cek plagiasi chelsea & sulis

by Sulistyo_dwi_s1@nirmauni.ac.in Sulistyo_dwi_s1@nirmauni.ac.in

Implementation of Drug Sales Applications in Mobile Web-based Pharmacies

Elizabeth Chelsea Vidyansari
Universitas Teknologi Yogyakarta
Yogyakarta, Indonesia

Sulistyo Dwi Sancoko
Universitas Teknologi Yogyakarta
Yogyakarta, Indonesia

ABSTRACT

Apotek Doa Sehat is one of the drug stores that access information about drugs is still done face-to-face. The purpose of this research is to build a mobile-based application that can facilitate customers in ordering drugs and accessing information about drugs at Apotek Doa Sehat. The design of this application uses the Flutter framework with the Dart and PHP programming languages and uses MySQL as a database. The system model used is Data Flow Diagram (DFD). With the Mobile-based Pharmacy Application, it is hoped that it will make it easier for customers and improve the health services of the Apotek Doa Sehat.

General Terms

Flutter, Laravel, Android, PHP, Dart, MySQL

Keywords

Pharmacy, Medicine, Mobile Application, Website

1. INTRODUCTION

Over time, technology will become more sophisticated and developed [1]. Digitalization of the healthcare sector is proceeding fast by a gradual integration of diagnostic point-of-care sensors and connected computation platforms into patients' everyday routine [2]. The rapid development of the internet, the emergence of digital health, the loss in one-on-one doctor-patient encounters, consumer experience with online purchasing, the ease of mail-order commerce, and distance selling are all contributing to the growth of the market for online pharmacies [3]. Every pharmaceutical company strives to reach out to its most valued clients; therefore, this industry uses online technologies in this respect to match the correct sales method and improve consumer satisfaction [4], [5]. An alternative that can be chosen still to meet the needs for medical or other health needs is to use a mobile healthcare application. In Indonesia, there are many choices of mobile healthcare applications available on the Apps Store [6].

As a result, more than half of smartphone owners (52%) report using their mobile phones to search for medical information and nearly one in five smartphone users report downloading a mobile application to help manage their health [7]. The reason people use android-based gadgets is to make it easier for users to access information [8]. According to the report from the IMS Institute for Healthcare Informatics, the number of mHealth apps available to consum-ers exceeds 165,000 [9].

The word "e-pharmacy" describes an online pharmacy that delivers medical services and gives users the option to prescribe pharmaceuticals to patients [10]. Through e-pharmacies society will get value-added services like drug information, patient counseling and education and pharmaceutical care [11]. Online pharmacy has not only benefits but also have some patient safety risks in purchase of medicines apart from traditional chain [12]. The use of mobile technologies to support the achievement of health objectives through mobile health (mHealth) has the potential to transform healthcare service delivery across the globe [13]. Points that online pharmacy is an opportunity for the public to increase the convenience and accessibility for the choice of drugs. It may also enhance the competiveness of pharmaceutical and healthcare industry [14]. In conclusion, the data states that currently people have started using technology to access health applications that have proven to be useful. Therefore the author builds a pharmacy application at Apotek Doa Sehat Yogyakarta, which aims to help people access drug information and make drug purchases.

2. REASEARCH METHOD

The following is a picture of the system architecture built by the author.
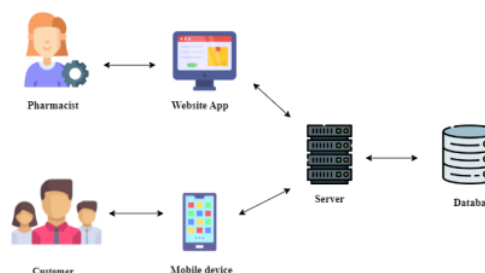

Fig. 1 System architecture

The process of running the architecture in the application starts with the customer as a user who can make drug purchases and view purchase history through the application on the customer's mobile device. The server functions to connect requests with the database both sending and receiving information. Pharmacist, as admins, are in charge of adding and updating drug information data. In addition, sending requests for responses to customers through the pharmacist's website app. Admins can also view reports on purchases made by users. The database functions as data storage and is responsible for sending the desired data from both the customer's mobile device and the pharmacist's website app.

2.1 Data Collection Procedure

In this study, the author obtained data from two sources, namely interview and documentation.

2.1.1 Interview

Data collection obtained through interviews with the pharmacy guard at the Apotek Doa Sehat. The questions asked included

how the current system is running at the Apotek Doa Sehat, the obtsacles currently experienced, and questions about drug data information in the Apotek Doa Sehat.

Fig. 2 Apotek Doa Sehat Yogyakarta

2.1.2 Documentation

Data collection is obtained based on the documentation of the drug list contained in the Apotek Doa Sehat in the form of a written book. The data obtained is in the form of data listing the names of drugs, drug prices and the amount of drug inventory contained in the Apotek Doa Sehat.

2.2 System Design Logic

The following is a picture of the data flow diagram of the system built by the author.
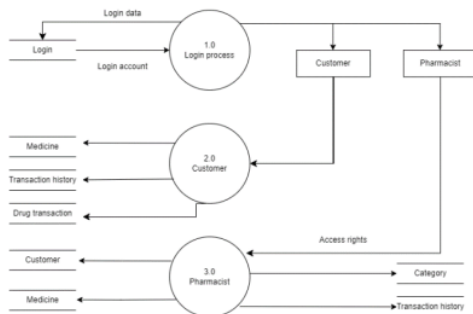

Fig. 3 Data Flow Diagram Level 1

Logical system design is explained through data flow diagrams. Data Flow Diagram is a diagram that serves to describe the flow of a process on the system. Data Flow Diagram level 1 in Figure explains that the system has a login process with a customer account as a user and pharmacist as an admin. Customers have access rights to view drug information, place drug orders and view information on the results of drug order history that has been made. Pharmacists have access rights to input drug data and category data and have access rights to view information on drug order history data made by customers.

2.3 Physical Design

Designing a database through relationships between tables based on the database that has been built. The relationship between tables means that there is a relationship between tables in the database.
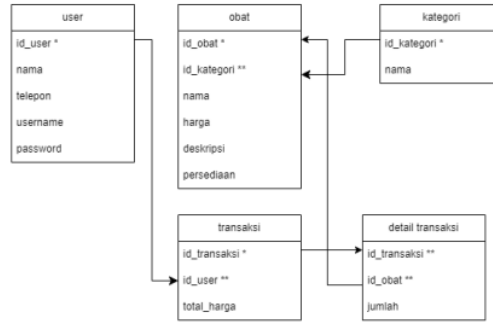

Fig. 4 Database design

2.4 Interface Design

In the interface design stage, the author builds an overview framework of the application display. The function of this design helps the author to be easier in building applications and the web to be created.
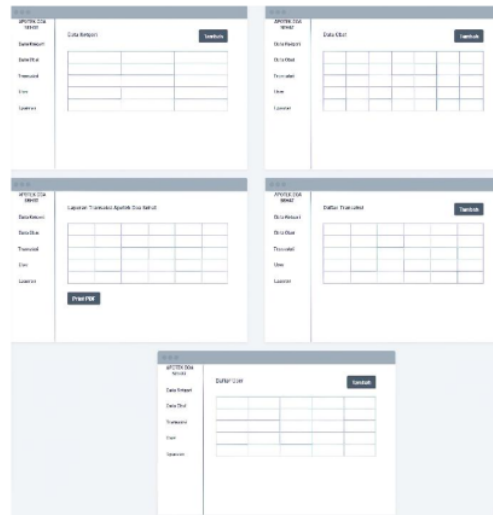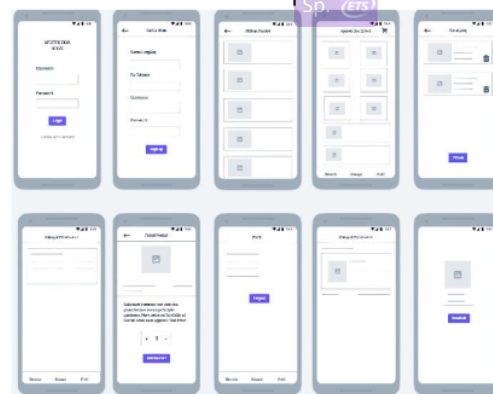

Fig. 5 Wireframe Website

Fig. 6 Wireframe Mobile Application

3. RESULT AND DISCUSSION

3.1 Assumption

From the problems found in the Apotek Doa Sehat Yogyakarta, the author will build a mobile-based pharmacy application that can be accessed by the user and the web that will be accessed by the admin. The existence of this application will allow users to access information about the medicines available at Apotek Doa Sehat via a smartphone and the admin can process drug data much more easily via the web.

3.2 Hyphotesis

The hypothesis obtained is based on the current conditions after the author has implemented the application at the Apotek Doa Sehat Yogyakarta. The hypothesis obtained is "With the Implementation of the Drug Sales Application in a Mobile Web-Based Pharmacy, it can help facilitate the course of buying and selling drug services at the Apotek Doa Sehat Yogyakarta".

3.3 Feature

Based on the conditions that occur at the Apotek Doa Sehat, the author builds an application that has several features. The following are the features available from the pharmacist's side as an admin and customer as a user.

Table 1. Features in the application

No.	Actor	Description
1.	Customer	Registration page, login page, access the homepage, medicine page, cart page, transaction page, delete medicine in the cart, successful transaction message, transaction history, transaction details, access profile page, and log out from the application.
2.	Pharmacist	Admin login page, category data page, drug data page, add drug data page, transaction page, add transaction page, user page, add user data page and report page.

3.4 Run an Experiment

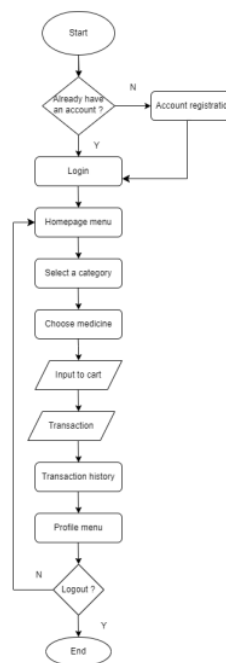The following is a picture of the system running process described by flowchart.

Fig. 7 Flowchart

The application starts with the customer being given the option to log in if they already have an account or register an account for those who do not have an account. After the customer has successfully logged into the application, they will see the home menu, in the home menu the customer can select the drug category according to the desired drug. Then the customer can add the desired drug to the shopping cart and make a drug purchase. On the History menu, the results of purchases that have been made will appear. If the customer wants to log out of the application, the customer can select the profile menu.

3.5 Implementation

The author has implemented a mobile-based pharmacy application that has drug information and drug ordering features. Here is the following is an application design and web that has been built.

3.5.1 Login Page Admin

The login page admin is what will appear first when the admin accesses the web. On the login page the admin can input the username and password according to what was previously created.
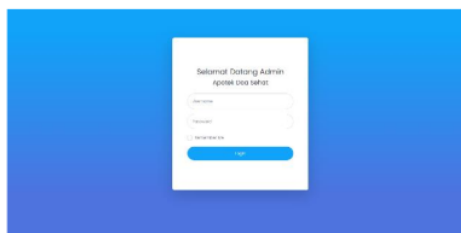

Fig. 8 Login Page Admin

3.5.2 Category Data Page

Is a page that will display a list of drug categories available at the healthy prayer pharmacy. On this page the admin can add, edit and delete drug category data.
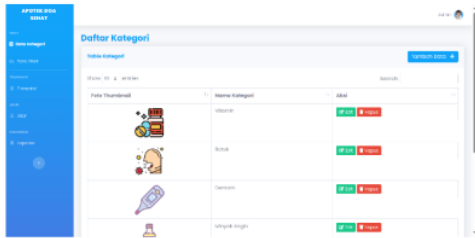

Fig. 9 Category Data Page

3.5.3 Add Category Data Page

On this page the admin can add new drug category data. This drug category page is a marker of different types of drugs.
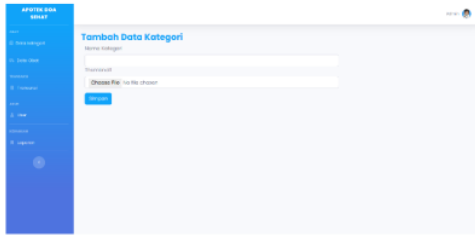

Fig. 10 Add Category Data Page

3.5.4 Medicine Data Page

This is a page that displays a list of all the drugs available at the healthy prayer pharmacy. On this page there is price description, quantity, inventory and category information for each drug. On this page the admin can add, edit and delete drug data.
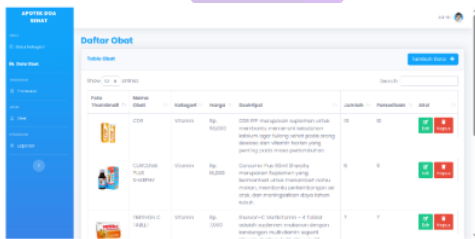

Fig. 11 Medicine Data Page

3.5.5 Add Medicine Data Page

On this page the admin can add new drug data according to the categories included. This page serves to input information about drugs in detail.
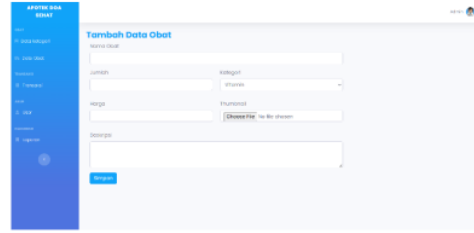

Fig. 12 Add Medicine Data Page

3.5.6 Transaction Page

This is a page that will display a list of transactions that have been made by customers. On this page there is information on the transaction number, customer name, the amount of medicine purchased, the total price to be paid and the date the transaction was made. On this page the admin can add, edit and delete drug transaction data.
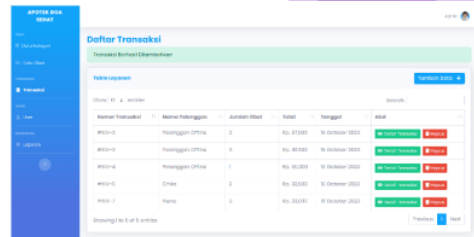

Fig. 13 Transaction Page

3.5.7 Add Transaction Page

This is a page where the admin can input drug purchase data for customers who come directly to the pharmacy. On this page the admin can also input transactions on users who have registered with the application.
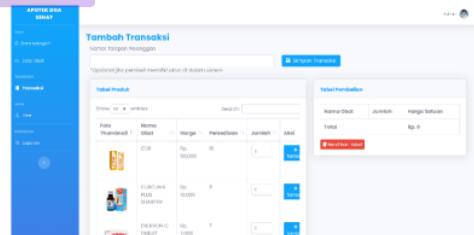

Fig. 14 Add Transaction Page

3.5.8 User Data Page

Is a page that will display a list of users who have registered with the system. On this page Admin can access user data, user data information displayed is name, username and telephone. And there is access rights information either as an admin or as a user. On this page the admin can add, edit and delete user data.
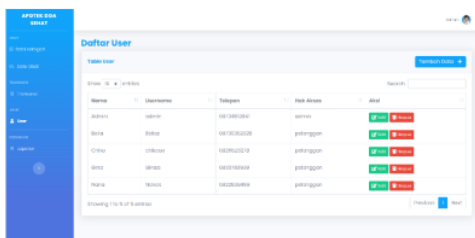
Fig. 15 User Data Page

3.5.9 Add User Data Page

On this page the admin can add new user data. This page serves to input information about new users who have not yet registered.
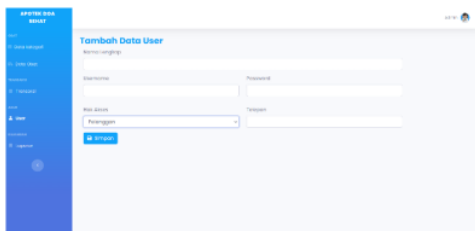

Fig. 16 Add User Data Page

3.5.10 Report Page

This is a page that will display reports on drug purchases made by customers. Admin can input the date as desired, the drug purchase report will appear on that date and can be printed in pdf format.
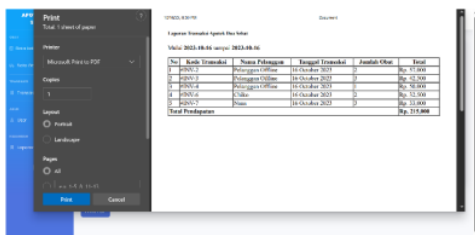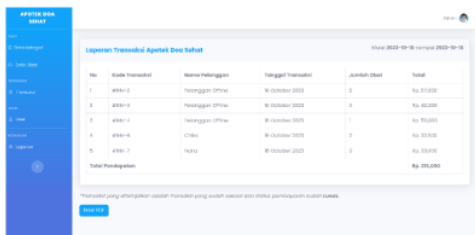

Fig. 17 Report Page

3.5.11 Login Page User and Registration Page

Login Page for Customers as a portal for customers to enter the application by inputting a username and password.
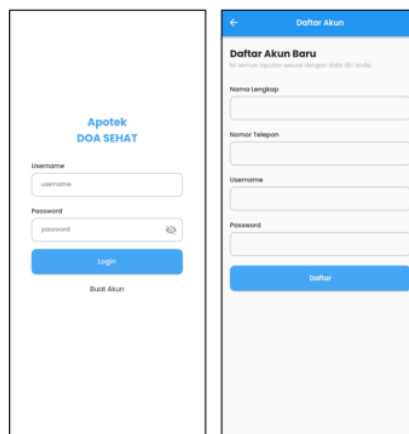
Fig. 18 Login Page User and Registration Page

3.5.12 Home Page and Profile Page

The Home page is the page that will appear first when the customer successfully logs in. The Profile page is a page that contains customer information and there is a logout button from the application.
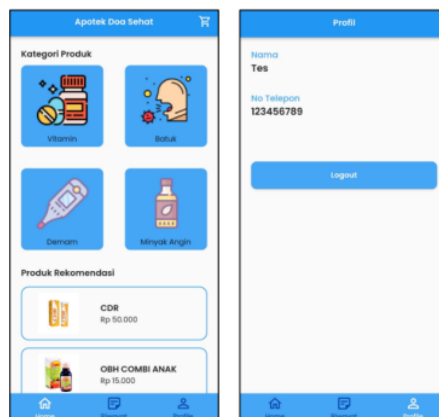
Fig. 19 Home Page and Profile Page

3.5.13 Medicine Selection and Medicine Detail Page

The medicine selection page is a page that contains a list of drugs or products based on existing categories. The medicine detail page is a page that contains detailed product information in the form of images, supplies, prices and drug descriptions.

Fig. 20 Medicine Page and Medicine Detail Page

3.5.14 Cart Page and Medicine Transaction Page

The Cart page is a page that contains a list of products or drugs that users want to order. The medicine transaction page is a page that contains the total payment that must be paid and as a sign that the drug order was successful.
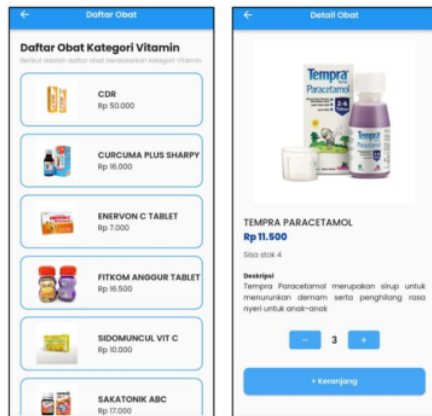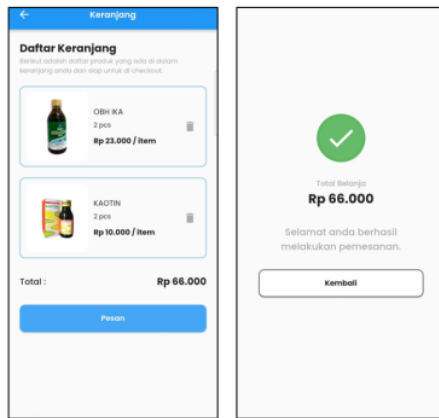

Fig. 21 Cart Page and Medicine Transaction Page

3.5.15 Transaction History Page and Transaction Details Page

The transaction history page is a page that contains detailed information on drug or product orders made by customers. The transaction details page is a page that contains details of product or drug transactions that have been ordered by customers.
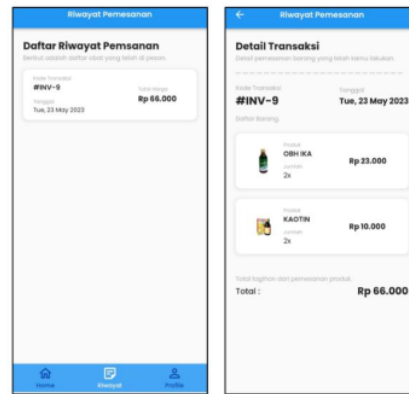

Fig. 22 Transaction History Page and Transaction Detail Page

3.6 Discussion of Result

The author test the application using the black box method. Black box is a testing method that focuses on application functionality without having to test the design. The purpose of testing is so that the author can find errors contained the application. This black box testing is done to look for errors in functions that are damaged or faulty [15]. It is used to make sure of the behavioral issues of the software [16].

Table 2. Mobile application testing results

Testing Activities	Expected Realizatiom	Testing Result	Final Result
Create new account	Can create a new account and log in	Users can create a new account and login by entering their username and password	Accepted
Accessing the data information	Can access the available data information	Users can access drug data information and personal data	Accepted
Process of buying medicine	Can choose and purchase medicine	User successfully performs the the process of buying medicine	Accepted
Access purchase history	Can access the history of purchase that have been made	Display the transaction details page that the user has done	Accepted
Delete medicine in cart page	Can delete drugs that have been inputted in the cart	Users can delete drugs that have been inputted to the cart	Accepted

Logout from the application	Can logout from the application	Users can logout from the application	Accepted

Table 3. Website testing results

Testing Activities	Expected Realization	Testing Result	Final Result
Login admin account	Admin can do the login process	Admin can login with the username and password that has been created	Accepted
CRUD process	Admin can create, read, update, and delete drug data, drug category data, user data, and transaction data	Admin can make changes to drug data, drug category data, user data, and transaction data	Accepted
Drug transaction process	Admin can see a list of transaction made by users	Admin can check transactions made by users	Accepted
Report results	Can see the results of transaction reports	Can view and print transaction reports	Accepted

It can be concluded that the results of the black box testing that has been carried out, the features can run 100% well and can be accepted on mobile applications and on the website. All available features can be run properly by users and pharmacist as a admins.

4. CONCLUSION

The author implements a mobile-based pharmacy application that features drug information and drug purchases. Based on the results of testing the application with a black box, proving that customers can understand and use the features available in the application. With the features designed in this application, in the future, it can help and facilitate the process of buying and selling drugs at Apotek Doa Sehat Yogyakarta.

5. REFERENCES

[1] A. Anggraeny, M. G. Resmi and S. Alam, "Designing a mobile sales application at Setra farma pharmacy in the era of the covid-19 using the goal-directed desing method," Jurnal Mantik, vol. 6 (3), pp. 2759-2769, 2022.

[2] Z. S. Ballard, H. -A. Joung, A. Goncharov, J. Liang, K. Nugroho, D. D. Carlo, O. B. Garner and A. Ozcan, "Deep learning-enabled point-of-care sensing using multiplexed," NPJ Digital Medicine, 2020.

[3] H. Bhalerao and D. D. Mandalik, "E-PHARMACY: A STUDY OF GROWTH OF DIGITAL APP-BASED PHARMACY DELIVERY SERVICES," Journal of Pharmaceutical Negative Results, pp. 722-727, 2022.

[4] M. Shahnawaz, P. Singh, P. Kumar and D. A. Konidena, "Grievance Redressal System," International Journal of Data Mining and Big Data, vol. 1 (1), pp. 1-4, 2020.

[5] R. Sloane, O. Osanlou, D. Lewis, D. Bollegala, S. Maskell and M. Pirmohamed, "Social media and pharmacovigilance: A review of the opportunities and challenges," British journal of clinical pharmacology, vol. 80 (4), pp. 910-920, 2015.

[6] J. S. Suroso and T. C. Sukmoro, "Factors Affecting Behavior of the use of healthcare mobile application technology in indonesian society," Journal of Theoretical and Applied Information Technology, vol. 99 (15), pp. 3923-3934, 2021.

[7] S. Fox and M. Duggan, "Mobile health 2012," DC: Pew Internet & America Life Project, 2010.

[8] L. and F. Febria, "Aplikasi Sistem Informasi Katalog Obat Komersial "My Medicine" Berbasis Android Di Kabupaten Pekalongan," E-Jurnal Kajen, vol. 3 (02), pp. 133-146, 2019.

[9] M. Aitken and J. Lyle, "Patient adoption of mHealth: use, evidence and remaining barriers to mainstream acceptance," NJ: IMS Institute for Healthcare Informatics 2, 2015.

[10] D. C. Akshayraj, D. M. V. M. Thorat, D. S. Darshansinh, D. V. Keyurkumar, D. M. A. R. Shinde and D. A. shah, "E-Strategy for Medication: Is it really effective?," Pakistan Heart Journal, vol. 56(1), pp. 391-396, 2023.

[11] S. Srivastava, "A Digital Revolution in Pharmaceutical Industry: Mobile Health Applications," International Journal of Innovative Science and Research Technology, vol. 5 (9), pp. 1154-1160, 2020.

[12] A. Fittler, R. G. Vida, M. Káplár and L. Botz, "Consumers Turning to the Internet Pharmacy Market: Cross-Sectional Study on the Frequency and Attitudes of Hungarian Patients Purchasing Medications Online," Journal of medical Internet research, vol. 20 (8), 2018.

[13] S. Kumar, W. J. Nilsen, A. Abernethy, A. Atienza, K. Patrick, M. Pavel, W. T. Riley, A. Shar, B. Spring, D. S. -Metz, D. Hedeker, V. Honavar, R. Kravitz, R. C. Lefebvre, D. C. Mohr, S. A. Murphy, C. Quinn, V. Shusterman and D. Swendeman, "Mobile health technology evaluation: the mHealth evidence workshop," American journal of preventive medicine, vol. 45 (2), pp. 228-236, 2013.

[14] H. S. Song and B.-M. Lee, "The viability of online pharmcies in COVID-19 era in Korea," International Journal of Health Policy and Management, vol. 11 (9), pp. 1977-1980, 2022.

[15] N. Syafitri and S. D. Sancoko, "Mobile-based Dental Clinic Application as an Optimal Reservation Control System," International Journal of Computer Applications, vol. 185 no. 33, pp. 1-8, 2023.

[16] Z. A. Hamza and M. Hammad, "Testing Approaches for Web and Mobile Applications: An Overview," International Journal of Computing and Digital Systems, pp. 657-664, 2020.

cek plagiasi chelsea & sulis

systems into digital health", Advanced Drug
Delivery Reviews, 2021
Publication

10	jddtonline.info Internet Source	1%
11	pkheartjournal.com Internet Source	1%
12	asrjetsjournal.org Internet Source	1%
13	www.researchgate.net Internet Source	1%

Exclude quotes   On
Exclude bibliography   On

Exclude matches   < 1%

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Prep. You may be using the wrong preposition.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Missing "," You may need to place a comma after this word.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Article Error You may need to remove this article.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Sp. This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

Run-on This sentence may be a run-on sentence. Proofread it to see if it contains too many independent clauses or contains independent clauses that have been combined without conjunctions or punctuation. Look at the "Writer's Handbook" for advice about correcting run-on sentences.

Article Error You may need to use an article before this word.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to remove this article.

P/V You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Verb This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Missing "," You may need to place a comma after this word.

Article Error You may need to remove this article.

Missing "," You may need to place a comma after this word.

Article Error You may need to use an article before this word. Consider using the article **the**.

Article Error You may need to use an article before this word.

Article Error You may need to remove this article.

Dup. You have typed two **identical words** in a row. You may need to delete one of them.

(ETS) **Article Error** You may need to use an article before this word. Consider using the article **the**.

(ETS) **P/V** You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

(ETS) **S/V** This subject and verb may not agree. Proofread the sentence to make sure the subject agrees with the verb.

(ETS) **Verb** This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

(ETS) **Verb** This verb may be incorrect. Proofread the sentence to make sure you have used the correct form of the verb.

(ETS) **Missing ","** You may need to place a comma after this word.

(ETS) **Article Error** You may need to use an article before this word.

(ETS) **Missing ","** You may need to place a comma after this word.

(ETS) **P/V** You have used the passive voice in this sentence. Depending upon what you wish to emphasize in the sentence, you may want to revise it using the active voice.

(ETS) **Confused** You have a spelling mistake near the word **a** that makes **a** appear to be a confused-word error.

(ETS) **Sp.** This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

(ETS) **Sp.** This word is misspelled. Use a dictionary or spellchecker when you proofread your work.

(ETS) **Sp.** This word is misspelled. Use a dictionary or spellchecker when you proofread your work.