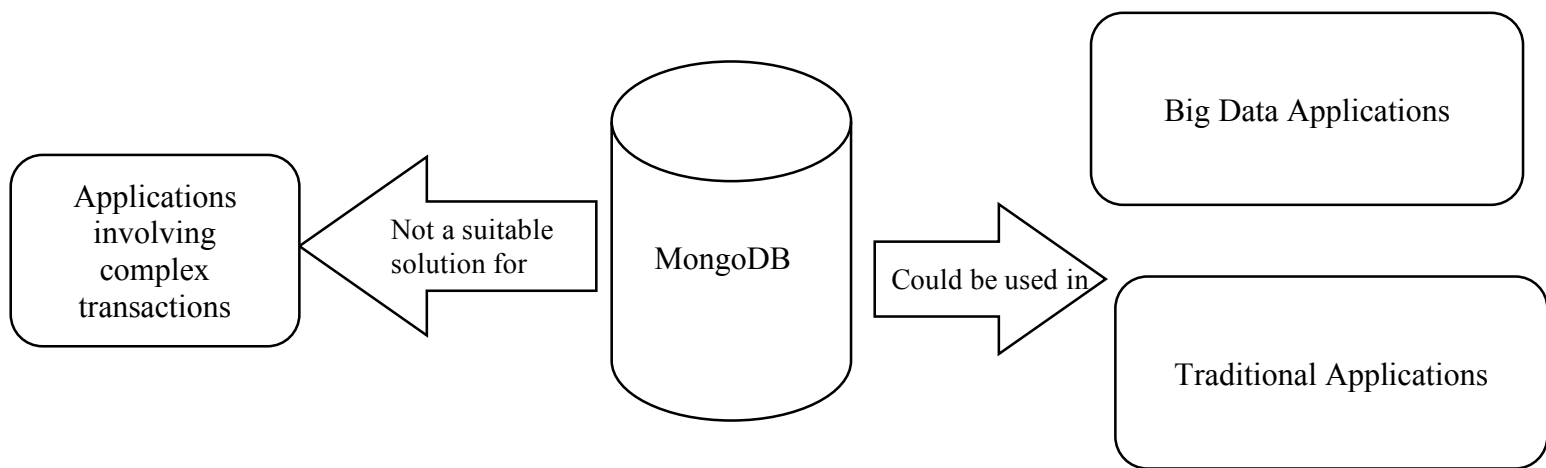
- XAMPP: X (“Cross”-platform), Apache HTTP Server, MariaDB (MySQL), PHP and Perl
 - Free and open source cross-platform web server solution stack package developed by Apache Friends
 - Development package/development environment (creation and test environment)
 - Not meant to be deployed, insecure because default settings are insecure



- MongoDB
 - Cross-platform, open source document-oriented database
 - Classified as NoSQL database
 - Horizontal Scalability
 - Query Language
 - Ad hoc queries
 - Fast performance
 - Embedded Data model
 - Replication
 - Duplication of Data
 - Load balancing
 - Aggregation: MapReduce
 - Server-side JavaScript Execution
 - Special Support for Locations: understands longitude and latitude natively
 - Driver Support (Java, JavaScript, Python, Ruby, C#, PHP, more)



3.3 Design Rationale



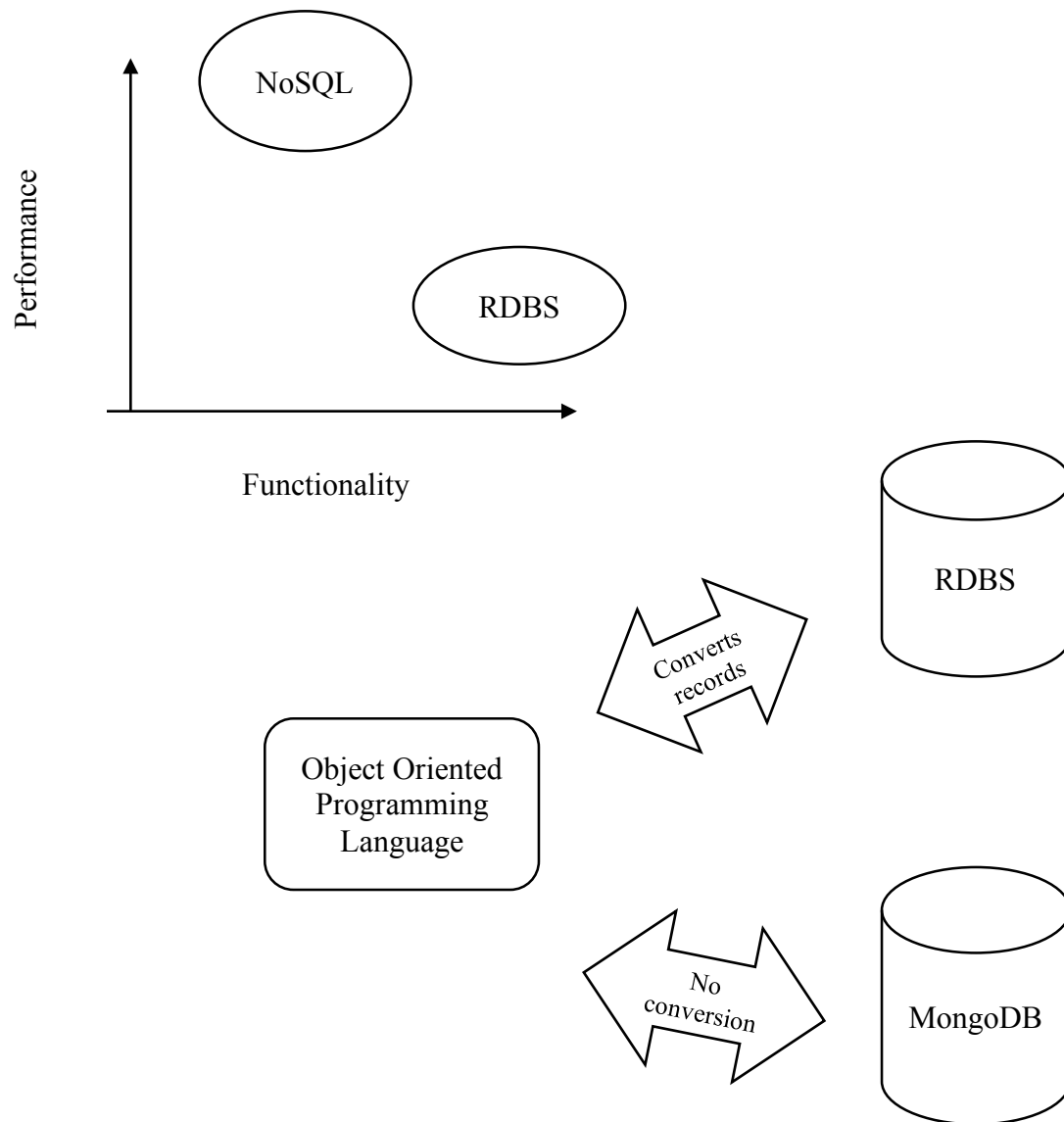
NoSQL vs. RDBMS
MongoDB vs. MySQL

- No joins support
- No complex transaction support
- No constraints support

Legend: 1-10 (1:Poor, 10:Excellent)	XAMPP	WAMP
Usability	10	1
User Interface	8	5

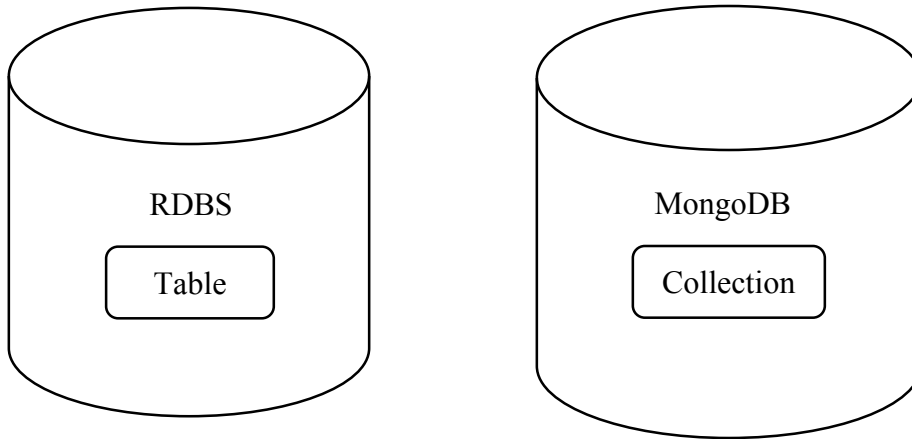
Performance	10	10
Score	28	16

Legend: 1-10 (1:Poor, 10:Excellent)	MongoDB	MySQL
(Horizontal) Scalability	8	2
Performance	7	5
Format Flexibility	8	5
Driver Support	7	5
Score	30	17



4. DATA DESIGN

4.1 Data Description



- JSON-like documents (BSON)
- Embedded Data model
- Array structure
- Indexing
- Replication
- Capped collections

4.2 Data Dictionary

- Collections:
 - Care clients
 - Document
 - Care providers/givers
 - Document
 - Admin
 - Document

5. COMPONENT DESIGN

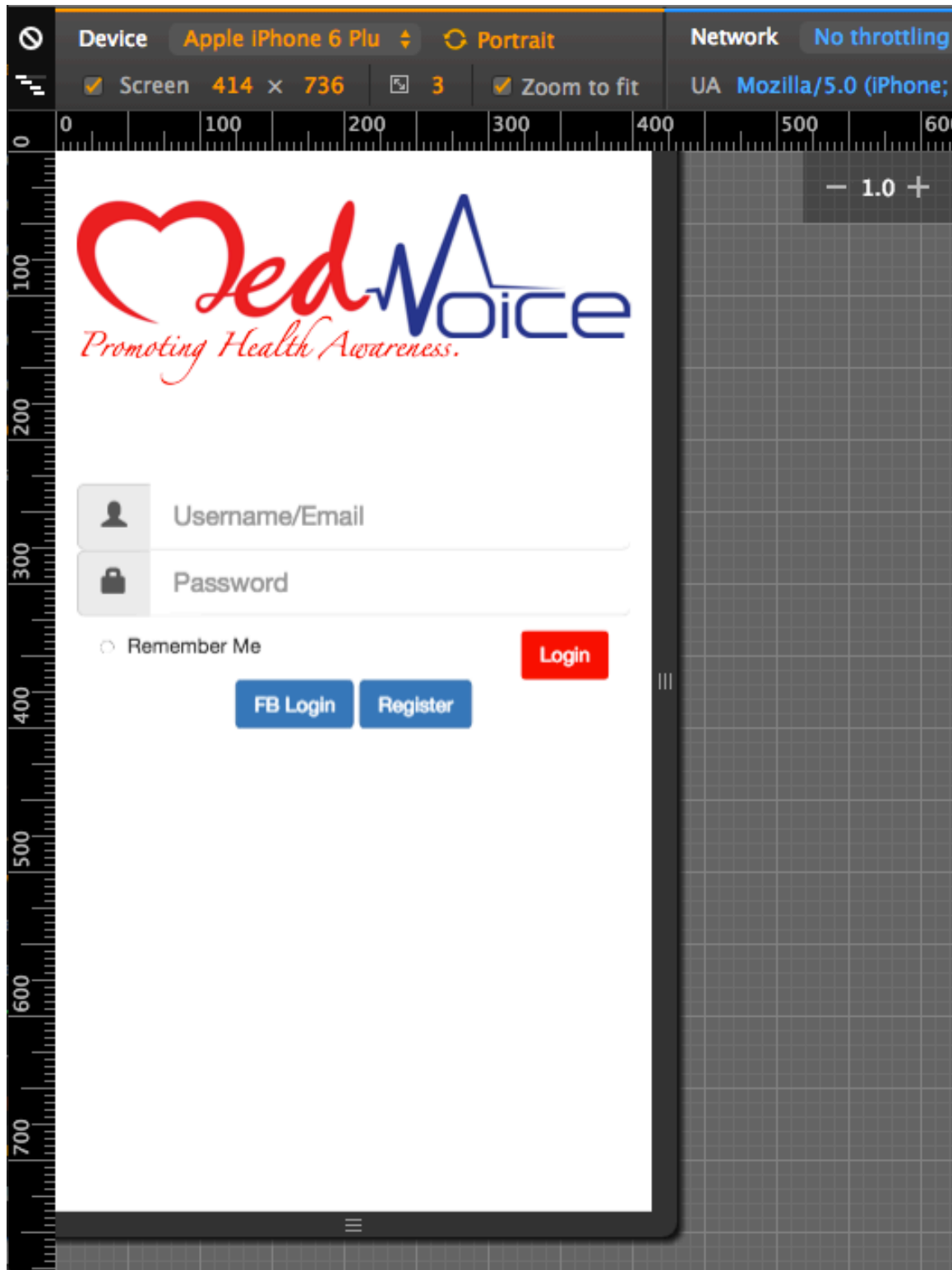
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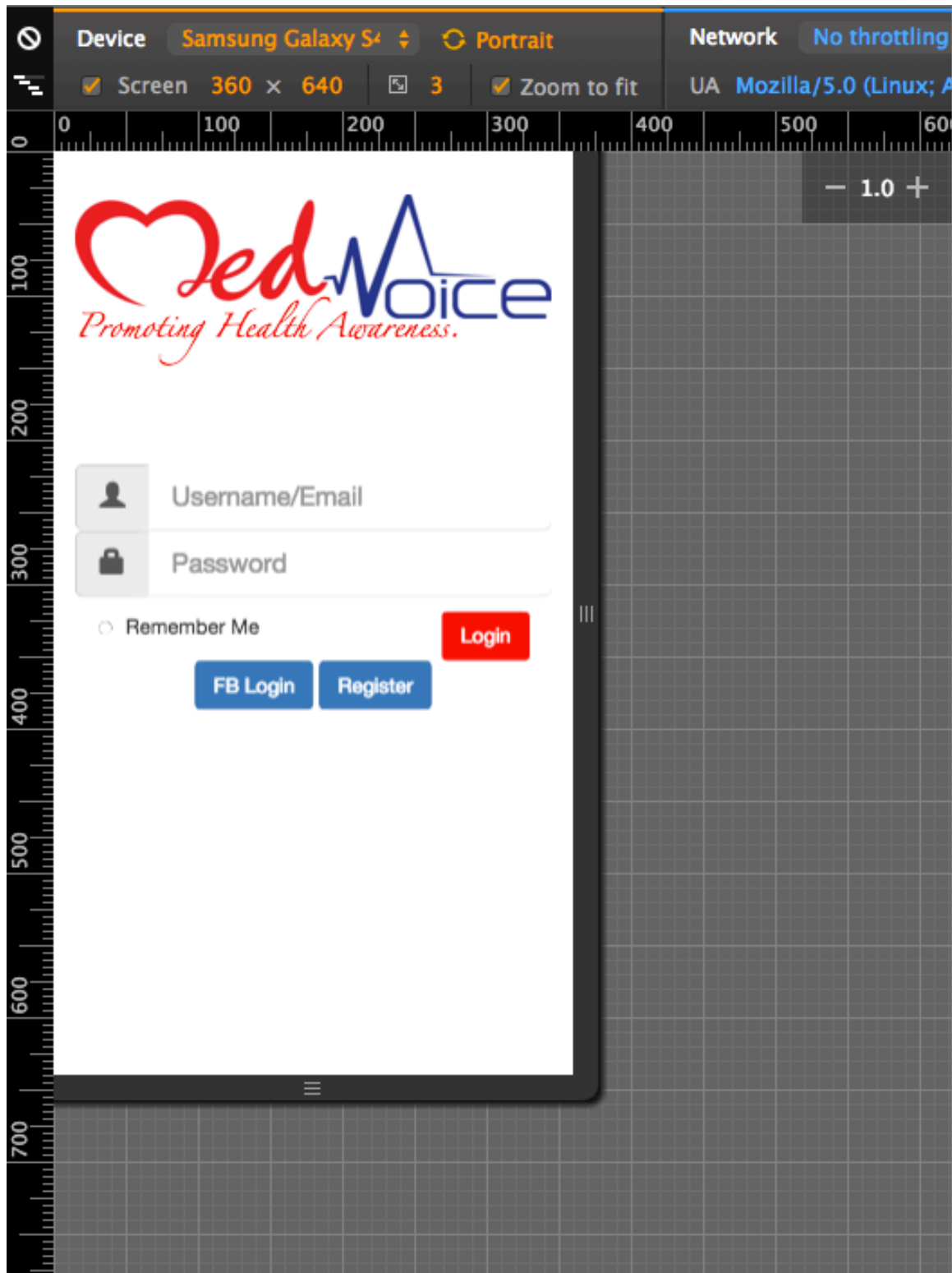
6. HUMAN INTERFACE DESIGN

6.1 Overview of User Interface

Describe the functionality of the system from the user's perspective. Explain how the user will be able to use your system to complete all the expected features and the feedback information that will be displayed for the user.

6.2 Screen Images





6.3 Screen Objects and Actions

Object	Action
Login	<ul style="list-style-type: none">• User authentication• Link to Dashboard
FB Login	<ul style="list-style-type: none">• Permission
Register	<ul style="list-style-type: none">• Required Info<ul style="list-style-type: none">○ First/Last Name○ Age○ Weight○ Height○ Email/username○ Password

7. REQUIREMENTS MATRIX

SRS Document	SDD Document
<ul style="list-style-type: none">• 1.2 Scope	<ul style="list-style-type: none">• 1.2 Scope
<ul style="list-style-type: none">• 2 Overall Description	<ul style="list-style-type: none">• 2 System Overview• 3 System Architecture
<ul style="list-style-type: none">• 3 Specific Requirements	<ul style="list-style-type: none">• 4 Data Design• 5 Component Design

8. APPENDICES

This section is optional.