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# Post-Project Analysis and Thoughts

## FH Mobile Application

Version 1.0

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## **1.0 Introduction**

This document describes “lessons learned” during the development of the FH mobile application (also referred to as “FH”).

## **2.0 Project Accomplishments**

The development cycle of the FH mobile system was rife with successes, beginning with the transition from spoken idea to written requirements.

### **Requirements**

The initial idea behind FH was proposed by Brian Strattard during the first class session. The concept – to create an iPhone application to track a user’s workout routine and deduct money from the user if they missed any scheduled workouts – was ambitious and attracted four classmates to form our team of five. However, Brian left the class due to other engagements a few weeks into the semester. The remaining team successfully transformed Brian’s two sentence description into a full-fledged requirements document, complete with use cases and server/database components. The quality of the requirements document paved the way for all future deliverables and the effort which went into forming clear and testable requirements was apparent throughout the semester, as only minimal changes to the document were required as the design was fleshed out.

### **Design**

Logical groupings of requirements were formed into components when designing the class diagrams of the FH mobile application. Here too the team met with success – though revisions to the class structures were necessary as the design was further refined, the changes consisted of adding missing behaviors to components, not adding or removing high level structures. Even fewer changes were required to the entity relationship diagram representing the back end’s database schema. Additionally, the team used UML 2.0 throughout the design process which improved the consistency between deliverables.

### **Implementation**

As the design crept closer to becoming implementation-ready, the team explored mobile application frameworks and back end server technologies. They settled on the use of the Intel’s XDK framework for HTML5 based mobile apps and the WAMP (Windows-Apache-MySQL-PHP) stack for server technologies, as these choices were cross platform and standards-compliant. These choices greatly aided the ability of the team to produce an implementation prototype during the two week “coding phase” of the semester.

### **Test and Integration**

The team also developed a test and integration plan prior to implementation. This allowed the team to follow test driven development procedures and produce a more complete implementation prototype.

## **Takeaways**

In addition to experiencing a significant portion of the software engineering lifecycle (with the exception of software maintenance), the team gained a greater appreciation for UML, software documentation, design discussions, and the client-server design pattern.

## **3.0 Major Problems Encountered**

### **Project Scope**

Most of the difficulties encountered during the development cycle were due to the initial scope of the FH mobile system. The FH system concept involved interactions with external financial systems, which was unreasonable for a single semester timeframe. Additionally, FH system requirements dictated that communications between mobile clients and the server back end would be “secure”. However, the detailed design and implementation of this single requirement would easily require another semester and the ability to test on production hardware.

### **Team Schedules**

The loss of a team member adversely affected the project’s schedule. Of the four remaining team members, three are employed by at least one employer and two are part-time students. The logistic difficulties imposed by the work environments caused difficulty in setting times for team meetings and precluded the use of teleconference technologies for group work. The nature of the design discussions meant that meetings took place in person, during the work week, and lasted many hours – the typical team schedule involved meeting on Tuesdays from 2pm-6pm (occasionally later) and on Thursday from 2pm until class time (5:30pm). This schedule hampered the productivity of the team.

### **Inexperience**

Though the implementation technologies were chosen due to their ease of use and standards compliance, none of the team members had any significant experience any of the technologies used. This greatly diminished the ability of the team to transform the detailed FH design into a complete implementation. Inexperience with documentation technologies increased the amount of time taken to produce deliverables, and inexperience with diagramming technologies greatly increased the amount of time taken by the team to produce class and activity diagrams and reduced the consistency between diagram symbols.

## **4.0 Future Iterations**

The team firmly believes that they produced the best requirements, design, and implementation possible given the single semester time constriction and the inexperience of all team members. Given the chance to take FH through another development cycle, the team could spend a much greater amount of time on gaining familiarity with the implementation technologies, due to the relatively complete design. Additionally, the team would continue to defer the security and financial transaction requirements to a future development cycle.