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Mobile-Based Dictionary of Information and Communication Technology

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Mobile-Based Dictionary of Information and Communication Technology

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Abstract. This study aims to design and build mobile-based dictionary of information and communication technology applications to provide access to information in the form of glossary of terms in the context of information and communication technologies. Applications built in this study using the Android platform, with SQLite database model. This research uses prototype model development method which covers the stages of communication, Quick Plan, Quick Design Modeling, Construction of Prototype, Deployment Delivery & Feedback, and Full System Transformation. The design of this application is designed in such a way as to facilitate the user in the process of learning and understanding the new terms or vocabularies encountered in the world of information and communication technology. Mobile-based dictionary of Information And Communication Technology applications that have been built can be an alternative to learning literature. In its simplest form, this application is able to meet the need for a comprehensive and accurate dictionary of Information And Communication Technology function.

1. Introduction

For many students, there is often a difficulty in learning when dealing with new vocabulary or terms they have recently encountered in Information and Communication Technology (ICT) subjects [1]. One attempt to overcome these difficulties, is to build an application contained the insights and explanations of various terms in the world of information technology [2]. Which can be run and accessed online and offline[3]. It is expected to address the need for more flexible and easy-to-use knowledge access, meaning that information must be available at all times and at any time in the absence of internet connectivity [4].

Based on research conducted by Nielsen, in 2011, 91% of the population owns mobile phones, 38% of them are smartphones, and Nielsen is expected to grow 50% from the previous year. Furthermore, in the results of research Nielsen On Device Meter (ODM) in February 2014, noted that smartphone users in Indonesia spend an average of 140 minutes per day to use their smartphones. While the results of research from StatCounter in Indonesia during 2013 to 2014, found that 60.79% of them use smartphones with android system [5]. The youngsters became one of the most popular segments of android-based smartphones, in addition to having the flexibility of the use of applications, also became the basis of various smartphone operating systems with specifications, as well as varying prices. Currently in the smartphone market, we can easily find android-based smartphones from the price of one million dollars to a dozen million rupiah. Although users at the youngsters level are very high, not so with the level of understanding of vocabulary or terms in the world of information technology.



To solve the problems, several researchers have suggested the following strategies: dictionary learning based reconstruction algorithm for DCVS [6], mobile learning [7] and user-experience design considerations [8].

The Dictionary Of Information And Communication Technology database targeted by this research, defined as a collection of integrated information, is organized and stored in a way that facilitates retrieval. As information providers, database design needs to be engineered in such a way as to avoid data repetition [9]. So that the role as a source of information and knowledge can be achieved well. Furthermore this study aims to design and build mobile-based Dictionary Of Information And Communication Technology applications to provide access to information in the form of glossary of terms in the context of information and communication technologies.

2. Methods

This research is designed based on prototyping software development methods [10]. According to Howard, prototyping is one approach in software engineering that directly demonstrates how a software or software component will work in its environment before the actual construction stage is done [11]. This study uses a reusable prototype model that makes it easy to transform prototype into a fully running application without removing the prototype used for testing / evaluation. Furthermore the device used for the development of this application include: (1) Windows 7 Ultimate 32-bit (operating system), (2) ECLIPSE Juno Release 4.2.0, (3) Android SQLite (relational database management system), (4) JAVA (programming language), (5) Android Virtual Device Google Nexus S (AVD as a medium for running applications that have been created).

3. Results and Discussion

The results of this study will be discussed based on the stages development of dictionary of Information And Communication Technology applicaton. The prototyping stages used in this study are described as follows: (1) Communication, (2) Quick Plan, (3) Modeling Quick Design, (4) Construction of Prototype, (5) Deployment Delivery & Feedback (6) Full System Transformation

At communication stage, the needs of the system to be built are categorized, by conducting direct data retrieval, ie listening to complaints and requests from customers or prospective users, this process can also be referred to as identification of needs, or initial requirements.

Quick Plan stage is done by examining the results of initial requirements, so that it can define what input variables will be used, along with the output that will be provided system, (3) Modeling Quick Design . As shown as Figure 1, this stage includes the creation of mockup or wireframe which is the initial design or user interface such as menu, dialog, input and output, major transaction files, and simple processing functions. To identify the parts of the software tested then this stage is accompanied by modeling the system flow, by using Unified Modeling Language (UML).

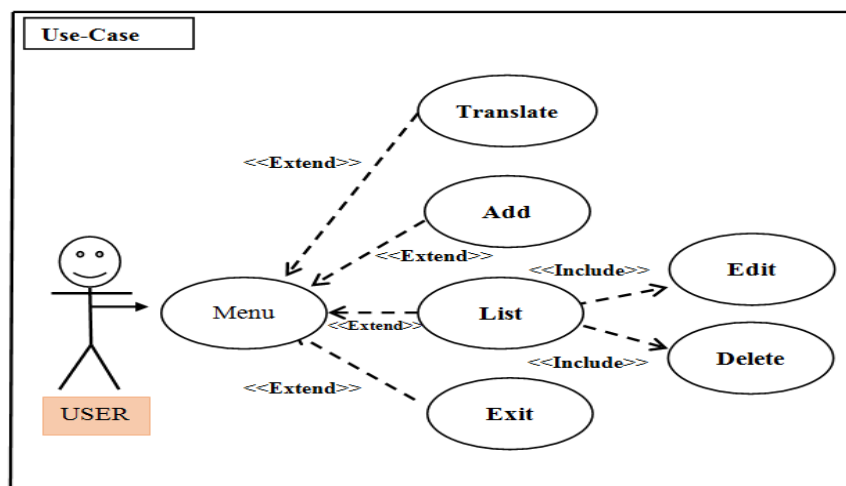


Figure 1. Use case diagram.

Figure 2 illustrates the flow sequence of user activity Dictionary Of Information And Communication Technology, this activity is divided into several categories according to the capabilities the system provides for user access.

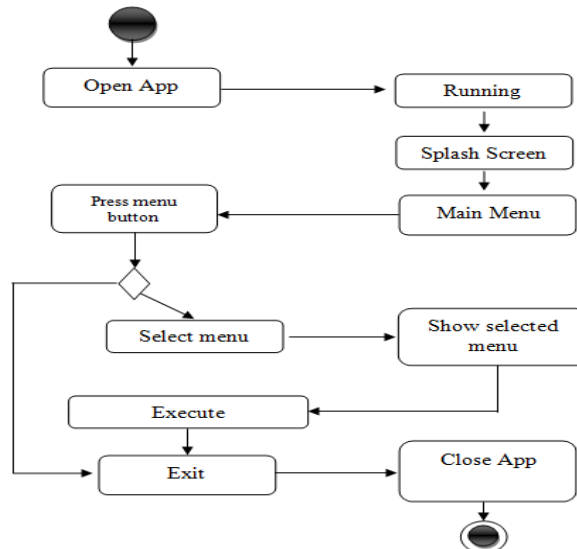


Figure 2. Activity diagram.

In Construction of Prototype stage, with the help of Integrated Development Enviroment (IDE) computer program, to perform coding and realize user interface design in previous modeling stage. Figure 3 present database design created with SQLite using ECLIPSE applications can be viewed using SQLite Manager addons in Mozilla Firefox applications such as:

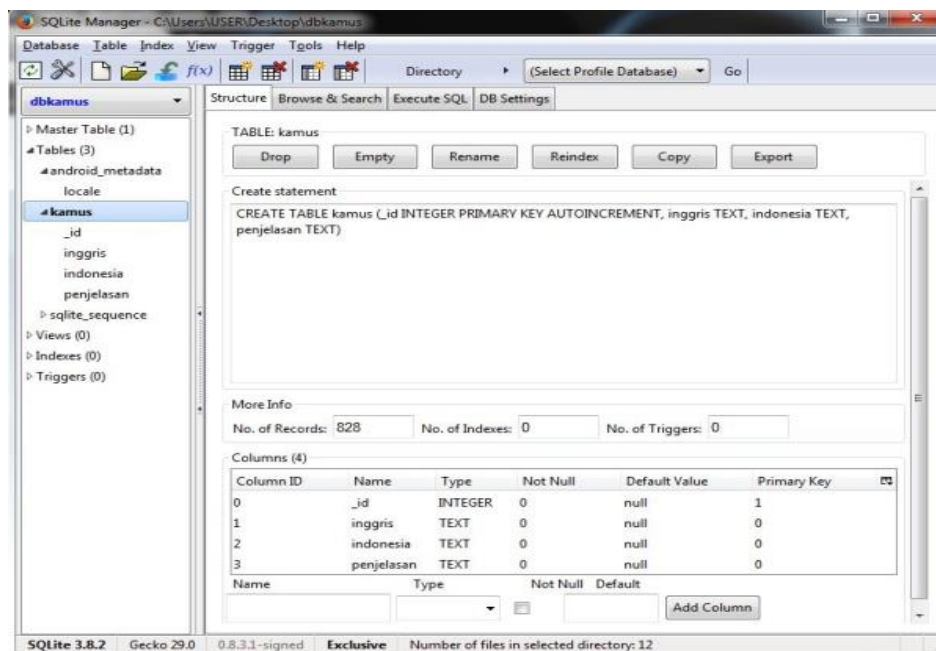


Figure 3. Dictionary database.

After the analysis phase and system design is completed, then the next step is making the application begins by making a application logo splash screen, the results after the application run can be seen in the figure 4 below:



Figure 4. Splash screen.

In Deployment Delivery & Feedback stage, prepare prototype to user in order to test and evaluate where user do test to prototype. Some changes are made based on feedback given by the user about the system, this test is done several times until the user can really effectively use the application.

Last stage is Full System Transformation, transform prototypes into fully operational software, by eliminating unneeded codes, adding necessary codes and programs, repairs and software testing. After seeing the test results, it can be concluded that the application can run quite well and able to adjust to user expectations, where Graphical User Interface (GUI) or user interface can be understood and used easily by the user.

Dictionary of information and communication technology application built in this research, able to provide convenience for students in understanding various terms, especially on english terms. as well as prototype tests, students who experiment do not experience difficulties in applying the program, and can find the various terms they need.

Simplicity in this application can certainly reap a complaint, such as graphics that are too simple or limited options. It is actually fully realized when building modeling, which only provides access to information terms Information and Communication Technology and its translation and explanation. This application is case sensitive, does not contain suggestion feature in term search and does not load index for term list.

On the other hand, the simplicity in this application is based on the consideration that the basic goal to be achieved is the functioning of the application as an easy to use and comprehensive dictionary of information and communication technology. Abundant features and features may be the next option when doing further development.

Furthermore, future application development frameworks may focus on (1) Dictionary Of Information And Communication Technology application development by adding features such as auto suggestion to simplify and speed up the term translation process. (2) Conversion of letters not case sensitive can be added so that users can easily search terms without having to worry about writing the letters. (3) Adding features to give warning to the user when they want to add data and data are already in the database need to be done in order to avoid redundancy of data and consuming storage memory. (4) Create an index on the word list to make it easy to navigate and search for the term in question without having to scroll down the list.

4. Conclusions

Mobile-based Dictionary Of Information And Communication Technology applications that are built can be an alternative to learning literature. In a simple form, this application is able to meet the need for the function and role of dictionary of information and communication technology is comprehensive and accurate. However, as an android-based application, the development framework is certainly needed to improve the quality (both graphical and feature visuals), as well as the flexibility of use.

References

- [1] Livingstone Sonia 2004 Media literacy and the challenge of new information and communication technologies *The Communication Review* **7**(1) p 3-14.
- [2] Barish, Greg, et al 2000 Theaterloc: Using information integration technology to rapidly build virtual applications *Data Engineering, Proceedings. 16tssh International Conference on. IEEE*.
- [3] Brockway, Brian, et al. 2013 Legal compliance, electronic discovery and electronic document handling of online and offline copies of data.
- [4] Legris Paul, John Ingham, and Pierre Colletette 2003 Why do people use information technology? A critical review of the technology acceptance model *Information & management* **40**(3) pp 191-204.
- [5] Gifary S and Kurnia I 2015 Intensitas Penggunaan Smartphone Terhadap Perilaku Komunikasi *Jurnal Sositologi* **14**(2) pp 1-9.
- [6] Haixiao Liu, Bin Song, Hao Qin and Zhiliang Qiu 2013 Dictionary learning based reconstruction for distributed compressed video sensing. 2013 *Journal of Visual Communication and Image Representation* **24**(8) pp 1232-1242.
- [7] Zahra Taleb and Amir Sohrabi 2012 Learning on the Move: The use of Mobile Technology to Support Learning for University Students *Procedia - Social and Behavioral Sciences* **69**(24) pp 1102-1109.
- [8] Fisher M and Derek E B 2006 Making mLearning work: Utilizing mobile technology for active exploration, collaboration, assessment, and reflection in higher education *Journal of Educational Technology Systems* **35**(1) pp 3-30.
- [9] Basili Victor R and David M W 1984 A methodology for collecting valid software engineering data *IEEE Transactions on software engineering* **6** pp728-738.
- [10] Bowman D A and Hodges L F 1997 An Evaluation of Techniques for Grabbing and Manipulating Remote Objects in Immersive Virtual Environments *Proc. Symposium on Interactive 3D Graphics (I3D '97), Providence, RI* pp 35-38.
- [11] Antonelli M 2017 Design, Fabrication and Demonstration of a Computer Numerically Controlled Rapid Prototyping Machine for Additive Manufacturing, CNC Machining and Laser Cutting