Introduction

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November 30, 2009

1 Introduction

With advances in mobile phone technology, like increased computing power, improved touch screen user interfaces, and faster wireless internet connections, the demand for both free and paid mobile applications has risen drastically. This has resulted in mobile phones becoming a popular new medium for application development. There are many high powered platforms to choose from, such as Blackberry, iPhone, and Android. Most of these platforms offer an open marketplace for the sale and distribution of independently developed mobile applications. This makes it incredibly easy for independent developers to get their products into the hands of users. Awareness of this new market has not escaped the interest of computer science students who are often consumers of the applications themselves. With the demand of mobile applications, low barrier to entry into the market, and general interest from the computer science student population, mobile application development is an excellent skill for computer science students to learn. Most of these platforms offer a wide array of documentation for learning how to develop for their platforms; however, the body of knowledge for contextual examples and tutorials is drastically smaller in comparison. This can be troublesome for some college students attempting to break onto the Mobile Development scene on their own.

As of January 2009, California Polytechnic State University will be offering a Mobile Development class that will teach students how to write applications for phones running on the Android Platform. Computer Science (CS) students on the whole represent a younger demographic, which in turn represent a large customer base for mobile applications. While in some cases it can be difficult to capture the interest of CS students, this class aims to take advantage of students current interest in mobile applications to teach them about difficult topics. In addition to providing the students with an in depth knowledge in Mobile Development Practices and the skills necessary to be successful Android application developers, the class will incorporate aspects of Test Driven Development, Agile Processes, application profiling, and engineering for performance into the curriculum. With these skill students will be able to independently create exceptional mobile applications. As a corollary, the class hopes to foster and encourage a sense of independence and entrepreneurship through having the
students design, implement, and publish their own applications to the Adroid Application Marketplace.

The Android platform was chosen as the medium for the class, at least in part, because of its degree of openness. In short, the Android Platform is an open source mobile device software stack coupled with a robust Software Development Kit (SDK) based on the Java programming language that provides the tools and Application Programming Interfaces (APIs) necessary to develop applications for the platform [Google 2009]. Additionally, this openness extends to the Android Application Marketplace as well. Submitted applications need only meet a handful of reasonable, clearly stated functional requirements and a developer account, which can be obtained for a nominal fee. This level of openness makes it that much easier for students to become practicing Mobile Developers.

It is therefore the goal of this thesis project to aid in transforming the class of Mobile Development students into a group of successful, practicing, Mobile Developers. The main contribution of this thesis project comes in the from of a series of detailed educational laboratory exercises. These labs are designed to supplement the Android documentation by providing contextual examples, activities, and tutorials. They will be designed and used in coordination with in-class lectures as well, where the topics that will be covered in the labs shall be introduced and discussed. Each lab will have a number of learning objectives associated with it. The end goal of every lab will be to have every student possess and be able to use the skills associated each learning objective on their own. To be able to determine the success of these labs, we will also be incorporating a subjective survey that each student will complete at the end of each lab. These surveys will be designed with the intent of evaluating the effectiveness of the labs’ ability to improve each student understanding and application of the skills associated with it.