Web-Based Version of File-Mate 1500

Keven Abbott, Tyler Crouse, Kiana Delventhal, Liam Westby
Department of Computer Science, Northern Arizona University

NORTHERN ARIZONA UNIVERSITY
College of Engineering, Forestry & Natural Sciences

Motivation

File-Mate 1500 is a desktop application, which automates filling out and organizing the CMS 1500 form.

The CMS 1500 form is used by **doctors' offices** to file claims against **health insurance policies** that are held by patients.

While the existing File-Mate is useful, it is desktop software, which means it lacks:

Scalability: Only useable by one person at a time.
Portability: Stored data is available only to one user.
Accessibility: It cannot be accessed remotely.

Filemate1500

Solution

The requirements for new functionality are very similar to those of most web applications.

We have translated the functionality of File-Mate 1500 to a web application, which will be hosted within each medical office, and can be used on any computer with a modern web browser.

Our web-based version of the File-Mate functionality addresses the key issues with the existing software:

Scalability: It can be used by multiple users at a time.
Portability: All data available to all users.
Accessibility: It can be accessed on the network.

Acknowledgements

Sponsor: Dave Schurz, Form Magic, Inc.
Mentor: Dr. Maggie Vanderberg,
Department of Computer Science
Special Thanks to the user testing volunteers

Key Features

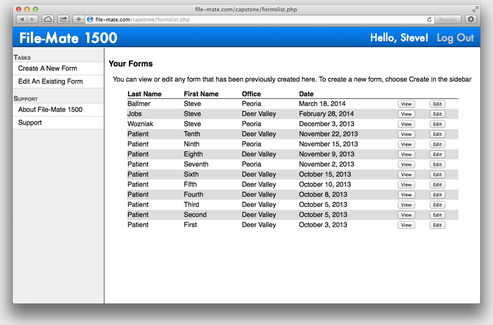

Figure 1: Access forms completed by any user, from any computer

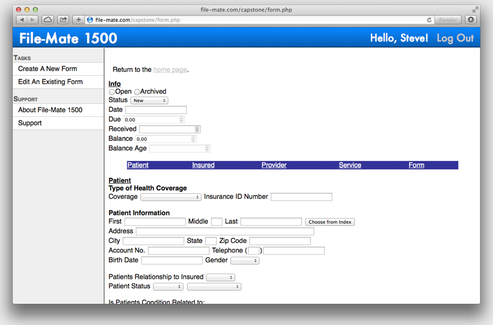

Figure 2: Start a new form, or quickly edit an existing one.

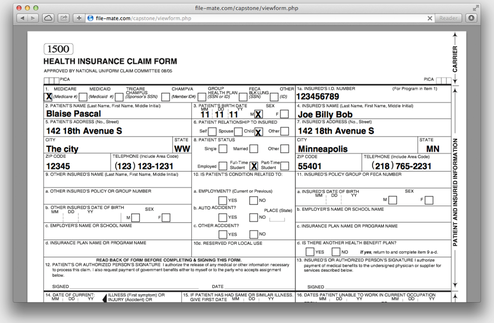

Figure 3: Create forms that can be submitted electronically or physically.

Software Architecture

File-Mate Web is built on a **client-server architechture**, which is common to most web applications. Within that, our server uses the Model-View-Controller architecture to manage the interactions between the client, and the database.

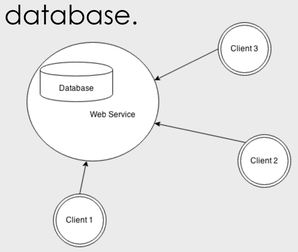

Figure 4: Overall Architecture of File-Mate Web

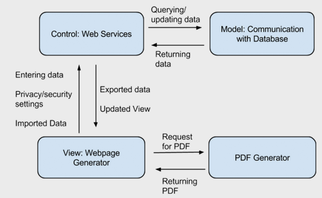

Figure 5: Architecture of File-Mate Web's Server Component.

Testing

Unit and Integration Testing
Individual pieces of functionality were tested as they were created, automated by the PHPUnit test framework. These features were then tested together to ensure a working product.

User Testing
Users, both expert and nontechnical, were consulted throughout development, and their requests were incorporated into the product's design.

Compatibility Testing
Each aspect of the user interface was tested in several modern web browsers, and on tablet devices to ensure a consistent user experience.