

Design Translation Application from Indonesian to the Nyow Dialect (Pepadun) Based on Android

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Received: 10 February 2022; Accepted: 13 March 2022; Published: 30 Mei 2022.

Abstract: Language is a sign to communicate. In the world, there are many languages that characterize the country, for example, the State of Indonesia has various regional languages, one of which is the Nyow Dialect (Pepadun) which is dominantly used by residents in the coastal Lampung area to communicate. The purpose of this research is to design and build an Android-based digital dictionary application that can be used to make it easier to find translated vocabulary either in Indonesian or in the Nyow Dialect (Pepadun) so that it can be used in general so as to provide convenience for the wearer. The method used in this thesis is the prototyping method. Based on the test results on the Android-based Indonesian-Nyow Dialect (Pepadun) application, it can be seen and can conclude several things as follows; The search system designed is able to display words in the database more quickly and equivalently, the search process is carried out by an implicit system where the words to be searched will be processed based on an array that matches the user input string, and system design with Xamarin in the Visual Studio 2017 application package. as an android programming language toll in making applications, it is right because of the ease in the application development process.

Index Terms: Translation Application; Indonesian; Nyow Dialect; Pepadun; Android.

1. Introduction

Language is a sign to communicate [1]. In the world, there are many languages that characterize the country, for example, the State of Indonesia which has various regional languages, one of which is the Nyow dialect which is dominantly used by residents in the Lampung Province, south of Palembang and the west coast of Banten to communicate [2][3]. Communication between humans must be done because humans need interaction with other humans [4]. This communication process under certain conditions cannot be done because of language barriers [5]. A lot of information is conveyed by other people in different languages, both in spoken form. as well as writing. So we really need a dictionary that can translate from one language to another.

Dictionaries can be in the form of books and vary in size. Some have a very large vocabulary, but to carry them everywhere becomes very difficult because they are too big, heavy and thick. In the development of language translator technology, it has now developed both in terms of the platform and the various features it offers. However, the use of smartphones makes it a priority for more users to get active clients today. Android is a Linux-based operating system that can be used on various mobile devices [6]. Android has the main goal of advancing mobile phone innovation so that users are able to explore capabilities and add more experiences compared to other mobile platforms [7]. Until now, Android continues to grow, both in terms of systems and applications. The purpose of this research is to design and build an android-based digital dictionary application that can be used to make it easier to find translated vocabulary either in Indonesian or in the Nyow dialect so that it can be used in general so as to provide convenience for the wearer. The translator application basically has a concept that is almost the same as a dictionary where its function can be used to help learning as well as initial guidelines for those who want to speak. Dictionaries which are generally in the form of books are difficult to carry anywhere because they are thick and heavy. However, with the development of technology, now the dictionary can be practically carried anywhere only via mobile phones.

The system of translating language texts to other languages is implemented using a rule-based approach [8]-[9] with the implementation of four work modules, namely scanner, parser, translator, and evaluator modules [10][11]. According to Pratama & Muliantara (2012) the rules implemented in this system are in the form of syntax rules that use context free grammar and MD-DM pattern rules [10]. The syntax rules implemented in the parser module function to analyze the input syntax structure based on grammar. Meanwhile, the MD-DM pattern rules implemented in the translator module function

to get the appropriate word patterns in a language [10]. Natural language or natural language is a language that can be understood and understood by individuals in certain environments [12][13]. According to Tenney *et al* (2019) Language is a complex phenomenon that involves the process of sound recognition, sentence syntax and high-level semantic inference [14]. Dictionaries can also be used as reference books that explain the meaning of words that serve to help someone recognize new words [15][16].

In addition to explaining the meaning of words, dictionaries may also have designation guidelines, the origin (etymology) of a word and also examples of usage for a word [17][18][19]. To clarify, sometimes there are also illustrations in the dictionary. There are many popular dictionaries in Indonesia, such as: English, German, Chinese, Japanese and so on. Translation Dictionary is a dictionary that provides words with the meaning of a foreign language for one target language [20]-[21]. Its purpose is to help translators. This dictionary is more similar to a bilingual dictionary, where in this dictionary it will contain more than 1 language that is used as a translator language and the other is used as a translation language. While the digital dictionary application is an application that produces various information that can be useful to support the process of translating a word or sentence effectively and efficiently. Current technological developments, dictionaries no longer have to be in the form of conventional dictionaries in the form of books, but in the form of digital dictionary applications on Android-based mobile phones, so that they can save paper, no need to produce dictionary books, just install a digital dictionary application on Android phones.

Lampung language, is a language spoken by Lampung residents or people in Lampung Province, south of Palembang and the west coast of Banten [22]. The Lampung script called Had Lampung is a form of writing that has a relationship with the Pallawa script from South India [23]. The type of writing is phonetic syllables which are vowels as in Arabic letters by using fathah signs in the top row and kasrah signs in the bottom row but not using dammah signs in the front row but using signs behind, each sign has its own name. This means that Had Lampung is influenced by two elements, namely the Pallawa script and Arabic letters. Had Lampung has a form of kinship with the Rencong script, the Bengkulu Rejang script and the Bugis script. Had Lampung consists of main letters, subletters, double subletters and consonant clusters, there are also symbols, numbers and punctuation marks. Had Lampung called KaGaNga is written and read from left to right with 20 main letters. The Lampung script called Had Lampung is a form of writing that has a relationship with the Pallawa script from South India [24]. The type of writing is phonetic syllables which are vowels as in Arabic letters by using fathah signs in the top row and kasrah signs in the bottom row but not using dammah signs in the front row but using signs behind, each sign has its own name [25]. This means that Had Lampung is influenced by two elements, namely the Pallawa script and Arabic letters [26]. Had Lampung has a form of kinship with the Rencong script, the Bengkulu Rejang script and the Bugis script [27]. Had Lampung consists of main letters, subletters, double subletters and consonant clusters, there are also symbols, numbers and punctuation marks [28]. Had Lampung called KaGaNga is written and read from left to right with 20 main letters [29].

2. Research Method

To assist in the preparation of this research, it is necessary to have a clear framework for the stages. This framework is the steps that will be taken in solving the problems that will be discussed. Based on the research framework described above, it can be explained that the discussion of each stage in the research is; 1) Literature Study, 2) Data Collection, 3) System Analysis, 4) System Development, and 5) Reporting. The data collected in qualitative research is textual data in the form of words and sentences [30]. The most widely used method for collecting qualitative data in this study is through literature study and group discussion [31]. In this study, the initial data collection used to obtain a list of system requirements is to conduct a literature study on translator applications, programming languages, and various application platforms [32]. Furthermore, the literature study data is listed to be analyzed between the standard translator application to be achieved and the current translator application. Furthermore, a study of the translator application documentation and data analysis and vocabulary development was also carried out that could be accommodated by the nyow dialect language translator application. Meanwhile, the final data collection after the implementation process will be carried out by making a checklist of the planned and fulfilled features, as well as performance testing to obtain data on system implementation hardware requirements. Then the prototype was tested on students and the community to get feedback in the form of questionnaires and also direct interviews. The results of the questionnaire will be inputted into tabulations and simple calculations are performed to obtain quantitative data on the success of the system. While the data from the interviews will be documented and categorized to distinguish evaluations for program improvement that can be carried out in this study, or will be used as input for future research. The system analysis for the nyow dialect language translator application is as follows:

- 1) The application is able to translate words from Indonesian to nyow dialect and vice versa by directly inputting the word to be translated in the provided text input.
- 2) This application also has an admin in the form of an android form page that is used for the process of adding, editing, and deleting words, and types of words if an addition is needed at any time. add, edit, and delete words, and word types when an addition is needed.

The natural language components in this dictionary application include; The Parser, the knowledge representation system in this application, and the Output Translator, are the output of the translation process. Explanation of each process. The method used in this study is the prototype method, which is a method where the results of the analysis per part are directly applied to a model without having to wait after the system is completed [33][34][35]. The prototype method consists of; Requirement Gathering, Quick Design, Building Prototype, Customer Evaluation of Prototype.

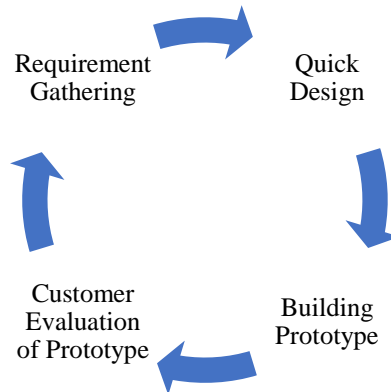


Fig 1. Stages in the Prototyping Model

The design is useful for describing the flow of system data in translating Indonesian into nyow dialect and from nyow dialect into Indonesian. The design is in the form of a flowchart (system flow chart). Flowcharts are designed to make it easier to understand the system to be built.

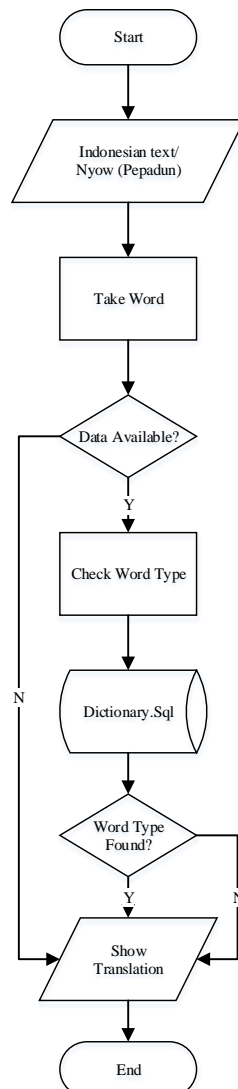


Fig 2. Proposed Translator Application Flowchart

Software testing in this study was carried out by the user or translator application, while the testing method used was black box testing. Black box testing is testing the fundamental aspects of the system without regard to the internal logical structure of the software. This method is used to find out if the software is working properly. In the interface design, the form design functions as a translator application design. There are several forms, namely login form, admin main menu, user main menu, Word Dictionary Input Form, Suggest Input Form, and Translation. Black box testing is a test data design method based on the software specifications created. The things that will be tested using the black box method are as follows:

Table 1. Information System Testing Plan for Translator Applications

Requirement	Test Items
Login	Login
Word Dictionary Data	Adding and Manipulating Dictionary Data
Translator App Data	Nyow Dialect Translation Process (Pepadun) - Indonesia

3. Result and Discussion

3.1 Results

The design of the Android-based Indonesian-Dialect application which the author designed consists of several stages, namely input design, output design, process design. This design is later expected to make it easier for every user or dictionary user. This Android-based Indonesian-Dialect application design is designed on the Android operating system with a minimum of API 22 (Lollipop) and a target of API 26 or 27 (Oreo). The application trial will be carried out on Asus Zenfone 2 with the Android operating system version of Marshmallow (API 23). In this case the development method used is a prototyping model; which consists of a number of stages starting from requirements gathering, quick design, building prototype, and customer evaluation of prototype. This method is a method where the results of the analysis per part are directly applied to a model without having to wait after the system is completed. Implementation is the stage where the system is ready to be operated at the actual stage, so that it will be known whether the system that has been made is really as planned. In the implementation of this software, it will be explained how this system program works, by giving the appearance of the system or application created. The implementation of this application consists of several pages that have their own functions. The pages will appear sequentially in the order that has been programmed. In the application that the author built consists of; home page, menu page, dictionary page, app about page and login page.

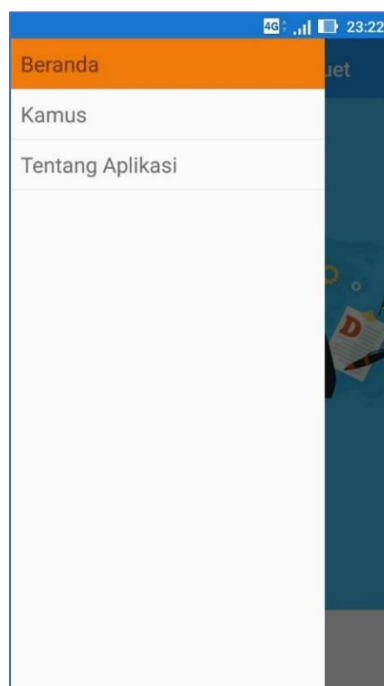


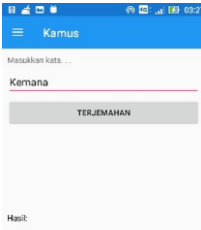
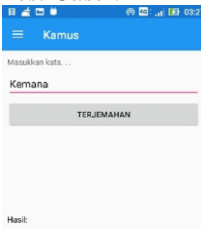

Fig 3. Application Menu Page

The dictionary menu page is the purpose of making the design of the nyow-Indonesian dialect application, on this page it consists of a column to fill in the nyow dialect language and with the autosearch module so that when the user types the first 3 letters, the nyow dialect language related to what he wants to search will be displayed. When the word data is filled in, the user can click on the translate button. On the menu page about the application only displays information about the developer, namely the author himself.

3.2 Discussion

The implementation of the Android-based Indonesian-Dialect application program is carried out using the Black Box Testing method. The Black Box Testing method is a program testing that prioritizes testing the functional requirements of a program. The purpose of this Black Box Testing method is to find malfunctions in the program. Testing with the Black Box Testing method is done by providing a number of inputs to the program. The input is then processed according to its functional requirements to see if the application program can produce output that is as desired and in accordance with the basic functions of the program. If the input given by the process can produce output that is in accordance with its functional requirements, then the program made is correct, but if the output produced is not in accordance with its functional requirements, then there are still errors in the program, and then a search for improvements is carried out to correct the errors. occur. The following is a Black Box test table based on the Android-based Indonesian-Dialect application for the function of the dictionary page, which is as follows:

Table 2. Black box Testing Table on the Dictionary Page

No	Testing Scenario	Expected results	Conclusion
1	Empty the Indonesian word, then immediately click the translate button. Test Case : 	The system will not produce a translation into nyow dialect.	Valid
2	Fill in Indonesian and immediately click the translation button. Test Case : 	The system will display the translation results in nyow dialect. Hasil Pengujian : 	Valid

4. Related Work

Several studies have conducted similar research, such as that conducted by Febriansyah, Ardiansyah, & Darmaji (2020) which resulted in an application named Cawa Lampung. In this application, the translation process is carried out by the system with word-for-word translation. Each word has a stemming process using the Nazief Adriani stemming method. The system development method used is eXtreme Programming. From the results of functional testing all functions went well, and from the non-functional results it had a value of 85.57% which had a meaning of "very good" [36]. Unlike what was done by Arjuna, Irsan, & Sukisno (2020) this research focuses on facilitating learning by visualizing material in the form of images and text with the aim of Programming Learning Content Applications that can help in overcoming programming problems [37]. This research is the same as that conducted by Erlinda & Masriadi (2020) and Rismayani *et al* (2021) with the aim of producing a computer term dictionary application [38][39]. When viewed from the research conducted by Azima & Laila (2020) and Laila & Azima (2020) there are similarities from research which in research continues the Language Dictionary Application into a Lampung Language and Script Learning Game [40][41]. Another study by Kurniawan (2021) produced a Web Application Machine Translator and Digital Dictionary of Indonesian – Lampung Dialect Way Kanan and the results of the blackbox test data can be concluded that all functions can be executed properly [42]. Although it has a function with the aim of being able to translate a language, but research that discusses the translation of the Nyow Dialect (Pepadun) language has not been carried out, it is hoped that the results of this research can contribute by developing at the level of detail and language by involving voice so that this application can be more precise in translate Nyow Dialect (Pepadun).

5. Conclusion

Based on the test results on the Android-based Indonesian-Dialect Nyow application, it can be seen and can be concluded that; The search system designed is able to display words in the database faster and equivalent, The search process is carried out by an implicit system where the words to be searched will be processed based on an array that matches the user input string, System design with Xamarin in the Visual Studio 2017 application package as The android programming language toll in making applications is appropriate due to the ease in the application development process. Based on these results, the authors expect the next research on; The future search process can be combined with the Boyer Moore algorithm or String Matching, and Rule-Based so that the search process is even more accurate, the future content search process can be added by searching online by parsing from an online dictionary, and database support is needed so that the search process what has been done will be faster because it does not process 2 times for the same content.

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