

# **Design and Build a Mobile Bookstore Application in Order to Attract Consumers' Reading Interest Using Prototyping Method**

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## **Abstract**

Advances in technology today encourage many changes in human life from the information age to the digital era in all fields. Currently, almost all activities can be enjoyed through smartphones. Utilization of technology is one of the innovative steps to attract people's reading interest. This is not the case with e-book applications that already have many versions in development. However, with so many e-book applications that can be downloaded for free or paid for, it is still not an infrastructure to be able to attract people's reading interest which is very concerning. So we need an e-book application that can attract people's reading interest. The purpose of this research is expected to produce an e-book application that is more efficient, economical and provides convenience so that it can attract people's reading interest.

The method used in this research is the prototyping method which consists of stages of communication, planning, modeling, prototype formation and deployment and feedback.

Based on the results of the study, it shows that this mobile bookstore application can attract users' reading interest. This is evidenced by the results of user responses with an average value of 84%.

**Keywords:** *applications; bookstores; prototyping*

## **I. Introduction**

Advances in technology today encourage many changes in human life from the information age to the digital era in all fields. Currently, almost all activities can be enjoyed through

smartphones. The use of technology is one of the innovative steps to attract Indonesian people to read.

The culture of reading books is a way to open a window of knowledge for society. In Indonesia, the level of public interest in reading is very low. The results of a study conducted by Central Connecticut State University in 2016 regarding "Most Literate Nations in The World" stated that Indonesia ranks 60th out of a total of 61 countries, or in other words, Indonesian people's reading interest is only 0.01 percent or compared to ten thousand[1]. When compared to neighboring countries in Southeast Asia, Indonesia is far away under Singapore is ranked 36th, followed by Malaysia and Thailand who are ranked 53rd and 59th respectively[2].

Along with the development of technology, an innovation in books emerged that made books not only in the form of volumes, but also in the form of electronic media known as E-Books or electronic books. e-books are a way to preserve literature in sufficient quantities, are not obsolete and can last a long time because they are stored in the form of files, e-books also have a portable nature that can be used anytime and anywhere[3].

Based on previous research, namely the design of a bookstore application for android[4] discussing similar applications, namely the Adiko application, there are shortcomings, namely, unable to rate, unable to view book reviews, book details and cannot log out, so to log out the reader must do uninstall application first. The second research is to have[5] develop a paid e-book library application based on Android. The result of the research is that the reader can display the details of the book consisting of the title, author, and synopsis. However, in this study, the reader is required to open Google Drive first to access the e-book.

Based on the two studies above, it can be concluded that there are similarities in every design of a mobile bookstore application, which can make it easier for readers to read books anywhere and anytime and make it easier to buy books without visiting a bookstore. However, there are still shortcomings in the two studies, namely there is no rating feature so that the reader cannot find out which book has a good rating, in buying a book the reader can only buy one type of book.

Relevant research using the prototyping method was carried out by[6] designing an e-commerce application for micro, small and medium enterprises (MSMEs) waroeng bu Dhevi, it can be concluded that using the prototyping method there are several stages where the user is interactively involved. The application prototype that has been made can be directly run by the user so that the user can provide feedback for the next improvement. Research conducted by[7] designing business to customer e-commerce applications at UD. Sinar Mulya concluded that using the prototyping method can clarify the needs of the required specifications to application developers. This method begins by gathering what needs are needed by the user.

Based on the above problems and relevant research, the researchers used the prototyping method in developing this application. This is because the user prototyping method can be actively involved and carried out repeatedly so that users can provide feedback for further evaluation. The researcher hopes that the mobile bookstore application with the title "Design and Build a Mobile Bookstore Application to Attract Consumers' Reading Interest Using the Prototyping Method" can attract users' reading interest and can make it easier for users to read books anytime and anywhere.

a. Problem Statement

Based on the problems that have been described previously, the formulation of the problems obtained related to this research, namely: How to design a mobile bookstore application to make it easier for readers to use the prototyping method? How to find out the usability of the mobile bookstore application using the System Usability Scale (SUS) test? How to find out the reading interest of users of the mobile bookstore application?

## II. Prototyping Method

The prototyping method is a software development method that is carried out iteratively and produces a system prototype according to user needs[8]

The prototyping method that the researcher uses is the Pressman (2012) prototyping model which has stages starting from Communication, Quick plan, modeling quick design, construction of prototyping, and deployment & feedback. The stages in the prototyping method can be seen in Figure 1

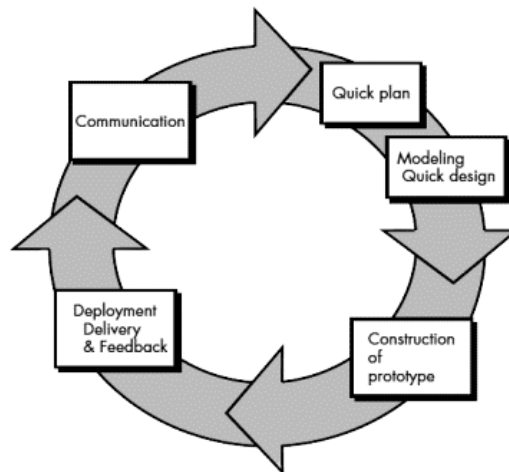


Figure 1 Stages of the Prototyping Method

Source: Roger S. Pressman (2012)

This method model consist of:

a. Communication

At this stage of communication, the writer uses the interview method to identify the problems experienced by the readers. The interview targets in this study were 15 students. Research conducted by [9] states that taking a sample of 15 people has shown good validity and reliability values. The list of questions posed by the researcher to the resource persons is contained in Appendix 1.Planning

The rapid planning stage is the stage where planning is carried out quickly by providing solutions to problems that have been found.

b. Planning

The planning stage is done by analyzing the problem. In this analysis phase, I will describe the analysis of user needs. then provide solutions to the needs of the problems experienced by the user regarding the system.

c. Modeling

The modeling stage in the design of the application workflow to be made and also the design of the actors, as well as the processes that will interact with the application. The modeling in question includes the design of application designs using the Unified Modeling Language (UML) by designing Use Case Diagrams and Activity Diagrams. *Prototype construction*

At this stage, start building a prototype.

d. Deployment And Feedback.

*Prototype* which has been completed is submitted to the user to be tested and evaluated by the user. At this stage, feedback is generated from the user. The feedback generated will be used by the developer to improve the prototype. This process will be repeated until the prototype created has met the needs of the user. After the prototype is completed, it is then tested using expert validation, system usability scale (SUS) testing and reading interest testing.

### III. Results and Discussion

#### 1. Communication

The first step in this communication stage is to identify needs and problems. The problems are in Table 1.

Table 1 Problem analysis

No	Problem	Explanation
1.	Can't see book details	Readers cannot see book details such as ratings and reviews.
2.	Can only buy one type of book	readers can only buy one type of book can not be more than one
3.	No library features	Readers are required to download first

## 2. Planning

Quick planning is to analyze the problems that occur so that the authors can provide solutions. The solutions obtained are in Table 2.

Table 2. Planning

No	Problem	Solution
1.	Can't see book details	Adding book details so readers can see book reviews, book reviews and descriptions
2.	Can only buy one type of book	Added mychart feature that can buy more than one type of book.
3.	No library features	Added library feature to store books purchased through the app

## 3. Modeling

The modeling used to design the application uses the Unified Modeling Language (UML). The UML model used is a Use Case Diagram and Activity Diagram. *Use case* The diagram is a scenario description of the interaction between users (users) and the system. A use case diagram illustrates the relationship between users and the activities that can be performed on the application.

### a. Use Case Diagrams

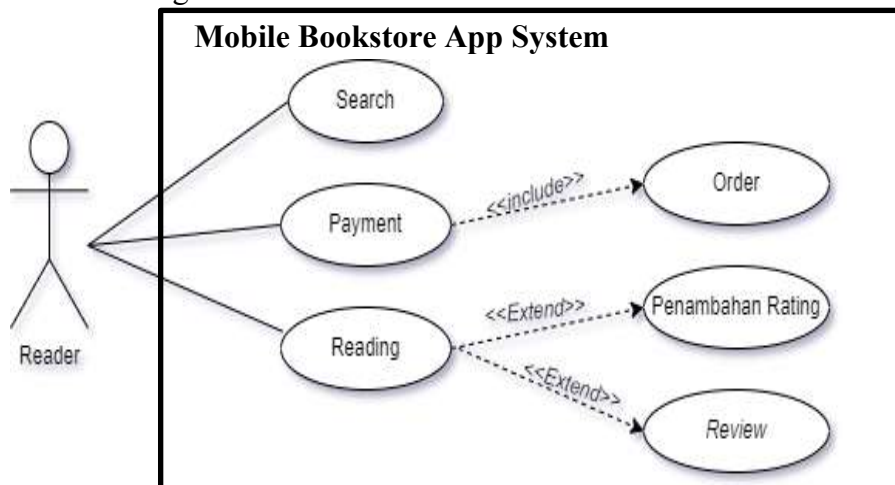


Figure 2. Use case diagram of users

### b. Activity Diagrams

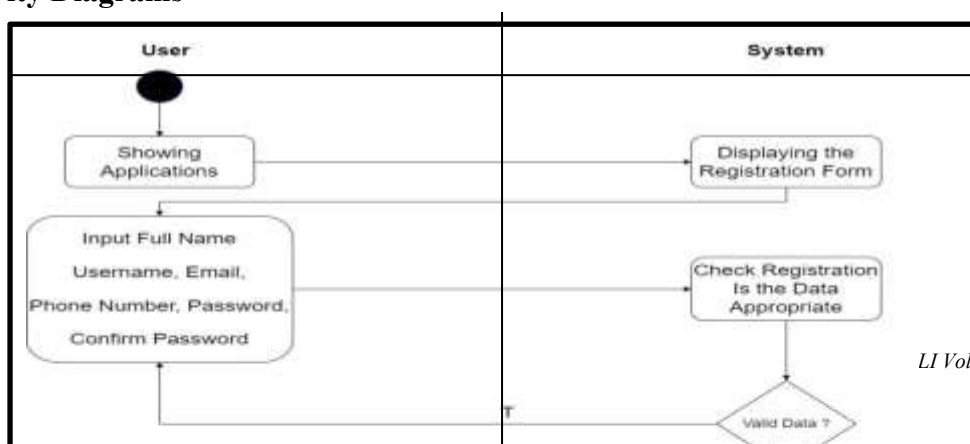


Figure 3 Activity

#### 4. Prototype Construction

##### a) Sign in page

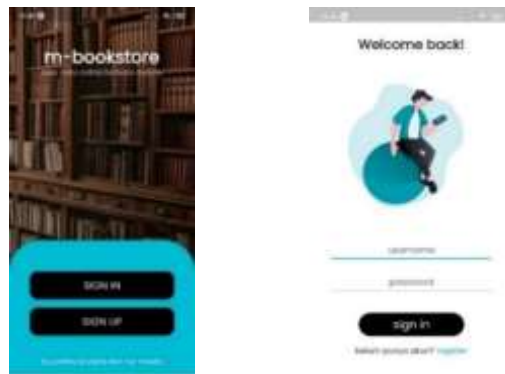


Figure 3 Sign in

Figure 3 is a sign-in display for an application that has been created. This view is displayed when the system is first accessed. In this sign-in display, the user can fill in the username and password.

##### b) Register Page

In Figure 4 there is a register page where this page will appear for users who do not have an account on the application. Click register in the text listed. Then fill in the data correctly to obtain definite access rights.



Figure 4 Register Page

##### c) Home Page

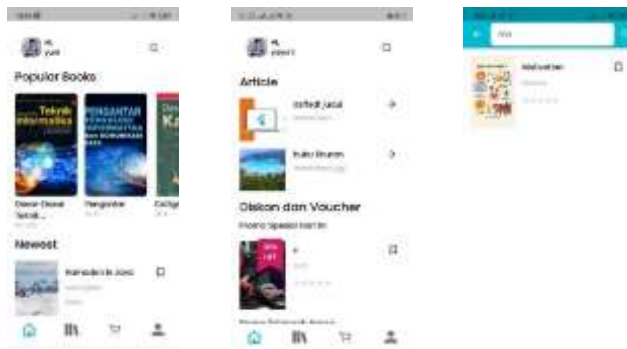


Figure 5 Home Page

In Figure 5 is the main display contained in the application. On this main page there are five sections, namely Popular Books, Newest, articles, book promotions, and book searches.

d) Book Information Page

In Figure 6 is a display to see the information contained in the book. On the information page of this book there are three sections, namely Add Rating, review and description of the book.



Figure 6 Book Information Pages

e) Book Order Page

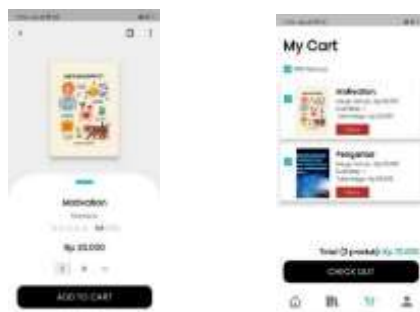


Figure 7 Book Order Pages

In Figure 7 the book order page is a display to see the price of the book that has been set by the book seller and can increase the number of books you want to buy.

f) Library Page

In Figure 8 is a Library Page that can display books that have been purchased by users and can read books in the application.



Figure 8 Library Pages



g) Logout Page

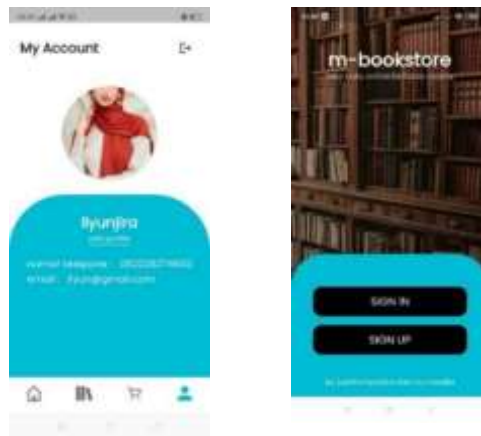


Figure 9 Logout Page

This logout page appears when the user clicks on the top right corner, namely the logout icon, then the user exits the application and the login page will appear again.

## 5. Deployment and feedback

At this stage, testing of the system is carried out. Testing is carried out so that it can be seen whether the system is appropriate or not and is easily understood by users. The tests carried out in developing the bookstore application are using Validation, System Usability Scale (SUS) testing and Reading Interest Test.

### 1. Expert Validation

Validation is an activity that is used to determine whether a product is valid or invalid [10]

The product developed in this study is a bookstore application where there are 15 aspects of questions. The bookstore application that has been made is validated by 2 information technology experts as. Research conducted by [11] said the validation of 2 experts showed good results.

Table 3. bookstore application validation by Information Technology experts

No	Name	Score	Category
1.	Muhammad Nurwiseso Wibisono, S.Kom, M.T.	92%	Very Valid
2.	Muhammad Iqbal Akbar S.ST. M.MT.	100%	Very Valid

The assessment given by the first expert validator obtained a percentage of 92% which indicates research with very valid criteria. The results of the assessment indicate that this bookstore

application is very valid to use and does not need revision. The data obtained from the second expert validation is data taken by filling out the validation sheet for the expert. This second expert validation sheet consists of 15 aspects of the assessment with comments and suggestions. The results showed a percentage of 100% with Very Valid criteria so that this bookstore application can be used without revision.

a. System Usability Scale (SUS)

System Usability Scale (SUS) testing is a usability evaluation method that provides adequate results based on consideration of a small sample size, time and cost [12] The purpose of this trial is to find out whether the research results are in accordance with the targets that have been applied. At this stage, testing is carried out on 5 system users. Research conducted by [13] states that testing on 5 users has represented 80% of usability problems.

Table 4. Calculation of the first test with the SUS method

No	SUS Count Result Score										Amount	Score
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
1	3	3	4	5	4	4	4	3	3	1	32	80
2	4	3	3	4	3	3	4	4	3	3	34	85
3	4	4	3	3	4	3	4	4	4	3	36	90
4	3	3	4	3	3	3	3	3	3	3	31	77.5
5	3	3	0	3	3	4	3	4	4	1	28	70
Average Score (Final Result)											80.5	
Result Description											<b>Excellent</b>	

From the results of the first test calculation using the SUS method based on Table 4, a value of 80.5 is obtained. This value means that it is in the Excellent category so that the developed bookstore application is in accordance with user expectations and can be used and accessed more widely.

Table 5. Second test calculation with SUS method

No	SUS Count Result Score										Amount	Score
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10		
1	4	4	4	4	4	3	3	4	3	4	37	92.5
2	4	4	3	4	4	3	4	4	4	3	37	92.5
3	4	3	4	3	3	4	3	4	4	3	35	87.5
4	3	4	4	4	4	3	4	4	4	2	36	90
5	3	4	4	3	4	4	3	4	4	3	36	90
Average Score (Final Result)											90.5	
Result Description											<b>Excellent</b>	

From the calculation results of the second test using the SUS method based on Table 5, an increase in this second test is 90.5. This value is close to the Best Imaginable category. This shows that this bookstore application is in accordance with user expectations and meets usability standards that must be met from an application.

b. User Reading Interest Test

Testing interest in reading can be seen from the feeling of pleasure or displeasure in the face of an object. With the pleasure of something, it can cause an interest[14]. To find out the user's response to the bookstore application, a research instrument in the form of a response questionnaire was used. The response is stated to be very strong if the results of the response questionnaire range from 81%-100%, strong range from 61%-80%, moderately range from 41%-60%, weak range from 21%-40%, and very weak range from 0% -20%. Pengujian ini menggunakan angket modifikasi dari jurnal penelitian [15] calculated by formula:

$$\text{Persentase} = \frac{\sum \text{Total Skor diperoleh}}{\sum \text{Total Skor Maksimal}} \times 100\% \quad (1)$$

Sumber : [16]

Table 13. Reading Interest Test Results

No	Validator	Aspects of reading interest		
		Total	Category	%
1	Fitriah	49	very strong	81%
2.	Nurhanisah	52	very strong	86%
3	Princess Vabilla	51	very strong	85%
4	Nur Insania	51	very strong	85%
5	Nur Afani	52	very strong	86%
Average				84%

Based on the assessments of users of the bookstore application with aspects of reading interest, it was concluded that the average result of getting a percentage of 84% was in the very strong category. This shows that using the mobile bookstore application can attract users' reading interest. Users are happy with this mobile bookstore application because they use time more efficiently and can read books anywhere and anytime.

#### IV. Conclusio

Based on the research entitled Design of Mobile Bookstore Applications to Attract Consumers Reading Interest Using the Prototyping Method, it can be concluded that the design of this bookstore application went through several stages, namely communication, planning, modeling,

construction and *Deployment* and feedback so that it can adjust to user needs. The SUS test was carried out twice, the first test, in a score of 80.5 which was included in the excellent category, then the second test was carried out which in a score of 90.5 which was included in the Best imaginable category, meaning that the system can be used. The results of testing user interest in reading using the Likert scale get an average value of 84.9% which is included in the very high category so that this bookstore application can attract users' reading interest.

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