Mobile Based Application “Hadith for Women” Using Algorithm Boyer Moore

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Abstract- Currently, women Moslem used media interaction or print media such as books - books of fiqh hadith to obtain women information. Excess of media interaction is easy and quick to find information than the print media, but the print media is more credible because of the evidence printed media interaction while still doubt the truth of the information. The women moslem need an application that is able to deliver information quickly and easily. The research will be built the mobile-based applications as device to provided easy information and used Boyer Moore algorithm for quick searching the data hadith. Algorithms perform Boyer Moore matching characters from the rightmost position and are included in the category of Exact String Matching. The result of the research has been mobile application Hadith for women using Boyer Moore algorithm is capable to obtain information specific to women’s Hadith.

Keywords— mobile application, Searching, Hadith for women, Boyer Moore Algorithms

I. INTRODUCTION

In Islam, a woman is referred to as the charm of the world who are taught by God to remain a wonderful and most beautiful. Position is very precious, as the hadith that states 'heaven is in the soles of the feet of women (mothers)'. However, at a time when the feast of the Prophet gives warning to women, that they constitute the majority population group hell because of lack of reason and religion in every woman. In an effort to avoid themselves from the group, a woman is recommended to understand the teachings of religion, law, and Islamic law. One of them comes from the Hadith.

Hadith is everything that comes from the words, deeds, and Taqrir performed by Rasulullah saw [1]. This is in accordance with the word of Allah in Qs. Al-Hasyr: 7 that contains the commands to follow everything that is done and leave the Prophet things forbidden or not done by him. Hadith has three important roles on al-Qur'an that as an affirmation of the laws described, description of the contents al-Qur'an, and other legal information that is not mentioned in it. So the role of Hadith is necessary for every woman, especially matters relating to issues related to women.

Based on the results of the questionnaire data, 39% of respondents use print media as a source of information in the Hadith. Due to this media information has advantages in detail and have proof (in print) because the truth should be clear hadith source. The drawback is the need of searching a long time. Media interaction has directly elected by 32% of respondents as providing information easier and faster information than the print media. However, the truth of the information conveyed speakers still in doubt. To unify these advantages, mobile technology is one alternative that can be used to obtain information.

Beginning of mobile technology was the telephone invented by Alexander Graham Bell in 1876 that later developed in the field of mobile computing technology. This technology development is done in the absence of transition through the cable media as a communication medium, so that the user can obtain information either in a fixed or mobile (mobile).

Previously existing smartphone-based Android application that displays information Hadith for women but not equipped with the features to search the word Hadith that can facilitate users in obtaining information right keywords as needed. Content Provided Hadith also still inadequate to the completeness of data required Hadith. It required new applications that can provide more content and features to complete the word search are available right Hadith.

Searching is a process that is very important in life. In the field of computer technology, the search is said to be the process of gathering some information in memory, and when the necessary information can be re-obtained as soon as possible. In a hadith search, the information obtained is a collection of some of the words (in the programming is called a string), where the search process is done by finding a keyword in the set of data available in the application hadith.

String Matching is the process of finding the place of the string you want to find in a set of strings or text [2], the search results are found or not found. The literature study (Darmawan Utomo, 2008, and Endang Hastriana, 2010) states that the Boyer Moore algorithm is able to provide results faster than the brute force algorithm, Knuth Morris Pratt, and the Rabin Karp string search. These algorithms do the matching characters from terkakan position to the left to mobilize a sizeable leap character so as to accelerate the search.

Thus, the author takes the theme of the hadith application development for women with mobile technology and algorithms Boyer Moore in search feature, with the title “Application Hadits for Women Using Algorithm Boyer Moore Based Mobile.”

II. THEORITICAL AND RELATED WORK
2.1. Female

- Women are “people (humans) who have pies, can menstruate, get pregnant, give birth to children, and breastfeed”.[3]
- In Islam also explained that the level of equality between men and women are equal in the sight of Allah is the aspect that sets it apart from any personal faith of Muslims. Therefore, an understanding of religion, law, and Islamic law must be present in order to obtain a valuation of a woman of faith and righteous deeds are high and able to be a source of goodness and grace in the development of various generations of Islam and the nation. One source of guidance in Islam, the Sunnah (Hadith).

2.2. Hadith

- Hadith can be interpreted based on the language and terms the science of hadith. According to the language, the hadith is “a news or something new”. While the science of hadith (the term) means “words, deeds, and taqrir (recognition of something by not commenting) carried out by the Prophet Muhammad SAW.”[1]
- Hadith commonly used is the narration of Al-Bukhari and Muslim.

2.3. String Matching

- According to Black, String is an arrangement of characters (numeric, alphabetic, or other characters) and is usually represented as a data structure array. Strings can be words, phrases, or sentences. Meanwhile, a string matching or matching strings, is a problem to find a pattern in a string arrangement of another character string or part of the contents of the text. [3]
- There are 3 main components in a string matching algorithm:
  a. The text, is a place where the pattern matching is done, expressed as $y[0..n-1]$ with a length of n characters.
  b. Pattern, a sequence of characters that will be matched with the text, expressed as $P[0..m-1]$, with a length of m characters.
  c. Alphabet, which contains all the symbols used by the language of the text and pattern, expressed by $\Sigma$ sized ASIZE.
  a. With a character value ($m < n$) to be searched in the text. The text will be assumed to be in memory, so as to search for a string in all the contents of the archive file then needs to be read first, and then stored in the memory. If the pattern appears more than once in the text, the search will only give you the output of the current location pattern was found in the first position.
  b. Based on the direction of his quest, string matching algorithms, there are three kinds. i.e. [4]:

a. **Form Left To Right.** From the most natural direction, from left to right. It is a direction for reading. For example, Brute Force and Knuth Morris Pratt algorithm.

b. **Form Right To Left.** From right to left direction, the direction of which usually produces the best results in particle. For example, Boyer Moore algorithm.

c. **In A Specific Order.** Of specific directions determined by the algorithm, this direction is theoretically produce the best results. For example, Colossi and Crochemore–Perrin algorithm.

Meanwhile, based on a match with the search string character string that is matched, divided into two categories, i.e.:

a. **Exact String Matching.** String matching exactly with the order of characters in a string that be matched the number/sequence of characters in the same string. For example, Brute Force, Knuth Morris Pratt, and Boyer Moore algorithm.

b. **Inexact String Matching atau Fuzzy String Matching.** Matching a string of similarities vague or seen. Both have different characters but the arrangement of his string similarities in writing or speech.

Based on the above categories, the application will be built using the Boyer Moore algorithm to search the word.

2.4. Boyer Moore Algorithm

2.4.1. Basic Algorithm

In 1977, R.M. Boyer and J.S. Moore made an algorithm that does the matching characters from the rightmost position to the left (the rightmost character is the first character in the pattern that will be matched with the character in the text). With the statement, “The basic idea behind the algorithm is that more information is gained by matching the pattern from the right than from the left.”[5]

Background The idea will be shown in the following example.

```
h a d i t s u n t u k w a n i t a
w a n i t a
```

Can be explained:

1. By performing a comparison of the position of the end of the string can be seen that the character 's' in the string 'hadith' does not fit with the character 'a' in the string 'woman' is sought.
2. And the character 's' were never there in the string 'woman'.
3. So the string 'woman' can be moved past the string 'hadith' that position becomes:

```
h a d i t s u n t u k w a n i t a
w a n i t a
```

In the example shown that the Boyer-Moore algorithm has great character jump, thus speeding up the search string just by checking a little character.
2.4.2. Description of Work

- from right to left starting from the rightmost character. With two kinds of shifts that will occur when the mismatch between pattern and text characters are matched. The condition known as good-suffix shift and bad-character shift, both are used to determine the step shifts the characters to be continued on the next comparison. [18][6]

- Here are examples of conditions to explain the concept of good-suffix shift and bad-character shift: In the case where \( x[i+1..m-1] \), a mismatch in the middle of the text and character matching pattern,
  1. If, pattern \( x[i] = a \) does not match the text character \( y[i+j] = b \), when matching at position \( j \).
  2. Then, \( x[i+1..m-1] = y[i+j+1..j+m+1] = u \) and \( x[i] \neq y[i+j] \).

**Good-Suffix Shift**

- The concept of good-suffix shift function are:
  1. Aligning the pieces:
    \[ x[i+1..m-1] = y[i+j+1..j+m+1] = u. \]
  2. Good-suffix shift required is a shift of \( x[i] = a \) to another character that is located over the left of \( x[i] \) and is located on the left segment of \( u \). This case is shown in the following figure,

- **Figure 1.** \( u \) happen again preceded by a character \( c \) different from \( a \)

3. If no pieces is equal to \( u \) (like Figure 1), then the algorithm will align the pieces \( x \) and \( y \) with prefix \( v \) of the same pattern, shown in the following figure,

- **Figure 2.** Only a suffix of \( u \) that recur in pattern \( x \).

- Thus, its value can be calculated from the characters that do not match (mismatch position characters).

**Bad-Character Shift**

- Based on the previous case, the concept of bad-character shift function:
  1. Bad-character shift is a character in the text \( y[i+j] \) which does not fit in the pattern.
  2. If, bad-character shift \( y[i+j] \) contained in the pattern at position \( k \) and more left of \( x[i] \), the pattern is shifted to the right as far as \( i-k \). This case is shown in Figure 3 below,
by the application and will be able to run on device/mobile
device.

- There are four basic components forming Android
applications, i.e.: Activities, Service, Broadcast Receiver, dan
Content Provider.
- Based on data from websites ‘Developer Android’ up
to moon in December 2013 the Android operating system has
ten different types and the latest version is version 4.4 (named: 
KitKat), release in October 2013.

2.8. Method of Data Collection
- The basic technique is often performed by the general
public there are two field studies and literature. In this case the
authors perform data collection by applying these two
techniques.

2.9. The Concept of Data
- Data is a fact of something that statement comes from
the fact, in which the statement is the result of measurement or
observation. Data can be a number - numbers, letters - letters,
symbols - a general or special symbols, or combination
thereof.
- Based on the source, research data can be grouped
into two types of data, i.e.: [15]

a. Primary Data, is data obtained directly from the data
source. This data is referred to as the original data or new
properties up to date. The technique can be used by
researchers to gather primary data that observation,
interviews, discussion focused, and questionnaires.

b. Secondary Data, is data obtained or gathered researchers
from various existing resources (researchers as second
hand). Secondary data can be obtained from the Central
Bureau of Statistics (BPS), books, reports, journals, etc.

2.10. Database System
- Database System is “computerized system whose
main purpose is to maintain data / information that has been
processed and make it available when needed” [12].
- DBMS (Database Management System) is a set of
programs to access data using SQL (Structured Query
Language) Queries [12]. Commonly used DBMS are
MySQL, PostgreSQL, Oracle, dan Microsoft SQL Server.
This study uses MySQL.

2.11. RAD Development Method

Rapid Application Development (RAD) is an object-
oriented approach to systems development that includes a
method of development as well as software tools [13]. RAD is
used as a model system for the development of applications
that will be developed is an application that is simple not the
complex computing.

In this research, four stages:

![Figure 5. Fase RAD](image)

- a. Phase of Planning Conditions
  - Requirements planning phase is done to
determine the purpose of the application, as well as
identifying the terms of the information that is generated by
analyzing the needs of the application to be made.

b. Phase of Design or Design Workshop

1. The User Design Phase
   - Developed for the data model, formalizing business
rules, develop test plans, and creating layouts. In this
phase, the design process modeling application, a search
feature, database, algorithm, and system interface.

2. Construction Phase
   - Construction phase is to do the coding phase of
the design that has been previously defined rows into the
program. In this phase, the programming language Java
and XML are used for designing the application, and SQL
for database design.

c. Implementation phase
   - In this phase, the user can be part of the overall
system development process by acting as decision makers
at each stage of development.

2.12. UML (Unified Modeling Language)
- UML is specified to provide guidance on the order of
team activities, determine what artifacts should be developed,
direct assignment of each individual and the team as a whole,
and offer criteria for monitoring and measurement products
and project activities.
  - In UML 2.3, the diagram is categorized into two i.e.:
structure diagram and behaviour diagram. [14]
  - UML diagrams that will be used in the study were
Use Case Diagram, Activity Diagram, Sequence Diagram, and
Class Diagram.

2.13. Black Box Testing Methods
- Black box testing focuses on the functional
requirements of the software. Thus, black box testing allows
the software engineer to get a set of input conditions
seperuhnya use all functional requirements for a program
[15]. Black box testing is done during the final stages of
testing, because testing is a control structure that focuses
attention on information dominance.
III. RESEARCH METHOD

3.1. Method of Data Collection
The preparation of this thesis is done by using multiple methods of data collection that can support so get writing a description of material truth discussion. Data can be divided into primary and secondary data. The primary data obtained from interviews and questionnaires. Meanwhile, the secondary data obtained from the data collection and writing of the supporting information with the help of print and electronic media.

3.2. System Development Methods

3.2.1. Phase of Planning Conditions

a. Problem Identification. The lack of availability of media information in obtaining Hadith for Women that is easy, fast, and precise.
b. Problems Solutions. To overcome the existing problems, the authors provide a solution to developing applications for the Women’s Hadith which can be accessed easily, quickly, and accurately.
c. The terms of information. To support the problem solving necessary to have some information requirements that supports the design application. The needs completeness of data, and completeness of software - hardware.
d. Identification Requirements Application Features. The identification of the features shown in the picture needs to be implemented.

3.2.2. Phase of Design Workshop
3.2.2.1. The User Design Phase

a. Object Modeling Design. This design using UML models, this model will be designed so as to provide a depiction of the application.
b. Word Search Process Design. This design will explain how to do a word search application.
c. The Algorithm Design. His design will explain the workings of the algorithm in the application of the Boyer Moore search keyword Hadith quickly and accurately.
d. User Interfaces Design. This design will be presented in the form of a simple display of the application. Including the interface of home, Hadith list, Hadith content, list of narrators, narrator’s content, and assembly schedule.

3.2.2.2. Construction Phase
At this stage, the authors conducted a construction phase (developing) application based on the previous stages. Construction process is done with reference to the design and application flow that have been determined in the design process. The process uses the version of Juno Eclipse IDE as an editor program which has been accompanied by the installation of the SDK and ADT. As well, XAMPP as the server database design and temporary storage.

a. Boyer Moore Algorithm Construction

In this phase Boyer Moore algorithms that have been previously designed will be implemented into the source code and applied to the word search feature in the application.

b. User Interface Construction
The User Interface has been designed to be implemented prior to the application.

3.2.3. Implementation phase
Once the system has been built in accordance, Data on the hosting server to be online. Then do the testing of applications by type of Black Box testing. The implementation exam done independently and user interviews.

IV. RESULTS AND DISCUSSION

4.1. Method of Data Collection
• Based on the results of interviews, questionnaires, and literature (literature studies, online data retrieval, and literature) is concluded; Women need information about specific Hadith as a guide for women everyday. To obtain this information, the application is built on a mobile device that provides easy access to the word search feature as its main features by applying the Boyer Moore algorithm, and to present information to women who are more Hadith narrated by Imam Bukhari full and Imam Muslim.

4.2. System Development Methods

4.2.1. Phase of Planning Conditions

a. Problem Identification. Women need information media that provides convenience in obtaining Hadith for women. The information has been obtained from the print media and interaction indirectly. The print media have complete information, but less effective when searching hadith needed. Meanwhile, the effective inter-action media on search time, but the information is still doubtful (depending on memory).

b. Problems Solutions. Hadith applications will be built for women who provide media hadith information easily and quickiy. By applying the Boyer-Moore algorithm and implemented in mobile devices.

c. The Terms of Information

a. Necessity and Completeness of Data. In this stage of the analysis required data have been obtained.

b. Completeness of Software and Hardware. In building and testing applications, hardware support and software can provide convenience in every stage of the process. Hardware: personal computers, Android smartphones, and the Internet. Software: Java Development Kit (JDK), eclipse IDE, Android Virtual Device (AVD), XAMPP Server, Browser, and Samsung Kies.

c. Identification Requirements Application Features. Applications designed with multiple functions / main
menu, namely: Menu Hadith Index, Keyword Search Functionality, and Content Display Function Data Hadith. As well, some functions / menu additions such as: home, Hadith list, Hadith content, list of narrators, narrators content, and assembly schedule.

4.2.2. Phase of Design Workshop
4.2.2.1. The User Design Phase
4.2.2.1.1. Object Modeling Design

- Application design using UML object modeling. The design covers the use case diagram, activity diagram, sequence diagram, class diagram of the application and Hadith Women.

a. Use Case Diagram
- In this application design, use case diagram consists of a single actor, and seven use cases, such as Figure 5 below.

- Figure 6. Use Case Diagram

b. Activity Diagram
- Menggambarkan kegiatan sistem yang terjadi.

- Figure 7. Activity Diagram List of Hadits

c. Sequence Diagram
- Describes the process undertaken in order to achieve the goal of system use case.

- Figure 8. Activity Diagram List of Narrators

- Figure 9. Activity Diagram List of Assembly

- Figure 10. Sequence Diagram List of Hadits and Search Word of Hadits
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• Figure 11. Sequence Diagram of Narrators

• Figure 12. Sequence Diagram Assembly Schedule

• Figure 13. Sequence Diagram Information

d. Class Diagram

- To describe a collection of classes and relationship.

- Figure 14. Class Diagram

The picture explains the relation between relations with relation narrators of hadith. An object with exactly one hadith related on the object narrators. A narrators can relate to one or more than one object in the hadith.

4.2.2.1.2. Word Search Process Design

- Explaining the workings of the application in the process of searching the data available in the application. Such as the following flowchart diagram:

• Figure 15. Diagram Design Process Flowchart Word Search

4.2.2.1.3. The Boyer Moore Algorithm Design

- In order to achieve the goal of research is to conduct a keyword search hadith, applied string matching - Boyer Moore algorithm on the word search function. In designing the Boyer Moore algorithm, the author uses the following pseudocode:

```plaintext
Procedure BoyerMooreSearch()
    input p, t: integer
    input F : array[0..m-1] of char
    input T : array[0..n-1] of char
    output ketemu : array[0..m-1] of boolean

    i := 0
    for (i ≤ m-p) in j:=i+skip
        skip := 0
        j := j-p
    for (j ≥ 0) do
        if (F[j] = T[i+j])
            ketemu[i] := true
            i := i + 1
        else
            skip := Math.max(1, j - mt(T[i+j]))
            break
        end if
    end for
    match := 1
    skip := 1
    end for
```
The workings of Boyer Moore algorithm:
1. Firstly, the application will read the data that is in a class prayer Data. Applications will conduct a search of the meaning of the data array containing the hadith. Example: “Syurga berada di telapak kaki ibu”

- $T =$ Syurga ditelapak kaki ibu; $m = 25$

2. Later, the application captures a character or string of keywords entered by the user, in this discussion is referred to as pattern. Example: ‘telapak’.

- $P =$ telapak; $n = 7$

3. Then pattern aligned with the leftmost text, so that the first character in the pattern vertically aligned with the first character of the text.

4. (i=0) In the first step (displacement, $S = 0$) in get character ‘k’ on the pattern aligned with the character ‘ ’ (spasi) ‘ ’ in text;

- ‘k’ ≠ ‘ ’; don’t match, $mt(T[i+j])$=null; skip = $j + 1 = 6+1 =7$

5. (i=7) The next step (displacement, $S = 1$) in get character ‘k’ on the pattern aligned with the character ‘a’ in the text;

- ‘k’ ≠ ‘a ’; don’t match, $mt(T[i+j])=5$; skip = Math.max(1, $6 - 5$) = 1

6. (i=8) next step (displacement, $S =2$) in get character ‘p’ on the pattern aligned with the character ‘p’ in the text;

- ‘k’ ≠ ‘p ’; don’t match, $mt(T[i+j])=4$; skip = Math.max(1, $6 - 4$) = 2

7. (i=10) next step (displacement, $S=3$) in get character ‘k’ on the pattern aligned with the character ‘k’ in the text;

- ‘k’=“k’;”a’=‘a’;”p’=‘p’;”u’=‘a’;”l’=‘l’;”e’=‘e’;”t’=‘t’

- Matches all characters, words are found; skip = 1; continued the process to find the next pattern in the text.

8. (i=11) next step (displacement, $S=4$) in get character ‘k’ on the pattern aligned with the character ‘ ’ ‘ ‘ in the text;

- ‘k’ ≠ ‘ ’ ‘ ‘; don’t match, $mt(T[i+j])$=null; skip = $j + 1 = 6+1 =7$

9. (i=18) next step (displacement, $S=5$) in get character ‘k’ on the pattern aligned with the character ‘b’ in the text;

- ‘k’ ≠ ‘b’; don’t match, $mt(T[i+j])$=null; skip = $j + 1 = 6+1 =7$

10. (i=23) the search process is complete. The total pattern is the pattern found 1.

`Table 1. Results From Keyword Search Process.`

4.2.1.4. User Interfaces Design

4.2.1.5. Construction Phase

4.2.1.5.1. Boyer Moore Algorithm Construction

- Based on the design, Boyer Moore algorithm is successfully applied to the Java application programming code of the Android operating system is placed on class Hadith Index (locations where applications do a search).
4.2.3.1.5.2. User Interface Construction

- Construction of the user interface coding applications built on Java and XML programming language intended for applications Android smartphone.

A. Construction UI Splash Screen

B. Construction UI Index: Hadith

C. Construction UI Index: Hadith

D. Construction UI Kesten Hadith

E. Construction UI Daftar Narrators

F. Construction UI Kesten Narrators

G. Construction UI Daftar Narrators

H. Construction UI Kesten Biography

I. Construction UI Kesten Biography (1)

J. Construction UI Kesten Biography (2) Option Menu

K. Construction UI Kesten Biography (3) Option Menu

L. Construction UI Kesten Biography (4) Option Menu

Tests conducted on the application has been made, the application of Hadith for Women with Boyer Moore algorithm based on mobile, testing was conducted with the Black Box.

A. Independent Testing

The Independent testing conducted by the authors to test applications on smart phones used in the construction phase. Smartphone use is the type of brand Samsung I8190 Galaxy S3 Mini with Android version 4.0 (Jelly Bean).

<table>
<thead>
<tr>
<th>Testing</th>
<th>Enter Data</th>
<th>Expectation</th>
<th>Observation</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>See List of hadith</td>
<td>The user clicks a button on the main menu Hadith Index</td>
<td>Displays a list of titles Hadith</td>
<td>The system displays a list of titles hadith.</td>
<td>Success</td>
</tr>
<tr>
<td>See Hadith</td>
<td>Users select a title from the list of Hadith</td>
<td>Displaying data available Hadith appropriate option title</td>
<td>The system displays the data available Hadith appropriate option title.</td>
<td>Success</td>
</tr>
<tr>
<td>See Majelis Schedule</td>
<td>The user clicks a button on the main menu Agenda</td>
<td>Displays a list of names of the Majelis</td>
<td>The system displays a list of names of the Majelis.</td>
<td>Success</td>
</tr>
<tr>
<td>See List of narrators</td>
<td>The user clicks a button on the main menu Biography, and choose a name from the list of narrators.</td>
<td>Displays a list of narrators in a dialog box.</td>
<td>The system displays the schedule selected agenda of the Majelis.</td>
<td>Success</td>
</tr>
<tr>
<td>See narrators</td>
<td>Users select a name from the list of narrators.</td>
<td>Displaying data are available under the name narrators narrators choice.</td>
<td>The system displays the data that is available under the name narrators narrators choice.</td>
<td>Success</td>
</tr>
<tr>
<td>View Information</td>
<td>Users click on the Info button on the main menu.</td>
<td>Displays developer information and application data.</td>
<td>The system displays the data information and application developers.</td>
<td>Success</td>
</tr>
</tbody>
</table>

In addition, system testing was also carried out for word search was performed using the same device with specs 1 GB of RAM, CPU 1 GHX dual-core Cortex-A9, and a total of 0.95 GB of free memory. With as many as 17 007 characters total of 50 titles available in the application Hadith.
<table>
<thead>
<tr>
<th>No</th>
<th>Word Search</th>
<th>Expectation</th>
<th>Observation</th>
<th>Conclusion</th>
<th>Time (ms)</th>
<th>Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Perempuan</td>
<td>Displaying search results</td>
<td>word 'perempuan'</td>
<td>Success</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The system displays the results of search words 'perempuan'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Hadits</td>
<td>Displaying search results</td>
<td>word 'hadits'</td>
<td>Success</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The system displays the results of search words 'hadits'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Rasulullah u'alaish wasallam</td>
<td>Displaying search results</td>
<td>words 'rasulullah shalallahu u'alaish wasallam'</td>
<td>Success</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>The system displays the results of search words 'rasulullah shalallahu u'alaish wasallam'</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
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<td>5</td>
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<td>24</td>
<td>Jihad</td>
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<td>25</td>
<td>Haji</td>
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</tr>
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<td>26</td>
<td>Haid</td>
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<td>The system displays the results of search words ‘haid’</td>
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<td>0</td>
<td>Success</td>
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<td>27</td>
<td>Hutang</td>
<td>Displaying search results word ‘hutang’</td>
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<td>15</td>
<td>0</td>
<td>Success</td>
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<tr>
<td>28</td>
<td>Hari Raya</td>
<td>Displaying search results word ‘hari raya’</td>
<td>The system displays the results of search words ‘hari raya’</td>
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<td>0</td>
<td>Success</td>
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<td>Displaying search results word ‘mahram’</td>
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<td>12</td>
<td>0</td>
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<td>Laknat</td>
<td>Displaying search results word ‘laknat’</td>
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<td>14</td>
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<tr>
<td>31</td>
<td>Tidur</td>
<td>Displaying search results word ‘tidur’</td>
<td>Sistem menampilkan hasil cari kata ‘tidur’</td>
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<td>Displaying search results word ‘rezeki’</td>
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<td>Success</td>
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<tr>
<td>33</td>
<td>Surga</td>
<td>Displaying search results word ‘surga’</td>
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<td>0</td>
<td>Success</td>
</tr>
<tr>
<td>34</td>
<td>Neraka</td>
<td>Displaying search results word ‘neraka’</td>
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<td>Success</td>
</tr>
<tr>
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<td>Suami</td>
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<td>16</td>
<td>0</td>
<td>Success</td>
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<td>Istri</td>
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<td>14</td>
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<td>Success</td>
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<tr>
<td>37</td>
<td>Agama Islam</td>
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<td>The system displays the results of search words ‘agama islam’</td>
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<td>38</td>
<td>Setan</td>
<td>Displaying search results word ‘setan’</td>
<td>Sistem menampilkan hasil cari kata ‘setan’</td>
<td>13</td>
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<td>Success</td>
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<td>39</td>
<td>Malaikat</td>
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<td>Sistem menampilkan hasil cari kata ‘malaikat’</td>
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<td>Success</td>
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<tr>
<td>40</td>
<td>Jin</td>
<td>Displaying search results word ‘jin’</td>
<td>Sistem menampilkan hasil cari kata ‘jin’</td>
<td>21</td>
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</tbody>
</table>
Based on the test results obtained that the algorithm is able to provide results Boyer Moore search speed for 0 seconds at 17 007 characters total with the actual test as many as 35 word searches. Where, the longer the pattern or total character input pattern the sooner the keyword search.

B. Field Testing

Field testing is testing performed by determining and analyzing the types of smartphones and mobile devices version of Android that can implement application Hadith Women.

The list of questions can be found on the link addressed: https://docs.google.com/forms/d/1bQgWHXdXKS BaTRhejsEtQJ4ryTh2OoZtoqQYFvuUaC0/viewform.

r testing can be viewed at the following address: https://docs.google.com/spreadsheet/ccc?key=0Ak_ a-W0S0kmgdEF3QVMiSUhSLWFKcTRRMjYvajEyeGc&usp=sharing (access end at 10:00 am, on May 20, 2014). The results of the questionnaire answers percentage of the total 30 female respondents can be seen in the following table.

<table>
<thead>
<tr>
<th>No</th>
<th>Jawaban</th>
<th>Keterangan</th>
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<td>Ya</td>
<td>Tidak</td>
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<tr>
<td></td>
<td>30</td>
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</tr>
<tr>
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<td>Tidak</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>100%</td>
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</tr>
<tr>
<td></td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

From the test results it can be concluded that the application Hadith for Women:

1. Successfully installed and can be run on the Android operating system.
2. Successfully makes it easy for users to obtain information Hadith Women.
3. Successfully deliver search results information quickly and accurately in performing a keyword search Hadith.
4. The keyword search on this application is able to provide the speed for 0 seconds persekali search.

VI. CONCLUSIONS AND SUGGESTIONS

5.1. Conclusion
Application Hadith for Women is designed with a word search feature that can facilitate users in obtaining information related to women's hadith. The design is done by the method of system development Rapid Application Development (RAD). System design tools are used is the Unified Modeling
Language (UML). While the encoding using the Java programming language and XML for Android. based on the results of the questionnaire, the Hadith for Women successful application to easily obtain information.

Boyer Moore algorithm used in applications 'Hadith for Women' to be implemented in the word search feature. This algorithm is used for the study of literature states that the Boyer Moore algorithm has a search process that is faster than brute force algorithm, Knuth Morris Pratt, Rabin and Karp. In the process, these algorithms do the matching characters from the rightmost position to the left. Thus, he was able to do a pretty big leap of character and can speed up the search string. This is evident in the search process in this application; the algorithm is able to provide results Boyer Moore search speed for 0 seconds on a total of 50 word search.

5.2. Suggestion
Applications that writers make is not perfect of course, there are many things that can be developed in order to make the benefits of the application be better for the future.

Therefore, the authors also present some suggestions for further research, namely: Applications can be developed other mobile operating systems and can be added with features like voice command, auto-text, auto-complete, book-marks, and steaming words.

REFERENCES