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# DIGITAL ARCHIVING APPLICATION IN AND OUT LETTER

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**ABSTRACT**

The archive is a very important document in a company, the archive aims to store information and data on a company. In some companies, archives are carried out using a manual system which increases the risk of data theft, data corruption and data loss. So with that, the researcher created an application to design digital archiving with the waterfall method. This research was conducted to solve various kinds of problems that exist in a company. During researching the problem, the author has observed the existing problems (observations) and solved the problem by making an application for web-based incoming and outgoing mail archives. this is done so that archive management can be carried out efficiently and this application is very safe to use because the application already uses security features, where this feature can maintain data properly.



## 1. Introduction

In the industrial era 4.0, computers play an important role in everyday life, humans must be able to coexist with computers. Computers play an important role both in the industrial world and not. This is what makes some industries use computers to facilitate staff performance, as well as in filing letters in a company. Many companies, institutions and government agencies have difficulty managing archives, especially physical archives. At the research site, the system applied was not good, causing problems such as documents not being archived, security and confidentiality of documents not being guaranteed, budget swelling and taking a long time, thus requiring a digitized archiving system with the benefit of data access being much more flexible. Staff can access data digitally anywhere and anytime through various types of devices that have access permissions.

Classification of data and numbering of letters at the research site is still often mixed, such as classification of data between incoming and outgoing mail archives. This is what makes staff employees have to sort out mail data between incoming and outgoing mail and by letter number, and can waste time. so, the researcher made this system to help staff performance and this system can be used by several users concerned in the archiving process.In line with developments that occur, information is not only stored in printed format, but also stored in digital format. Digital archive management is an effort made by archival institutions to provide services that are in accordance with the characteristics of today's society. Through this article, the author wants to share knowledge about digital archives and how to manage digital archives using Omeka. Omeka is an open source based digital archive management application. Omeka provides digital archive management opportunities without having to spend a software procurement budget. Omeka provides greater digital archive management opportunities. By reading this article, the author hopes to be able to provide a description of the steps in building digital archive management.[1]Letter Archives are one of the most important communication media in an agency, company or other form of organization, both for communicating with parties externally and internally. Everything related to official organizational activities is always embodied in



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the form of a letter. XYZ District Office is a government agency tasked with carrying out government authority.[2]When viewed from the meaning of the word, in the Big Indonesian Dictionary, that the term digital "relates to numbers for certain calculation systems.[3]

After doing research and solving existing problems, the author makes a web-based application for archiving incoming and outgoing mail using Omeka. Omeka is an Open Source based digital archive management application. Omeka provides digital archive management opportunities without having to spend a software procurement budget and provides greater opportunities. This is expected to help the performance of the staff of the Office of the National Unity and Politics of the Provincial Government by digitizing appropriately and efficiently for use. This application has also carried out testing using the white box and black box testing methods.

## 2. Method

The waterfall method or what is often called the waterfall method is often called the classic life cycle, where it describes a systematic and sequential approach to software development, starting with the specification of userrequirements and then continuing through the planning stages. modeling, construction, and delivery of the system to customers/users (deployment), which ends with support for the software.[4]

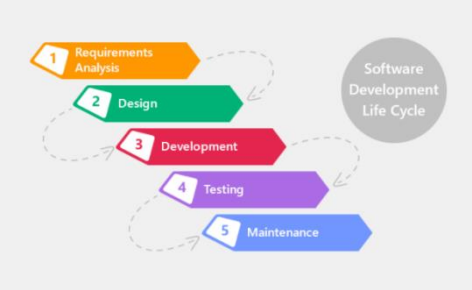


**Figure1.**WaterfallMethod

a. Requirements Analysis

Before doing software development, a developer must know and understand how the information needs of users for a Software. This information collection method can be obtained in various ways including,discussion, observation,surveyinterview, and so on. The information obtained is then processed and analyzed so that complete data or informationis obtained regarding the specifications of user needs for the software to be developed.[5]

b. Design

At this stage, the developer makes a system design that can help determine the hardware and system requirements andalso assists in the definition overall system architecture.[6]

c. Development

At this stage the author will implement the previous design by implementing the interface into the PHP programming language for websites.[7]

d. Testing

This stage can be said to be final in creation of a system. After doing analysis, design and coding of the system which has been used by the user.[8]

e.Maintenance



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At this maintenance stage there are a few things to note, Among other things, the operator (user) must be able to run the system properly. If an error occurred in the system then a maintenance person must be able fix errors both on the system or on a connected network. Maintenance must also be done automatic update on anti virus the computer is not infected with a virus that can cause slow usagesystem.[9]

## 3. Result and Discussion

### Data Flow Diagram

Data Flow Diagram (DFD) is a diagram that uses notations to describes the flow of system data, the use of which is very helpful for understanding the system logically, structured and clear. DFD is a tool in describing or explaining the working process of a system. DFD according to Mahyuzir, 1991 is a graphic technique used to describes the flow of information and data transformations that move from data entry to output.[10]

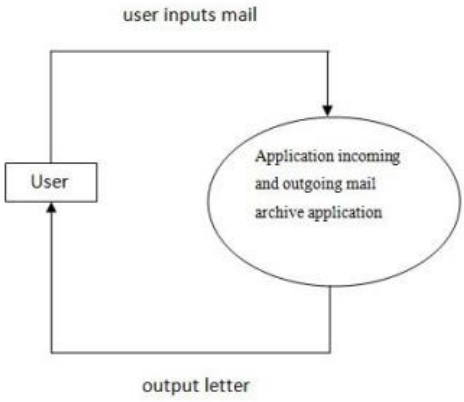


**Figure2.**Context Diagram

Context diagrams are patterns imagery that works for show the information system integration with the environment in which the system placed.[11]

**Data Flow Diagram Level 1.**

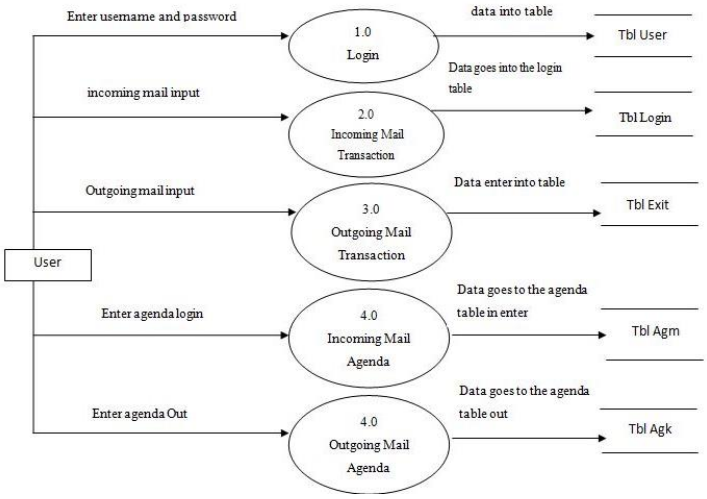




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**Figure 3**. Data Flow Diagram Level 1

**Flowchart System.**

flowchart or often referred to as a flow chart is a type of diagram that represents an algorithm or sequential instruction steps in the system. a systems analyst uses flowcharts as documentary evidence to explain a logical description of a system to be built to the programmer.[12]The purpose of using flowcharts is to describe a stage simple problem solving,unravel and tidy by using STRING (Research and Innovation Writing Unit standard symbols that can be used understood by programmers. Stages The solution to the problem presented must be precise, simple, and clear.[13]

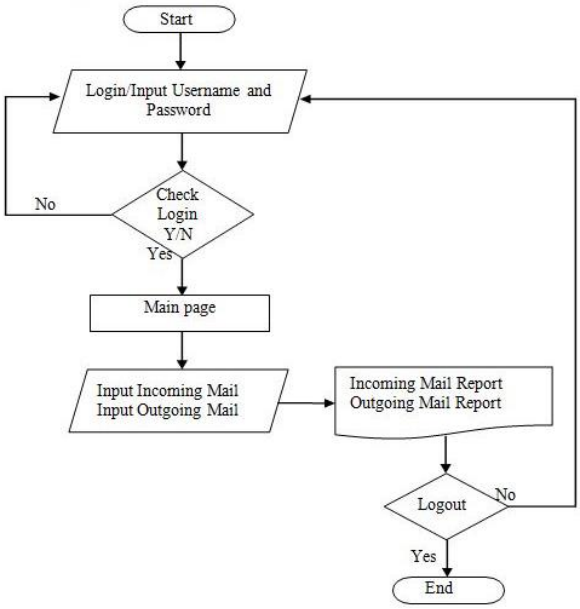


**Figure 4**. Flowchart

## 4. Programming Code

Theimplementation ofthisprogram isaprogramdesign asaresultofresearch.

**LoginPage**

This application is equipped with the From Login feature, this section can only be accessed by the user. This is done so that the data that has been inputted by the user is kept safe.



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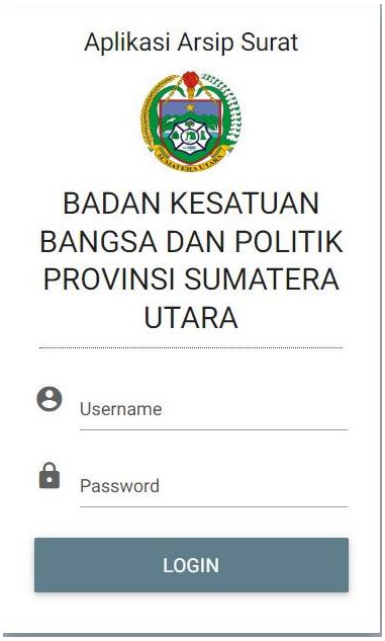


Figure 5. LoginPage

**Home Page**

This form is the home page, if the user has successfully logged in, the application user will automatically switch to the home page. This view is, the contents of the various forms in the application, the user can access what forms are needed.

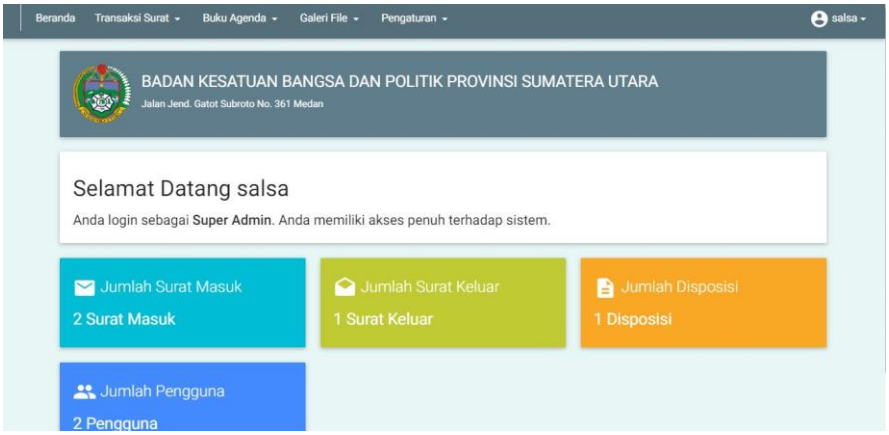


**Figure6.**Homepage

**Incoming Mail Page**

This form is an Incoming Mail page, on this page the user can edit, delete and delete the available incoming mail. After all the data is correct, the incoming letter can be printed.



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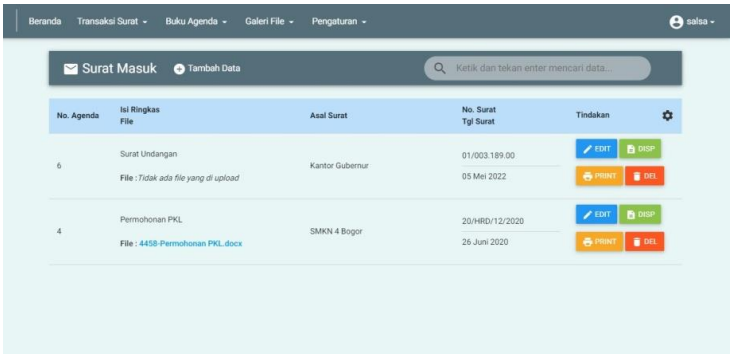


**Figure7.**Incoming Mail Page

**Outgoing Mail Page**

This form is the Outgoing Mail page, on this page the user can only edit, delete and delete the available outgoing mail.

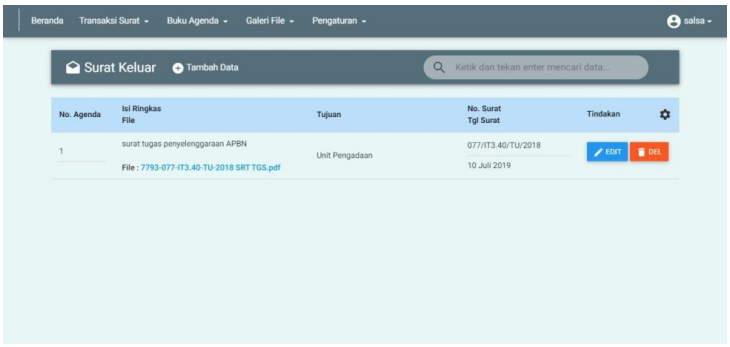


**Figure8.**Outgoing Mail Page

**Incoming mail agenda page**

In this From, is a collection of incoming mail agendas that have been processed by the These data can be reviewed at any time if needed. This can reduce the user's performance process, which initially took a lot of time, now only looks for the agenda date and incoming letters and information will appear. This form can also be directly connected to a printing machine, which will produce output in the form of Letter Disposition paper.

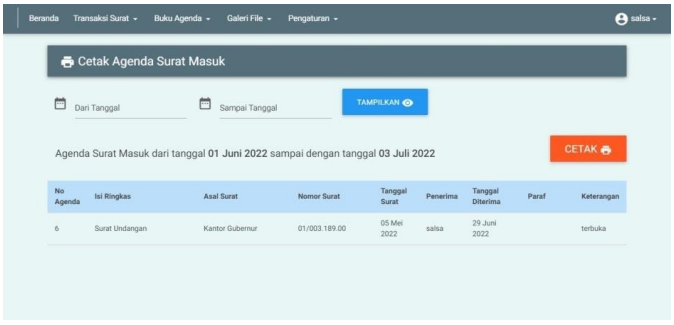


**Figure9.** Incoming mail agenda page



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**Outgoing mail agenda page**

In this From, is a collection of outgoing mail agendas that have been processed by the . These data can be reviewed at any time if needed. This can reduce the user's performance process, which initially took a lot of time, now only looks for the agenda date and incoming letters and information will appear. This form can also be directly connected to a printing machine, which will produce output in the form of Letter Disposition paper.

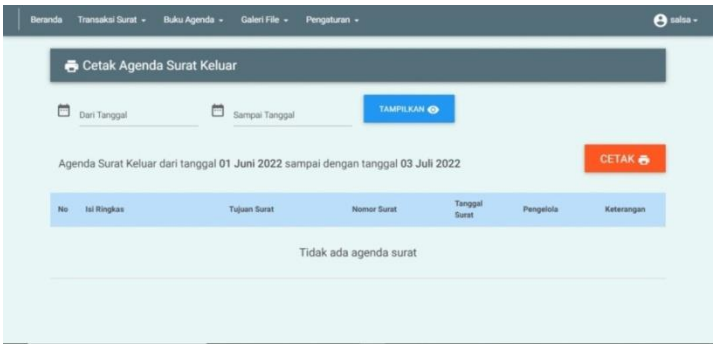


**Figure10.** Outgoing mail agenda page

**Incoming Mail (Document) Gallery View.**

In this form the user can see all incoming documents and when the documents are entered clearly and easily. This feature is used so that the user can more easily see all the documents that have been entered and when the document was entered. It's just that this feature, can only be used with document files, cannot be used with other files.

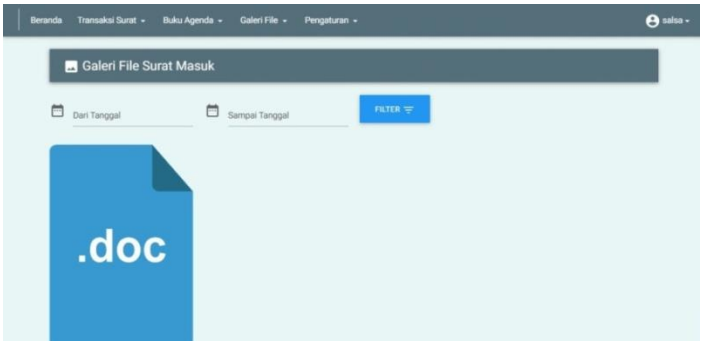


**Figure11.** Incoming Mail (Document) Gallery View

**Outgoing Mail(Document) Gallery View.**

In this form the user can see all the documents that came out and when the documents came out clearly and easily. This feature is used so that the user can more easily see all the documents that have been entered and when the document was entered. It's just that this feature can only be used with pdffiles, it can't be used with other files.



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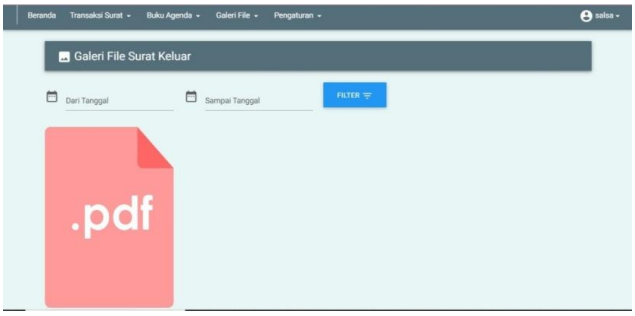


**Figure12.** Outgoing Mail(Document) Gallery View

**White Box Testing**

White Box Testing is a test method using a control structure and procedure design, the results of this study are useful for knowing the application system after the implementation stage. With the White Box Testing test, it becomes a system test that is able to provide details from source code, algorithm paths and programming paths. The other testing phase is carried out after by pass this white box method, because a program will not succeed if the logic or flow the algorithm is wrong. The results of this study are used for testing applications that have been made so that applications can presented in a perfect system level according to the way it works and can be useful for its users.[14]

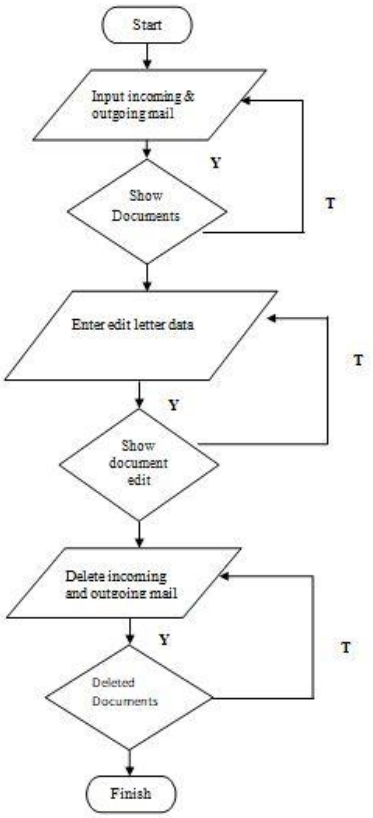


**Figure 13.** White Box Testing



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Discussion of White box Testing:

a. User Inputs letter data such as number, item, type and so on. If the document that comes out is in accordance with the request, the application is in accordance with the order

b. User Edits letter data such as number, item, type and so on. If the document that comes out is in accordance with the request, the application is in accordance with the order

c. The user deletes incoming and outgoing mail data, if the letter data is deleted, the document will not appear.

d. Program in accordance with the provisions**.**

**Blackbox Testing**

black box testing method refers to the following aspects of testing, namely measurement software

| Testing | Expected results | Test result | Conclusion |
|---|---|---|---|
| Login | Enter the homepage | Login successful | Normal |
| Click the form "Transaction Mail" | Show 2 options "Incoming Mail" "Outgoing mail" | Click the "Transaction Letter" form according to the order | Normal |
| Click on the form "Book of Agenda" | Show 2 options "Incoming Mail" "Outgoing mail" | Click the "Organization Book" form according to the order | Normal |
| Click the "File Gallery" form | Show 2 options "Incoming Mail" "Outgoing mail" | Click the "File Gallery" form according to the command | Normal |
| Arrangement | Show company and user options | Click the "Settings" form according to the command | Normal |

based on functional test aspects. software measurement based on security aspects test.[15]



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**Figure14.**Black Box Testing

## 5. Conclusion

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**References**

[1] D. A. Rivai and B. E. Purnama, "Pembangunan Sistem Informasi Pengolahan Data Nilai Siswa Berbasis Web Pada Sekolah Menengah Kejuruan (SMK) Miftahul Huda Ngadirojo," *Indones. J. Netw. Secur.*, vol. 3, no. 2, pp. 2302–5700, 2015.

[2] A. H. Nugroho and T. Rohimi, "Perancangan Aplikasi Sistem Pengolahan DataPenduduk Dikelurahan Desa Kaduronyok Kecamatan Cisata, Kabupaten Pandeglang Berbasis Web," *Jutis*, vol. 8, no. 1, 2020.

[3] S. A. Muhidin, H. Winata, and B. Santoso, "Pengelolaan Arsip Digital," *Junral Pendidik. Bisnis Manaj.*, vol. 2, no. 3, pp. 178–183, 2018, [Online]. Available: http://journal2.um.ac.id/index.php/jpbm/article/view/1708.

[4] F. Supandi, W. Desta P, Y. Ambar S, and M. Sudir, "Analisis Resiko Pada Pengembangan Perangkat Lunak Yang Menggunakan Metode Waterfall Dan Prototyping," *Pros. Semin. Nas. Din. Inform. 2018 (SENADI 2018)*, vol. 2, no. 1, pp. 83–86, 2019, [Online]. Available: http://prosiding.senadi.upy.ac.id/index.php/senadi/article/view/86.

[5] H. Kurniawan, W. Apriliah, I. Kurnia, and D. Firmansyah, "Penerapan Metode Waterfall Dalam Perancangan Sistem Informasi Penggajian Pada Smk Bina Karya Karawang," *J. Interkom J. Publ. Ilm. Bid. Teknol. Inf. dan Komun.*, vol. 14, no. 4, pp. 13–23, 2021, doi: 10.35969/interkom.v14i4.78.

[6] A. A. Wahid, "Analisis Metode Waterfall Untuk Pengembangan Sistem Informasi," *J. Ilmu-ilmu Inform. dan Manaj. STMIK*, no. November, pp. 1–5, 2020, [Online]. Available: https://www.researchgate.net/profile/Aceng_Wahid/publication/346397070_Analisis_Metode_Waterfall_Untuk_Pengembangan_Sistem_Informasi/links/5fbfa91092851c933f5d76b6/Analisis-Metode-Waterfall-Untuk-Pengembangan-Sistem-Informasi.pdf.

[7] J. Andry and M. Stefanus, "Pengembangan Aplikasi E-learning Berbasis Web Menggunakan Model Waterfall Pada SMK Strada 2 Jakarta," *J. Fasilkom*, vol. 10, no. 1, pp. 1–10, 2020, doi: 10.37859/jf.v10i1.1878.

[8] C. Tristianto, "Penggunaan Metode Waterfall Untuk Pengembangan Sistem Monitoring Dan Evaluasi Pembangunan Pedesaan," *J. Teknol. Inf. ESIT*, vol. XII, no. 01, pp. 7–21, 2018.

[9] O. Irnawati, "Implementasi Metode Waterfall Pada Sistem Informasi Stock Opname," *Indones. J. Softw. Eng.*, vol. 4, no. 1, pp. 79–84, 2018, doi: 10.31294/ijse.v4i1.6301.

[10] F. Soufitri, "Perancangan Data Flow Diagram Untuk Sistem Informasi Sekolah (Studi Kasus Pada Smp Plus Terpadu)," *Ready Star*, vol. 2, no. 1, pp. 240–246, 2019.

[11] Y. Harjoseputro, Albertus Ari Kristanto, and Joseph Eric Samodra, "Golang and NSG Implementation in REST API Based Third-Party Sandbox System," *J. RESTI (Rekayasa Sist. dan Teknol. Informasi)*, vol. 4, no. 4, pp. 745–750, 2020, doi: 10.29207/resti.v4i4.2218.

[12] R. Rosaly and A. Prasetyo, "Pengertian Flowchart Beserta Fungsi dan Simbol-simbol Flowchart yang Paling Umum Digunakan," *Https://Www.Nesabamedia.Com*, vol. 2, p. 2, 2019, [Online]. Available: https://www.nesabamedia.com/pengertian-flowchart/https://www.nesabamedia.com/pengertian-flowchart/.

[13] S. Syamsiah, "Perancangan Flowchart dan Pseudocode Pembelajaran Mengenal Angka dengan Animasi untuk Anak PAUD Rambutan," *STRING (Satuan Tulisan Ris. dan Inov. Teknol.*, vol. 4, no. 1, p. 86, 2019, doi: 10.30998/string.v4i1.3623.

[14] E. sita Eriana, "Pengujian Sistem Informasi Aplikasi Perpustakaan Berbasis Web Dengan White Box Testing," *J. Teknol. Inf. ESIT*, vol. XV, no. 10, pp. 28–33, 2020.

[15] A. Purnomo, "Software Testing Aplikasi Website PT Gramedia Menggunakan Metode Blackbox pada PT WGS Bandung," *E-Journal Univ. Dianapura*, vol. 91, pp. 399–404, 2017.