

Benefits Of Having Students Develop Software For Other Departments

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ABSTRACT

This paper describes how students benefit from having software engineering projects that serve to develop software for other departments in the institution. This is illustrated with an example project that our students have implemented for the department of geology.

Categories and Subject Descriptors

D.2.m [Software Engineering]: Miscellaneous

Keywords

ACM proceedings, L^AT_EX, text tagging

1. INTRODUCTION

The department of computer science at Lafayette College has started an initiative to have students develop software applications for other departments. The initial experience has been overwhelmingly positive from both the developers (our students) and the clients (faculty from other departments). The initial project (GeoData project) was for the development of an app for the department of Geology & Environmental Geosciences to help students learn the skills required in field geology mapping. The project was implemented as a summer research project in 2011 with a team of three students. The project was repeated in the summer of 2012 with a different team of three students with a goal of redesigning the initial version of the app.

2. THE GeoData PROJECT

A traditional way to record qualitative and quantitative data while on a mapping project is to record the observations in a field notebook, and then manually transcribe the written data into a digital format onto a computer. Transcription of the data into a digital format allows students and instructors to use computational tools to (1) analyze the data, (2) combine data from multiple students or multiple visits, (3) visualize the data overlaid on a topographical or other kind of map.

The GeoData project is a joint project between the computer science and geology departments at our institution. The immediate goal of the project was to design and build a

tablet based application (app) for use in geology courses that had field mapping components. The app would be a data collection tool that would help geology students develop and acquire expertise in acquisition, analysis and interpretation of field geology data. This would be done by automating many parts of a manual data collection process and also by providing hints and prompts that would remind students of all the various data components that needed to be recorded.

3. BENEFITS TO COMPUTER SCIENCE STUDENTS

The design and development of both versions of the app provided an opportunity for the computer science students to learn about:

- *the programming environment and support libraries for the Ipad:* Our computer science courses are taught on Linux workstations and generally use the Qt graphical interface [2]. The students learned the graphical user interface API for the iPad as well as the Objective C language and development environment.
- *client interactions:* This was the students' first client who was not a computer science faculty member. The students had to develop new ways of explaining concepts and designs so that they could present them to the geology faculty.
- *product life cycle:* The students experienced almost the entire product lifecycle of the app. They started with designing the requirements, followed on with the design and implementation, and then had to maintain the beta version of the software while it was being used in the field. The process concluded with the release of the app to the Apple app store. The students used an agile software process [1] throughout this period.

4. REFERENCES

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- [2] P. J. Radcliffe. Qt4 designer and eclipse. *Linux Journal*, 2011(209), 2011.