Chapter 64
Common Problems Faced When Developing Applications for Mobile Devices

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ABSTRACT

Mobile application development is relatively new and has seen growth of late. With this rapid expansion, there are growing pains within industry, as the usual time given to the evolution of an industry to learn from past mistakes has been significantly shortened and is even going on within the currently saturated market. Because of this, inexperienced developers are attempting to design applications based on what is of yet a shady set of design principals. This is providing problems during the development process and can be seen to be stifling innovation, as many developers have yet to get a grasp on the shift between traditional software engineering and what it means to implicate these designs on a mobile device. This chapter analyses these difficulties in depth, as well as attempting to draw solutions to these problems based on development in the context of the characteristics of mobile devices.

INTRODUCTION

Mobile Computing is currently growing and has no plans of slowing down in the near future. Gartner states that worldwide sales of mobile devices to end users totaled 428.7 million units in the second quarter of 2011, a 16.5 percent increase from the second quarter of 2010 (Pettey & Goasduff, 2011). This growth is attracting more and more developers to move away from traditional applications and web development. Many of these developers are now focused on developing applications for mobile devices.

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A mobile device is a generic term used to refer to a variety of devices that allow people to access data and information from where ever they are. This includes cell phones and portable devices (Hakoama & Hakoyama, 2011). A mobile device is a very broad term in the fact that it can refer to laptops, net books, smart phones and the most recent form of mobile technology known as tablets. When a person discusses mobile devices today, they are generally referring to a smart phone or tablet. Developers whether they are new to mobile development or seasoned veterans, run into many problems and are required to make tough calculated decisions based on number of factors affecting the deployment/ accessibility of their mobile application.

A large portion of Smartphone sales are driven by the availability of apps, and as the demand for apps increases, so grows the demand for app developers and quality applications. The fast pace at which the technology is being incorporated into mobiles and the pace at which it is developing brings with it its own problems. Since mobile application development is a relatively new field in computing and is also becoming a very profitable and enterprising market, several changes in the development process have to be taken onboard in order to create a successful product, such as how the application is going to perform from device to device, something that rarely had to be considered with developing software for desktop computers. While Smartphones now usually come pre-installed with applications which carry out a wide range of functionality specific to that operating system and device, utilizing the specific hardware in that circumstance, custom applications can also be downloaded onto the device and will vary in usefulness depending on their compatibility with that device's hardware and software. Developers must recognise what customers want from their devices, and make their product stand out in what is becoming a very over-saturated market, which in itself is one of the biggest challenges faced when developing mobile applications. As the number of technologies around us increase and start to pervade our everyday routines, our methods of interacting with these technologies is also changing. We are seeing an increase in the number of wireless networks in public areas, as well as technologies that are interacting with each other wirelessly or over the internet and the mobile phone market has evolved naturally to incorporate and interact with these technologies. Social networking has emerged as one of the biggest trends in recent years, and has revolutionised the way in which people communicate with each other. This has converged with the evolution of mobile technology, providing users with the convenience of having access to the wider world at their fingertips. This is a perfect example of how the functionality of mobile devices has evolved to meet user's needs and has created a large demand from the users of mobile devices for more and more applications which incorporate these technologies. As the speed of mobile devices and the constant development of new technologies become available, more devices are being released with different sets of features to provide for a range of user needs. This has created a very fragmented development community, as the wide range of platforms and devices available mean that development cannot be too focused on a single set-up if it is to reach a wide audience or make money. Applications have been developed for many different tasks. Originally conceived as software to increase efficiency and productivity, such as personal planners on devices such as PDAs, as the hardware evolved and the widespread use of mobile devices continued, so did the variety of apps becoming available, with these mobile devices offering alternative platforms for casual gaming, offering businesses a portable way of communicating data and information to each other, as well as extensive use in the medical and educational fields. The portability and increasing capabilities of Smartphones and PDAs intrigued developers into incorporating media which we normally associate with desktop computers into the handhelds, providing users another avenue to access their emails, social networks, maps etc. while not at the desk, as well as seeing many innovations using the location based technologies of the mobile devices.