Szegedi Tudományegyetem

Informatikai Tanszékcsoport

Firefox OS

Diplomamunka

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Tartalomjegyzék

Feladatkiírás

Tartalmi összefoglaló

A szakdolgozat célja egy hatékony fejlesztési metódus kialakítása Firefox OS rendszerre, nagy hangsúlyt fektetve a fejlesztés egyes szakaszaiban fellépő automatikus tesztelési és hibakezelési lehetőségekre illetve feladatokra. A fejlesztést segítő eszközök kiválasztása során lehetőség szerint törekedni kell már kiforrott webfejlesztési technológiák alkalmazására (hiszen ez a Firefox OS alapvető célja), mindemellett kerüljenek bemutatásra az új platform specifikus követelményei illetve eszközkészlete. Az előzőekben megfogalmazott tételeket az elméleti megvalósítás mellett be kell mutatni egy példaalkalmazáson keresztül.

The goal of the thesis is to design an effective development methodology for Firefox OS, with great emphasis on the automated testing and debugging tasks and opportunities occuring at various stages of the development. During the selection of the various tools preference should be given to already proven and mature web development technologies (since this is the main goal of Firefox OS), nonetheless the specific requirements and toolkit of the new platform should also be presented. The previously described items should be utilized with an example application besides the theoretical implementation.

Introduction

Firefox OS is one of the latest operating systems for mobile phones and tablets. It was released in February 2012 by Mozilla as an open-source project based on a Linux kernel code named as boot to gecko (B2G).

One important concept behind Firefox OS is to provide full smartphone experience at an affordable price targeting primarily the developing countries. In many of them Firefox OS is already present (including Hungary), and the expansion continues this year, with more device manufacturer (inclding ZTE) shipping their mobile phones with Firefox OS besides android.

The other major idea of the OS is the broad development community it intends to target. It uses open tools used throughout the web like javascript and HTML5, enabling the use of millions of already existing web application with little or no modification. More and more companies needs to be present on the mobile app market in addition to the web, spending an increasing amount of mony for application development to support the various mobile platforms. There is an emerging new era of mobile app development, due to the sophisticated mobile browsers of today, where it is possible to use full screen sized web applications, which look and work almost like a native app. These modern browsers have built in support for native APIs such as camera and GPS. Firefox OS successfully sensed this new trend making the environment of the web as their native environment. It is even possible to install apps from the Firefox OS marketplace in desktop or android environmentis, that work similarly as native applications.

However the many advantages of the platform does not make it automatically a market success. With the release of 2.2 there are still performance issues and unexpected system crashes, that can ruin the platforms reputation, since in some countries it is already available for production. The other problem is the lack of applications in the Firefox OS marketplace. Despite the relative ease of app development for this paltform, and the huge community of potential developers, it is hard to make the software vendors port their apps, without a significant market share.

In my thesis I focus on the development and testing of Firefox OS application. The motive behind this is to contribute to the development of this promising platform by collecting the best of the tools and practices, the potential developers need. Most of these tools are already widely used in other areas of software engineering (mainly in web development), but the lack of documentation, experience, tutorials and other resources make it difficult for the developers to utilize their existing experience. Some other tools are were created specifically to suppport development for the Firefox OS platform. These tools are very young and change quickly so I try to empahsize the general idea behind them rather than the exact usage of each one. One of the biggest and most important part of my thesis will explore and explain the process of automated testing, which can help to produce and

maintain high quality applications.

Throughout my thesis I demonstrate the concepts and tools through a real app I develped. This is a bycicle application, where the bycicle routes are created and maintained by the community. The users adds the routes' points to the map, and other users can rate these, so that to be able to maintain a high quality route system. The application is by no means production quality, but good enough for demonstration purposes and to bring the concepts closer to the user.

My goal was to make my research more digestible for anyone interested in this topic. Every chapter starts with a theoretical part where I iterate over the possible solutions for the given subject and try to chose the most appropriate one based on usability, popularity, and other characteristics of the actual situation. After that I dig into the chosen tool more deeply to get the reader more familiar with it, and to show how this tool can solve the present problem. At the end of the chapter I guide the reader through a concrete use case with the help of the application I developed.

1. fejezet

Egy találó cím

Ez pedig már az első fejezet, ... helyére egy parancsot írunk

1.1. Alcím

Ebben alfejezetek is lehetnek

1.1.1. Al-al cím

Sőt al-al fejezetek is.

1.1.2. Másik

Na lássunk egy másodikat is.

1.1.3. Harmadik

Meg egy harmadikat is.

1.2. Mindjárt vége a fejezetnek

Tényleg, itt valóban vége.