Project Outcomes - BMAC Warehouse

Whitman College Computer Science Capstone, 2018-19

As proposed, the project involved the re-implementation of the BMAC warehouse database application from the ground up. As capstone teams were granted significant autonomy, the team opted not to build on Ruby on Rails or Django as I proposed. Instead, the team chose to use Google Firebase, a NoSQL database, as the back end data store, and to implement all of the application logic in a React front end running in the browser, as two team members were already familiar with these frameworks.

The reimplementation was a substantial project and was not completed as of Spring Break. Two students, Ben Limpich and Paul Milloy, have pledged to complete the reimplementation and see it deployed. Ben served as de facto team leader, both technically and managerially, while Paul served as program manager and remains in Walla Walla this summer, making it feasible to continue a face-to-face relationship with client Jeff Mathias.

Cleaning the existing data and converting it into JSON format for Firebase was an iterative process spanning the entire duration of the project. Fortunately, the team encapsulated this process in a series of Python scripts which can be found at https://github.com/WhitmanCSCapstone/bmac-warehouse-utility.

The React code base can be found at https://github.com/blimpich/bmac-warehouse. Features remaining to be re-implemented include printing receipts, editing shipments and receipts from the home page, and validating form input. The team did not add volunteer records as proposed. There are also several bugs to fix, and the code base lacks automated testing.

However, most features of the original PHP/MySQL system have been replicated, with a number of improvements including

- Ability to add new funding sources;
- More flexible table sorting (e.g., can sort by any text field, not just date and time);
- Autocomplete for filling out customer, provider, and product fields;
- Automatic filtering of irrelevant products based on funding source requirements;
- Referential integrity (i.e., if you change the name of a customer in the customer table, their name will change in all receipts that they are listed in in the receipts table);
- Automatic shipment weight calculation;
- Improved layout and style.

Ben and Paul tentatively plan to work with Jeff to deploy the new software, including a period of testing in parallel with the existing system before fully switching over. The current timeline has them running a permanent hard deploy of the software by the end of September, with parallel testing beginning in August, but this could vary depending on how expectations and difficulty change throughout development. A future capstone project or internship may involve the implementation of automated tests and extension with volunteer records.