Research Paper

Android Based Clearance System for Graduating Student (A Case Study of Kogi State University) Approach

Akoh Patrick Junior, Adegoke .O. Folake
Computer Science Department
Kogi State University, Anyigba

ABSTRACT
An android-based online clearance system is a research work that will help build an effective information management for schools. It is aimed at developing a system for making clearance after graduation. The designed android application will serve as a more reliable and effective means of undertaking students clearance, remove all forms of delay and stress as well as enable you understand the procedures involved as well as how to do your clearance online. This project work made use of data collected from the university, materials and journals from various authors, an android application was developed to effectively achieve the aims of this project. The methodology used in this work is the object oriented analysis and design methodology (OOADM). In this project, the implementation of the computer-based system was carried out using PHP, JAVA, SDK, and MYSQL for the database. In conclusion, the work met all the objectives intended. It is, however, recommended for use by all tertiary institutions.

I. INTRODUCTION

Android based clearance system is an internet model that will help in the quest of getting a clearance in an institution, a case study of (Prince Abubakar Audu University), this research work will help ease the queuing system and some other various challenges faced by individuals during the process of clearance, and this research work will build an effective information management that is very convenient to use for school since it can be accessed online from anywhere in the world. As many universities have choosing to pursue the dynamic educational options available online. The advantages of e-learning are many. As people of all ages and backgrounds become increasingly reliant on the internet for information, online learning becomes more convenient and efficient here the need for an online clearance system. The skills needed to access and comprehend information online are becoming commonplace, and the flexibility of wireless computing means that any coffee shop, airport or bedroom can become a classroom. Online courses, registrations, clearance have few, if any scheduling restrictions, well-integrated learning resources and competitive degree options, with an online clearance system.

II. REVIEW OF MOBILE APPLICATION AND ANDROID DEVELOPMENT

Android was created by the Open Handset Alliance, which is led by Google. The early feedback on developing applications for the Android platform was mixed Issues cited include bugs, lack of documentation, inadequate QA infrastructure, and no public issue-tracking system. (Google announced an issue tracker on January 18, 2008).

December 2007, MergeLab mobile startup founder Adam MacBeth stated, "Functionality is not there, is poorly documented or just doesn't work... It's clearly not ready for prime time. Despite this, Android-targeted applications began to appear the week after the platform was announced. The first publicly available application was the Snake game. The Android Dev Phone is a SIM-unlocked and hardware-unlocked device that is designed for advanced developers. While developers can use regular consumer devices purchased at retail to test and use their applications, some developers may choose not to use a retail device, preferring an unlocked or no-contract device.

A preview release of the Android SDK was released on November 12, 2007. On July 15, 2008, the Android Developer Challenge Team accidentally sent an email to all entrants in the Android Developer Challenge announcing that a new release of the SDK was available in a "private" download area. The email was intended for winners of the first round of the Android Developer Challenge. The revelation that Google was supplying new SDK releases to some developers and not others (and keeping this arrangement private) led to widely reported frustration within the Android developer community at the time.

August 18, 2008, the Android 0.9 SDK beta was released. This release provided an updated and extended API, improved development tools and an updated design for the home screen. Detailed instructions for upgrading are available to those already working with an earlier release. On September 23, 2008, the Android 1.0 SDK (Release 1) was released. According to the release notes, it included "mainly bug fixes, although some smaller features were added." It also included several API changes from the 0.9 version. Multiple versions have been released since it was developed

As of July 2013, more than one million applications have been developed for Android with over 25 billion downloads. A June 2011 research indicated that over 67% of mobile developers used the platform, at the time of publication in Q2 2012, around 105 million units of Android smartphones were shipped which acquires a total share of 68% in overall smartphones sale till Q2 2012.

In 2015, Alphabet purchased Jibe to leverage a standard called Rich Communications Services. In 2017, Android announced they would make a texting app that comes with your phone and is every bit as powerful as dedicated messaging apps. According to technology analyst, David Garrity, the Android Messenger app will be key to the whole equation as it is where users will engage with the new features along with the old SMS and MMS messages.

Developing apps for mobile devices requires considering the constraints and features of these devices. Mobile devices run on battery and have less powerful processors than personal computers and also have more features such as location detection and cameras. Developers also have to consider a wide array of screen sizes, hardware specifications and configurations because of intense competition in mobile software and changes within each of the platforms (although these issues can be overcome with mobile device detection).

Mobile application development requires use of specialized integrated development environments. Mobile apps are first tested within the development environment using emulators and later subjected to field testing. Emulators provide an inexpensive way to test applications on mobile phones to which developers may not have physical access.

Mobile user interface (UI) Design is also essential. Mobile UI considers constraints and contexts, screen, input and mobility as outlines for design. The user is often the focus of interaction with their device, and the interface entails components of both hardware and software. User input allows for the users to manipulate a system, and device's output allows the system to indicate the effects of the users' manipulation. Mobile UI design constraints include limited attention and form factors, such as a mobile device's screen size for a user's hand. Mobile UI contexts signal cues from user activity, such as location and scheduling that can be shown from user interactions within a mobile application. Overall, mobile UI design's goal is primarily for an understandable, user-friendly interface.

III.   METHODOLOGY

The design methodology used in this research work is OOADM (Object Oriented Analysis and Design Methodology).
OOADM is a software engineering approach that models a system as a group of interacting objects, each object represents an entity of interest in the system being modeled, and is characterized by its class, data element and its behavior.
Various models can be created to show the static structure, dynamic behavior, and run-time deployment of these collaborating objects.

IV.   RESULTS AND DISCUSSION

System implementation
The new system was implemented using php programming language because of its flexibility and it has the ability of providing the programmer with possible hints, in addition it produces a user friendly graphical user interface.
Hardware and operating system requirement
For the effective operation of the newly designed system, the following minimum hardware specifications are recommended.
a)   The computer system in used should be IBM compatible since they are considered clone systems.
(b)   The Random access memory (RAM) should be at least 512mb.

(c)   The system should have a hard disk of at least 50GB and at least a diskette drive of high density of 1.44MB (3.5 inches)

(d)   The system should be equipped with an E.G.A/V.G.A, a coloured monitor.

(e)   An uninterruptible power supply (UPS) units

(f)   It should be internet ready.

These listed configurations are the minimum requirements but if the configurations are higher the reports derived will definitely be better and the program will run much faster.

Software specification

The software specifications required on the computer system are:-

- Android SDK
- HTML
- Text Editor
- JAVA

Requirements for processor

The Web application requires a minimum of 600MHZ Pentium processors, but for taster and Smoother operation we recommended a 2GHZ Pentium grade processor to be used.

Ram size

The minimum RAM requirement is 512mb but 1GB or higher is recommended for flawless execution. This is because all connection to the server will use memory on the RAM for processing of request. The computer must have a minimum of 2GB of Hard disk space available. The user may be able to make more space available by removing temporary files on your computer.

Database specification

The database was designed with MYSQL. The database contains information of student inputed during registration or information of students from portal or school server as the case may be.. It organizes and manages the information to obtain the report required to support the application relational database where a common field relates to different tables of data to each other.

File design

The file used in the design is stored in a database file. The database is created using Microsoft Access database. The database Structure is as follows:

Student Register Database Structure

FIELD NAME	DATA TYPE	FIELD SIZE
Surname	Text	20
First Name	Text	20
Other Names	Text	15
Reg No	Text	15
State of origin	Text	20
Home Town	Text	20
Marital Status	Text	15
Nationality	Text	30
Gender	Text	10
Session	Text	20
Level	Text	20
Birth	Date\time	8
Dept	Text	15
Religion	Text	15
Address	Text	50
Kin	Text	15
Kin Address	Text	50
Entry Mode	Text	8
Sponsor	Text	50
Sponsor Address	Text	50
Type	Text	20
Qualification	Text	50
Institution	Text	20
Subject	Text	20
Award	Text	20
School	Text	20
Study	Text	15
Year	Text	10
Duration	Integer	2
Activities	Text	50

Student Clearance Database Structure

FIELD NAME	DATA TYPE	FIELD SIZE
Surname	Text	15
First Name	Text	15
Other Names	Text	15
Reg No	Text	15
Finance	Text	4
Library	Text	4
Student Affairs	Text	4
Security	Text	4
Department	Text	4
Exams and Records	Text	4
Clearance	Text	4
Date	Date\time	8
Receipt	Text	20
Remark	Text	30

Interfaces
A GUI (Graphical User Interface) is meant to be very friendly and responsible, to focus on
Maximizing usability and enhancing user experience. As advised by MIT, clickable buttons and
Menus are used throughout for easy navigation of the user.

Input specification and design
It is also necessary to denote that data inputted in the computer for processing determines what the output will
be. Screen designs are generally or basically made for data entry or capture. Since data are captured from a
hardcopy form, the sequence of data capture should be identical to the hardcopy form made for data collection.
        The new system is composed mainly of two forms of input form, they are:-
a)   Student Registeration
b)   Clearance Form
The home page where the student register or login and the administrator login to their dashboard to see the list
of students applying for clearance.

Output interface
The output design is based on the inputs. The list of clearance applications from students waiting to be
approved.
Below are some of the output display.
The administrators logging page where administrators can login to their page and attend to the clearance
application on their dashboard and attend to student's application for clearance.

V.   CONCLUSION

        Research and development are continuous processes; this is same in computer and software
development. However, the effectiveness and efficiency of this new system provides room for further
improvements. As earlier mentioned, some of the objectives of this project were not actualised due to some
limitations. So these objectives could be improved upon. Nevertheless, the online clearance system developed
will offer greater opportunities in school management. All transactions or payments with regards to student
clearance can be carried out online.

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