King’s College London

MSc Individual Project (7CCSMPRJ)

First MSc Project Progress Report

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Summary

This report aims to state the progress achieved for the MSc Final Project in the reporting period June 1st 2017 - June 22nd 2017. A Preliminary Report has been submitted describing the Scoping and Planning phases of the project, including the requirements elicitation and a Gantt chart that maps tasks to time periods. A clear view of the project's evolution can be seen by comparison with the Gantt chart. Overall, the project is on track, despite minor variations in terms of how much time was needed for some tasks.

Analysis Results

Starting from business logic used in retail apps and the project's requirements, both a Use Case diagram and a Class diagram have been developed and refined. This provided insight into what data structures to use, what features of the template app should be fixed (e.g. vendor information, product/service price, directions) and what should consist extra-options that can be excluded from the final app (e.g. review option). Reviewing these diagrams was not initially stated in the Gantt chart and provided a small delay, which was made up for in the development phase.

Development

The first step of the development was to use the application's Class diagram in order to design a relational database structure. This was achieved through model transformations in order to ensure that the result model would be appropriate for any variation of the app's optional features. The database is stored on a separate machine using a cloud service provider and can be deployed programmatically from the main system's server. Afterwards, it can be accessed using the PHPMyAdmin platform.

The second component of the customizable retail system is the server component. From the various server-side programming languages, PHP was chosen for its simplicity and due to the HTTPS bi-directional communication required by the application. The server side contains the database connection mechanisms and an extensive set of services for the mobile application which manage all the business information. Although the server component is currently functional, there are still a few functionalities that need to be implemented, as well as the automatic generation of the server files upon the selection of desired features.

The second phase of the Gantt chart, which is currently where the development process has reached, represents the implementation of the iOS application template. This process mostly went according to the Gantt chart, with the exception of a slight delay in the design of data structure models, time which has been recovered in the basic UI design task. The views used in the application have been created and are instantiated and called individually by a central navigation system. Thus, it is simpler to control which views are to be presented, following the selected features of the app. The last successfully implemented task is the filtering of the list of products or services based upon the attributes of the objects.

Most of the tasks which cover the customizable system's functionalities have already been implemented, with the exception of the map of vendors, the directions and the augmented reality features. In addition, both the server files and the mobile application need to be adapted to the automatic generation system. The last stage of the implementation is to develop and implement the web platform that will be used in order to select the desired features, to input the business information and to generate the customizable bundle of database exports, server files and the iOS mobile application.

Simulations

All of the existing components and features have already been tested thoroughly after implementation and upon the connection with any new component. The simulation of the customizable system has been achieved with the use of mock data, thoroughly testing every aspect of the system, in accordance to the Use Cases. In addition, Stress testing techniques have been used in order to ensure that the system will not fail, especially as the number of vendors can reach very high limits.