

Study IBM Worklight Studio tool for mobile application development multiplatform with application consultation notes, books and syllabi in the Superior Technological Institute "José Chiriboga Grijalva"

Vadin Santiago VILLOTA HIGUERA

Universidad Técnica del Norte – Ibarra / Ecuador

vsvillota@utn.edu.ec

Summary

The mobile application development has increased these days so it is necessary as software developers new tools to speed development.

The IBM company a pioneer in developing technology has dabbled in mobile development with IBM Worklight Foundation which is a complete suite of tools for mobile development within one of those tools IBM Worklight Studio is a component that has many advantages for the fast development of mobile and desktop applications, its main feature is the multiplatform development, this means that at a time to be programmed for a mobile operating system can also be programmed to another at the same time, this and other advantages more IBM Worklight Studio makes a worthy tool to study in depth and knowledge to the students of this prestigious university.

This work aims grade a full study of mobile development tool IBM Worklight Studio, and demonstrate its qualities through a web application to an institution of higher education.

Keywords

IBM Worklight Studio and Mobile Multiplatform Programming

1. Introduction

In the world grows increasingly industry of mobile devices, for this reason increasingly are created mobile applications that aim to provide assistance, entertainment, media, etc. These applications have allowed closer contact between company and user is maintained, so that today many companies and individuals wishing to make their own applications and offer this service. Many companies have created computer departments which are creating

software, these are being addressed for both the web and also mobile.

In companies are developing applications targeting mobile devices, these applications are mostly created for devices with different operating systems, so each developer is engaged in developing applications targeted for an operating system only because it can not reuse the same code.

2. Problem

In the world of programming has worked with software tools for mobile development whose implementation is specific to an operating system for mobile devices, this has led developers to build scalable applications no longer increasing in creating applications.

Work is continuing in the same way, except that every time they create platforms for agile mobile application development platform. The IBM company acquired and improved software that allows greater scalability programming platform that facilitates the creation, implementation and management of applications HTML5, hybrid and native; turn therewith may reduce development and maintenance costs.

The mobile platform development is a new level of programming in the world for all the benefits expected of it, it is necessary also in Ecuador and in our media applications run with this type of development. Without the study of IBM Worklight Studio Tool refuse the opportunity to learn about an alternative programmers to develop mobile applications not only a platform but for several.

Programmers do not have software for mobile application development for various operating systems, the company IBM has developed a software platform that allows programming for various mobile OS in addition to many benefits.

3. Justification

In order to justify this research, the study of the impacts of the tool is presented.

Economic Impact: was achieved in the future programmers who are responsible for producing mobile applications, no longer spend more time and money programming for a single operating system, but investing in a product that allows them to develop applications platform level, which reduce production costs and wages by hiring employees.

□ **Technological Impact:** this research will contribute to the development of software targeting platform, which currently do not take into account the benefits this has also not taken-depth knowledge of the platform software as well as the IBM Worklight tool Studio, by virtue of being a new product in its category.

□ **Educational and Social Impact:** What was obtained in the study of this tool is to know in depth its components, features and range of applications offered, and check your benefits in order to inform programmers who our environment practice recently mobile application development, a new way of programming.

In conducting this research contributed to the development of multiplatform learning programming in classrooms at the Technical University of the North, as well as for the thesis projects that may occur in the future.

4. Objectives

General Objective

The study of the development tool IBM Worklight Studio for mobile application development platform.

Specific Objectives

1. Determine the current state of mobile application development.
2. Identify mobile platform development tools.
3. Research on the IBM Worklight Studio tool for mobile application development platform.
4. Develop a mobile application that demonstrates the functionality of the tool IBM Worklight Studio in Higher Technological Institute "José Chiriboga Grijalva".

5. Range

In the study of tool components and the main features of the IBM Worklight Studio tool is investigated to develop mobile applications.

The application that was developed is a hybrid application that has a module 3 main functions and tests were performed on an Android device.

- Notes queries the current cycle

- Read books in the library
- Consultation Syllabus of contents

The demonstration of the application is also conducted on an Android device, for iOS and Windows Phone platforms they tested on an emulator.

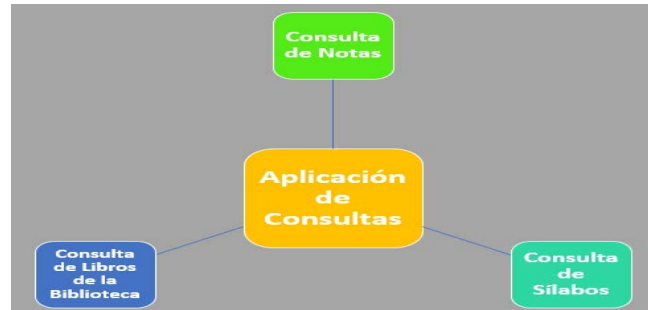


Figure 1 Mobile Module Applicative Research

Source: Own

6. IBM Worklight Studio

6.1 IBM Worklight Foundation

IBM is a company that since its inception has been one of the pioneers in creating technology in both hardware and software.

IBM in their quest to create more technology company decided to create within work teams achieve better hardware and software development, another option that this company is usually opt to buy ideas from other companies, and further research and improving the quality of software and hardware thereof.

This is the case of IBM Worklight Foundation, which was created by Worklight, a company devoted to research and mobile software development, the aim of IBM with this acquisition is to expand their businesses and businesses around the world to the mobile world.

*"IBM Worklight Foundation provides a platform for advanced, open and complete mobile application for smartphones and tablets. Helps organizations of all kinds to develop, test, connect, execute and manage mobile applications efficiently. Using standards-based technologies and tools, IBM Worklight Foundation provides an integrated platform that includes a complete development environment, middleware runtime optimized for mobile, store private enterprise applications and a management console and integrated analysis; all this supported by several security mechanisms."*¹

¹ IBM. (2013).

6.2 Characteristics

Antes de describir las características de esta herramienta es necesario recalcar que IBM Worklight Studio es un plug-in de Eclipse que contiene una versión embebida de IBM Worklight Server.

“IBM Worklight Studio es un IDE basado en Eclipse que permite a los desarrolladores realizar prácticamente todas las tareas de codificación e integración que requieren para desarrollar aplicaciones enriquecidas dirigidas a los empleados y clientes.

IBM Worklight Studio enriquece las herramientas familiares de Eclipse con una amplia variedad de características de nivel empresarial ofrecidas por los IBM Worklight Plug-ins, permitiendo que IBM Worklight Studio dinamice el desarrollo de aplicaciones y facilite la conectividad empresarial.”²

- Multiplatform support
- Hybrid Coding
- Run Time Skins
- Support HTML5
- Integration of Native SDK device
- Data Recovery Estadarizada

6.3 Components

The components are part of IBM Worklight Studio and are essential for creating multiplatform projects. These components make IBM Worklight Studio a tool that provides applications with scalability.

The components will speak in this research is part of project development, and each develops according to the objectives that the programmer or developer may have regarding what will develop.

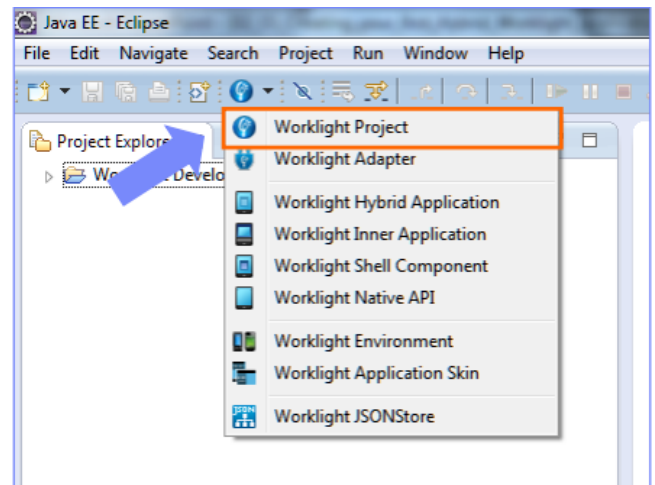


Figure 21 Worklight Project

Source: IBM Worklight FoundationProject

- Adapter
- Environment
- Skins

6.4 Tools

IBM Worklight Studio like other plug-in development, has some own tools of it, so they can be used so you develop, and thus optimize the development of your project.

Its tools IBM Worklight Studio help with the implementation of real-time code.

- **Rich Page Editor:** Rich Page Editor is an editor for html pages, plus it can be added by Dojo widgets, and create and edit pages for mobile devices.

He is an editor that has within them tabs to see the encoding of mobile project in three types of views or representations for the page.

- **Mobile Browser Simulator:** A web application that simulates real-time application that is being developed in IBM Worklight Studio, the advantage of this is that IBM Worklight own and does not need to install any SDK installed, like other mobile software development.

6.5 Mobile Application Development

Process of developing a mobile application

Worklight IBM has a process that creates and develops any mobile application within its platform.

The process is as follows:

"At a higher level, workflow tasks that follow when developing a mobile application are similar to those of a

² (IBM Corporation, 2013)

traditional application development. A simplified view of the steps could be:

1. Setting Worklight and start developing the application.
2. Proceed with the usual development and testing process to verify application functionality to execute or simulate the application.
3. When you think you're ready, post test application to obtain feedback from key users.
4. According to the comments, continue working on improvements to the application or throw it to a wider audience test.
5. If you choose to expand the use of the test application can publish the application for a restricted group of users on a local or private repository of application, or to a public repository or business application (such as Apple App Store, Google Play and others).³

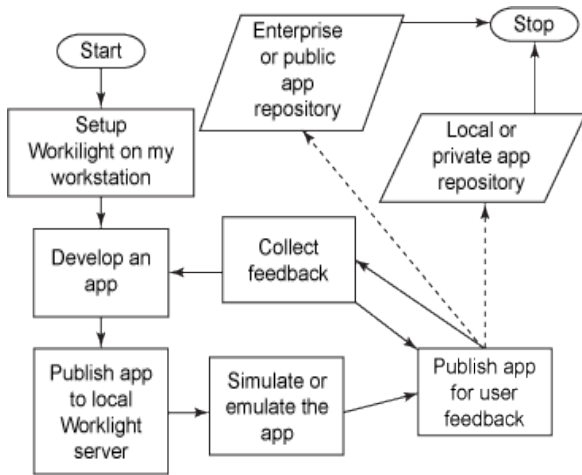


Figure 35 Development of a mobile application
Source: IBM Worklight Foundation

7. Project Development

The SCRUM methodology meets certain aspects and features for the development of this project was used and met almost all of them, so it is necessary to note that certain aspects that were not considered important to the project were omitted; but if the methodological structure must have a project developed by this approach was reflected.

7.1 Roles and Responsibilities

ROL	RESPONSABILIDAD	RESPONSABLE
SCRUM Master	Verificar la aplicación de la metodología SCRUM en cada paso del proyecto.	Sr. Vadin Villota TESISTA
Product Owner	Verificar que la realización del proyecto sea de agrado para la empresa y cumpla con las expectativas deseadas que el producto debe cumplir.	Ing. Jorge Acosta JEFE DE SISTEMAS DEL INSTITUTO TECNOLÓGICO SUPERIOR “JOSÉ CHIRIBOGA GRIJALVA”
SCRUM TEAM	Desarrollar por completo el producto tomando en cuenta los requisitos del Product Owner y del SCRUM Master	Sr. Vadin Villota TESISTA

Table 3 Table of Actors Roles and Responsibilities

Source: Own

7.2 Elements

Each Sprint established to develop this project has a duration of 15 days, which in total lasted three months for the development of the whole project; each time a meeting is held the following artifacts will result.

1. Increase

This device has the function of recording it takes activities, and may be used by any team member.

In this appliance requirements shall be determined according to each Sprint.

2. Sprint Backlog

This device has the function to record in detail all for the increase, and finalize each Sprint, must possess the following: Description of the task, Head, State and Observation.

These elements must be within a table that allows better visualization of this appliance.

3. Product Backlog

This device serves to continue the monitoring of the product, must possess the following: description, Sprint, Head and Observation.

These elements must be within a table that allows better visualization of this appliance.

³ IBM Worklight. (2014).

8. Conclusions

- - The development of mobile applications in these times has grown with the rise of mobile devices that people have, the more people buy devices more applications are developed.
- - Development tools for mobile applications are growing increasingly adding more components and functions for developers.
- - Currently there are tools for payment or free depending on the size of the project or application to develop.
- - IBM Worklight Studio is a software development for mobile applications that have many functions and development tools so it would be good to study to improve knowledge in students of the University and that future might need these tools for their performance labor when working in big companies.
- - IBM Worklight Studio helped that the application is developed very lightly, since it has an adapter that help to fast data collection so it was connected directly to the tables without any problem, as this tool is platform development helped the development three operating systems quick and consistent for different devices lastly by configuring the skin is able to adapt to different sizes of devices.

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About the Authors...

Vadin Santiago VILLOTA HIGUERA Student Bachelor's degree in Computer Engineering and futuro Country Systems Engineer.