


DAFTAR PUSTAKA

- Aditama, K. (2020). PEMANFAATAN NATURAL LANGUAGE PROCESSING DAN PATTERN MATCHING DALAM PEMBELAJARAN MELALUI GURU VIRTUAL. *ELKOM*, 13(1), 121–133.
<http://ejurnal.stekom.ac.id/index.php/home>page121
- Andani, M., Asia, M., Jendral Yani No, J. A., KomerlingUlu, O., & Selatan, S. (2021). SISTEM INFORMASI PELAYANAN KEPENDUDUKAN DESA LECAH BERBASIS WEB MENGGUNAKAN PHP DAN MYSQL. In *Jurnal Sistem Informasi Mahakarya (JSIM)* (Vol. 4, Issue 1).
- Domarco, D., Made, N., & Iswari, S. (2017). Rancang Bangun Aplikasi Chatbot Sebagai Media Pencarian Informasi Anime Menggunakan Regular Expression Pattern Matching. *ULTIMATICS*, IX(1).
- Ferdinan Leo Simanjuntak, K., Carolina Br Barus, A., & Teknologi dan Ilmu Komputer, F. (2021). IMPLEMENTASI METODE DECISION TREE DAN ALGORITMA C4.5 UNTUK KLASIFIKASI KEPRIBADIAN MASYARAKAT. *JOISIE Journal Of Information System And Informatics Engineering*, 5(1), 51–59.
- Larasati Amalia, E., & Wahyu Wibowo, D. (2019). Rancang Bangun Chatbot Untuk Meningkatkan Performa Bisnis. *Jurnal Ilmiah Teknologi Informasi Asia*, 13(2).
- Maulidah, M., Gata, W., Aulianita, R., Agustyaningrum, C. I., Studi, P., Komputer, I., & Mandiri, N. (2020). Algoritma Klasifikasi Decision Tree Untuk Rekomendasi Buku Berdasarkan Kategori Buku. 13(2), 89–96.
<http://journal.stekom.ac.id/index.php/E-Bisnis>page89
- Nirsal, Syafridi, & Rusmala. (2020). DESAIN DAN IMPLEMENTASI SISTEM PEMBELAJARAN BERBASIS E-LEARNING PADA SEKOLAH MENENGAH PERTAMA NEGERI 1 PAKUE TENGAH. *Jurnal Ilmiah d'Computare Volume 10 Edisi Januari 2020*.
- Wagh, K. S., & Hiremath, G. (2018). Chatbot for Education System Detection of Tampered Video Using Blockchain View project Chatbot for education system. In *International Journal of Advance Research*. www.IJARIT.com



SITORY Inventory System Using the FIFO (First In First Out) Method and Caesar Chipper Algorithm	
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Article Info	Abstract
Article history Received : diisi oleh editor Revised : diisi oleh editor Accepted : diisi oleh editor	<p><i>PT. Indopradana Mahakarya Sejahtera is a procurement company in the field of packaging such as cosmetic bottles. PT. Indopradana Mahakarya Sejahtera already has an inventory where inventory will be entered into stock, then sales will be made by looking at the available stock. Inventory management is very important to increase productivity and company performance in managing goods and stock of goods. The current inventory system is still manual and has many weaknesses and deficiencies that hinder the company's performance and is very time-consuming starting from recording goods to preparing reports. The purpose of this research is to create a web-based inventory information system that can be used by companies. The system includes real-time inventory management, purchase transaction entry, shipping management, sales transaction entry, report generation, and sales receipt. The method that will be used in this study is the FIFO (First In First Out) method which will be applied to the sale of goods, and when a sale of goods occurs, the system will automatically obtain goods with a longer purchase date. This study also uses the Caesar Chipper algorithm to secure data in the database which when entered will encrypt the data entered into the database and then decrypt it for display on a web display. This research resulted in a "SITORY Inventory System Using the FIFO (First In First Out) Method and Caesar Chipper Algorithm", which will help problems that exist in PT. Indopradana Mahakarya Sejahtera.</i></p>
Kata Kunci: Algorithm; Caesar Chipper; FIFO (First In First Out); Inventory; Method;	
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1. Introduction

Technological developments in this day and age are very interesting to develop technology with flexibility. This technology emerged because many people wanted to be minimalist in their activities. With the rapid development of this technology, various types of new systems have emerged that can meet the needs of society. Many new companies have started to emerge with the aim of providing human needs more easily and efficiently. The internet is one of the fastest-growing technological

developments every year. Because the Internet is the largest network that can connect millions of computers spread all over the world. By using the internet, organizations can exchange information with the outside world quickly. The internet is most needed in the business world, especially in trading companies[1].

A trading company such as PT Indopradana Mahakarya Sejahtera, this company wants to profit from its sales. PT Indopradana Mahakarya Sejahtera wants accurate data from its business processes. This makes it possible to clearly read the flow of profits earned, and to avoid losses. If there are indeed losses, PT Indopradana Mahakarya Sejahtera also wants accurate data on how losses and profits can occur. To get a clear advantage, PT Indopradana Mahakarya Sejahtera requires a detailed inventory of trading products.

Inventory is an operational problem and one of the internal problems often faced by trading companies. The inventory contains records of incoming and outgoing goods and the number of goods to be stored in the warehouse. If the number of items stored is too small to meet demand, work will stall. Likewise, if too many commodities are stored it will also cause losses to the company because the costs are too high, but many commodities cannot be sold, and more space must be provided, which can reduce the use value of these commodities. . Therefore interested parties must be able to decide how much of the goods to be prepared (stocked) for their needs. Also, management must be good at spotting needs and making them feel satisfied because they are getting what they need[1].

Inventory is also conventional data storage, and processing of data such as determining the number of incoming goods, setting the minimum amount of stock, determining the outgoing goods, and the maximum amount of stock for each item. By creating an inventory system, the admin can determine whether goods should be reproduced or not. The inventory process at PT Indopradana Mahakarya Sejahtera is still done manually using ledgers or using software such as Microsoft Word or Excel which have risks such as data loss, goods stored in warehouses for too long, and human errors (errors from the admin). Some of the big risks that can occur are data theft carried out by outsiders and parties from within the company itself[2].

Therefore, by creating an inventory system at PT Indopradana Mahakarya Sejahtera based on a website using the FIFO (First In First Out) method, namely where the earliest goods entered the warehouse will leave first and the data will be stored without having to experience the risk of data loss or human error, and the stored data will be encrypted or it can be interpreted that the data will be changed into a form that cannot be understood by other people so that data cannot be stolen using cryptography. Cryptography is the art of writing and decoding code[3]. This cryptography will be developed using Caesar cipher encryption, which converts plaintext into ciphertext.

With the main issues above, a "SITORY Inventory System will be created using the FIFO (First In First Out) Method and the Caesar Chipper Algorithm" which is expected in the future PT Indopradana Mahakarya Sejahtera can have an inventory system that is practical, effective and safe from theft data.

2. Literature Review

In the initial research, researchers will analyze the system that will be made concerning the needs of PT Indopradana Mahakarya Sejahtera. The data will be obtained through direct interviews with informants selected by researchers and data in the form of documents.

2.1 Previous Research

1. Abdullah Attaqiy

In the research conducted by Abdullah Attaqiy, entitled "Inventory Information System at Iron&Sun.Co Company". The problem lies in manual management, data recording that still uses Ms. Excel so that it is possible for errors to occur such as duplication of data, recording errors, incomplete data tends to be large and the preparation of final inventory reports tends to take longer because all inventory data must be recapitulated in detail in advance from the results of sales and purchase notes. In the problems that arise, it is necessary to have an application program "Inventory Information System at Iron&Sun.Co Company" to identify and analyze the current system and to design and build an Inventory Information System[4].

The difference from previous research with the title of the application "Inventory Information System at Iron&Sun.Co Company" with research conducted by the author is that in previous research there was no storage in the database which was stored encrypted using Caesar Cipher. The similarities in operating the database are both using MySQL and applications that are built on a website basis.

2. Quaysia Andika Rahmani

In the research conducted by Quaysia Andika Rahmani, entitled "Design and Build Stock Applications Using the FIFO Method at PT. CWT Commodities Services". The problem is in the warehousing process which still uses manual input which causes messy reports of goods and less work efficiency, with the existence of an application that makes warehousing more precise because the storage media already uses a database. The system can make it easier for administrators to enter data. The administrator can also determine the accessories for goods received in each building, as well as existing and new items[5].

The difference from previous research entitled "Design and Build Stock Applications Using the FIFO Method at PT. CWT Commodities Services" with research conducted by the author, namely previous studies did not use the Caesar Chipper Algorithm for company data security. The similarities lie in the website-based system application.

2.1 System

The system is a set of interconnected components that help to achieve a goal. This term is used to describe two or more interacting entities[6]. The system is important in designing an information system. All organizations must have an information system that aims to collect, store, view and distribute data that will be presented in the form of information. Information systems are formed because of the large number of requests for information needs that are always increasing every day[7].

2.2 Inventory

Inventory in Indonesian is Inventory, which means, that is, a list that contains all items belonging to offices, schools, companies, and so on that are used in carrying out tasks, by the meaning of inventory. Inventory or inventory is material or goods stored that will be used to fulfill certain purposes. (Inventory) is a general term that shows everything or organizational resources stored in anticipation of fulfilling requests[8].

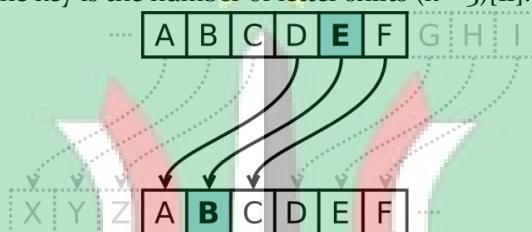
2.3 FIFO (First In First Out)

The first-in, first-out (FIFO) method assumes that the oldest items in stock (meaning merchandise purchased first) will be sold first, and the items purchased last will become ending inventory. This method continues until the last stock is entered, at which point the item will be the last to sell. The first-in, first-out rule relies primarily on the assumption that this is a good approximation of the specific identification of most typical industrial goods types. Inventory management is considered

good to start the oldest units first and maintain the current inventory showing the newest inventory items. Therefore, FIFO is an estimate of the flow of certain goods[9].

2.4 Caesar Chipper

In cryptography, the Caesar cipher, also known as Caesar's cipher, the shift cipher, Caesar's code, or Caesar shift, is one of the simplest and most widely known encryption techniques. It is a type of substitution cipher in which each letter in plain text is replaced by a letter in some fixed position down the alphabet. The encryption steps performed by the Caesar cipher are often combined as part of a larger scheme[10]. The Caesar Cipher is one of the oldest best-known now ciphers in cryptographic development. This is a cryptographic algorithm that was first used by the Roman Emperor Julius Caesar for the messages he sent to his governors. The trick is to replace each character with another in alphabetical (alphabet) order. For example, each letter is replaced by the next third in the alphabet. In this, case the key is the number of letter shifts ($k = 3$)[11].



The action of Caesar chipper is to replace each letter of plain text with a different letter in several places below the alphabet. The cipher illustrated here uses a shift of three to the left, so that (for example) every occurrence of E in the plaintext becomes a B in the cipher text[12].

3. Result and Discussion

At this stage, the system is used by researchers to make a diagram of how it works and how to use it. This is done through the use of system design tools such as use case diagrams and activity diagrams.

3.1 Use Case Diagrams

Table 1.
Admin Use Case Design

No.	Actor	Process Use case	Information
1	Admin	Login	The administrator uses the given username and password to log in to the system
2	Admin	Manage Master Data	Admin manages Master data, namely item master, supplier master, user master, and admin master viewing, changing, deleting, and making reports. Admin prints receipts for purchasing goods in real-time without being able to reopen on different days
3	Admin	Manage Reports	makes reports of outgoing goods, makes sales reports, and makes reports on the value of goods assets.

Table 2.
User/Employee Use Case Design

No.	Actor	Process Use case	Information
1	Users/Employees	Login	Users/Employees use their usernames and password to enter the system.
2	Users/Employees	Manage Sales Data	Users/Employees input sales based on available items, and enter the number of items sold per type of item.

3.2 Activity Diagrams

3.2.1. Activity Diagram Login

The Activity Diagram for the login process shows the steps required to log into the system. First, the user must login to prove that the user has access to enter. After validation, the system will bring the user to the dashboard.



Figure 1. Admin-Login Activity Diagram

Figure 2. Activity Diagram User/Employee Login

3.2.2. Activity Diagram Master Data

This activity diagram explains admin activities when entering various types of data, and can change and delete the data in it.

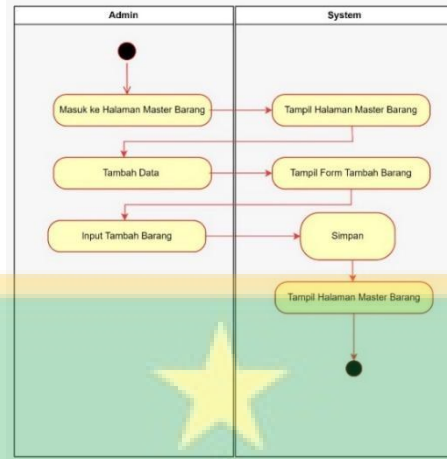


Figure 3. Activity Diagram Add Data

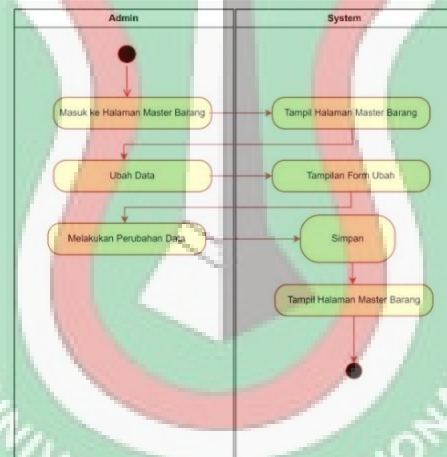


Figure 4. Activity Diagram Change Data

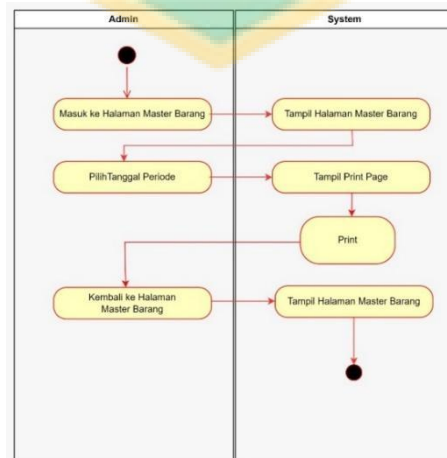


Figure 5. Activity Diagrams Print Reports

3.2.1. Activity Diagram Report

This activity diagram explains admin activities when the process of printing reports on the application system.

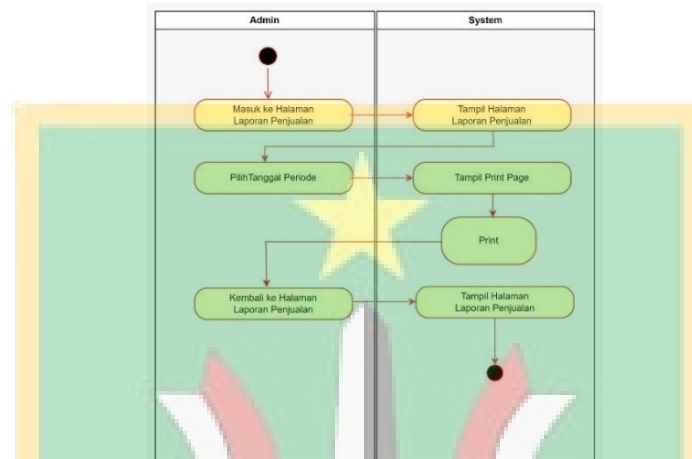


Figure 6. Activity Diagram Print Sales Report

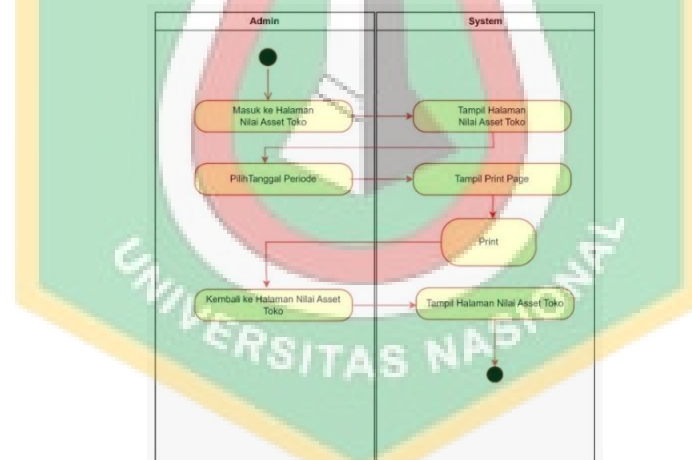


Figure 7. Activity Diagram Print Inventory Report

3.3 Implementation

3.3.1 Caesar Chipper

To store new data that will be input into the database system, the data will be encrypted using the encryption function to become cipher text. Then, the data will be stored in the database, to maintain the confidentiality of the contents of the database itself. This is done using the Caesar Cipher algorithm. The formula for encryption and decryption according to the Caesar Chipper algorithm is as follows:

$$C = E(P) = (P + k) \text{ mod}(26)$$

$$P = D(C) = (C - k) \text{ mod}(26)$$

Where :

C = Chipertext

E = Encryption

P = Plaintext

D = Decryption

k = Key

Mod = Modulo (Remaining Share)

3.3.1.1 Encryption Process

Consider the sample data below:

Name : Jumadi

Email : Jumadi@IMS.com

Pass : Jumadi123

Key : 3

From the example data above, the encryption process will be carried out using a 3-letter shift key in the plaintext.

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25

Figure 8. Plaintext

Shifting letter A with key 3

$$C = E(P) = (P + 3) \bmod(26)$$

$$C = E(A) = (0 + 3) \bmod(26)$$

$$C = E(A) = 3 \text{ or } (D)$$

So the letter A will shift to D, and then the letters B to Z will also shift to the next 3 letters, as shown in the picture.

d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	a	b	c
D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	0	1	2

Figure 9. Chipertext

From the description above, the example data will be encrypted to be:

Jumadi

$$= ((9, 20, 12, 0, 3, 8) + 3) \bmod 26$$

$$= (12, 23, 15, 3, 6, 11)$$

= Mxpdgl

Jumadi@IMS.com

$$= ((9, 20, 12, 0, 3, 8, @, 8, 12, 18, ., 2, 14, 12) + 3) \bmod 26$$

$$= (12, 23, 15, 3, 6, 11, @, 11, 15, 21, ., 5, 17, 15)$$

= Mxpdgl@LPV.frp

Jumadi123

$$= ((9, 20, 12, 0, 3, 8, (1, 2, 3)) + 3) \bmod 26$$

= (12, 23, 15, 3, 6, 11, (1, 2, 3))
= Mxpdgl123

Then after manually encrypting the sample data, computerized encryption will then be carried out using the PHP programming language, with the source code image below.

```

17 $CC = new CaesarCipher();
18 class CaesarCipher {
19     public $shift;
20     const alphabet = array(
21         "lowercase" => array("a","b","c","d","e","f","g","h","i","j","k","l","m","n","o","p","q","r","s","t","u","v","w","x","y","z"),
22         "uppercase" => array("A","B","C","D","E","F","G","H","I","J","K","L","M","N","O","P","Q","R","S","T","U","V","W","X","Y","Z")
23     );
24     public function __construct($shift = 3) {
25         $this->shift = $shift % 26;
26     }
27     public function encrypt($input) {
28         $result = str_split($input);
29         for ($i = 0; $i < count($result); $i++) {
30             for ($j = 0; $j < 26; $j++) {
31                 if ($result[$i] == CaesarCipher::alphabet["lowercase"][$j]) {
32                     $result[$i] = CaesarCipher::alphabet["lowercase"][$j + $this->shift % 26];
33                     $j = 26;
34                 } elseif ($result[$i] == CaesarCipher::alphabet["uppercase"][$j]) {
35                     $result[$i] = CaesarCipher::alphabet["uppercase"][$j + $this->shift % 26];
36                     $j = 26;
37                 }
38             }
39         }
40         $result = implode($result);
41         return $result;
42     }

```

Figure 10. Source Code Plaintext Encryption Process to Chipertext

After going through the encryption process in the image above, the results will be obtained in the database in the table from the sample data fields taken, which are as follows:

+ Options						
	id_karyawan	nama_karyawan	kontak	username	password	email
<input type="checkbox"/>	8	Kdindo	085122116117	haikal	haikal123	KdindoPdkhq@LPV.frp
<input type="checkbox"/>	9	Mxpdgl	0811235678	jumadi	Mxpdgl123	Mxpdgl@LPV.frp

Figure 11. Plaintext Encryption Results to Ciphertext in the Database

3.3.1.2 Decryption process

Decryption is the process of returning the Caesar text value to a plaintext value, namely the input value given at the beginning, the process of running the decryption is retrieving data from the encrypted database and then decrypting it before displaying it back to the web page. The decryption formula is as follows:

$$P = D(C) = (C - k) \bmod(26)$$

Then the encryption value is entered into the decryption formula above, an example of an encrypted value is as follows:

Mxpdgl
Mxpdgl@LPV.frp
Mxpdgl123

From the above data, a decryption process will be carried out using the Caesar Cipher which will

then be displayed on the web, with the same key = 3 when encrypting the data above, so it will be as follows:

Mxpdgl
 = ((12, 23, 15, 3, 6, 11) - 3) mod26
 = (9, 20, 12, 0, 3, 8)
 = Jumadi
 Mxpdgl@LPV.frp
 = ((12, 23, 15, 3, 6, 11, @, 11, 15, 21, ., 5, 17, 15) -3) mod26
 = (9, 20, 12, 0, 3, 8, @, 8, 12, 18, ., 2, 14, 12)
 = Jumadi@IMS.com
 Mxpdgl123
 = ((12, 23, 15, 3, 6, 11, (1, 2, 3)) -3) mod26
 = (9, 20, 12, 0, 3, 8, (1, 2, 3))
 = Jumadi123

Then after doing a manual decryption of the sample data, then a computerized decryption will be carried out using the PHP programming language, the decryption source code can be seen in the image below.

```

43 public function decrypt($input)
44 {
45     $result = str_split($input);
46     for ($i = 0; $i < count($result); $i++) {
47         for ($j = 0; $j < 26; $j++) {
48             if ($result[$i] == CaesarCipher::alphabet["lowercase"][$j]) {
49                 $result[$i] = CaesarCipher::alphabet["lowercase"][$j + 26 - $this->shift] % 26;
50             }
51             if ($result[$i] == CaesarCipher::alphabet["uppercase"][$j]) {
52                 $result[$i] = CaesarCipher::alphabet["uppercase"][$j + 26 - $this->shift] % 26;
53             }
54         }
55     }
56     $result = implode($result);
57     return $result;
58 }
59 }
    
```

Figure 12. Source Code Chipertext Decryption Process to Plaintext

After going through the decryption process in the image above, the results will be obtained on the web view from the sample data fields taken, which are as follows:

NAMA KARYAWAN	USERNAME	KONTAK	EMAIL	AKSI
Jumadi	jumadi	0811235678	jumadi@IMS.com	Hapus Ubah
Haikal	haikal	085122116117	HaikalMahaen@IMS.com	Hapus Ubah

Figure 13. Master User Results of Chipertext Decryption to Plaintext

3.3.2 FIFO (First In First Out)

The FIFO implementation in this inventory system is where the admin will first enter the goods data

then the admin receives the incoming goods purchased in the purchase transaction. Then the employee makes a sale, when the process of selecting outgoing goods will be sorted based on the first incoming item taken from the smallest item id so that the stock and selling price will automatically change according to the order of incoming goods with the smallest item id. The following is the FIFO process source code for this inventory system:

```

1  session_start();
2  $id_barang = $_SESSION['id_barang'];
3
4  $total = .../...;
5
6  $data = array();
7  // $id_barang = $_SESSION['id_barang'];
8  // $jumlah = $_SESSION['jumlah'];
9  $data_id = array();
10 $data_barang = array();
11 $id = $id_barang;
12 $harga = $harga;
13
14 foreach ($SESSION['id_barang'] as $id_barang) {
15     $jumlah = $_SESSION['jumlah'][$id_barang];
16     $harga = $_SESSION['harga'][$id_barang];
17
18     // ...
19
20     // ...
21     // ...
22     $data_id = $id_barang;
23     $data_barang = $id_barang;
24     $data_id = $id_barang;
25
26     // ...
27
28     // ...
29     $data_id = $id_barang;
30     $data_barang = $id_barang;
31     $data_id = $id_barang;
32     $data_barang = $id_barang;
33
34     // ...
35
36     // ...
37     $data_id = $id_barang;
38     $data_barang = $id_barang;
39     $data_id = $id_barang;
40     $data_barang = $id_barang;
41
42     // ...
43
44     // ...
45     $data_id = $id_barang;
46     $data_barang = $id_barang;
47     $data_id = $id_barang;
48     $data_barang = $id_barang;
49
50     // ...
51
52     // ...
53     $data_id = $id_barang;
54     $data_barang = $id_barang;
55     $data_id = $id_barang;
56     $data_barang = $id_barang;
57
58     // ...
59
60     // ...
61     $data_id = $id_barang;
62     $data_barang = $id_barang;
63     $data_id = $id_barang;
64     $data_barang = $id_barang;
65
66     // ...
67
68     // ...
69     $data_id = $id_barang;
70     $data_barang = $id_barang;
71     $data_id = $id_barang;
72     $data_barang = $id_barang;
73
74     // ...
75
76     // ...
77     $data_id = $id_barang;
78     $data_barang = $id_barang;
79     $data_id = $id_barang;
80     $data_barang = $id_barang;
81
82     // ...
83
84     // ...
85     $data_id = $id_barang;
86     $data_barang = $id_barang;
87     $data_id = $id_barang;
88     $data_barang = $id_barang;
89
90     // ...
91
92     // ...
93     $data_id = $id_barang;
94     $data_barang = $id_barang;
95     $data_id = $id_barang;
96     $data_barang = $id_barang;
97
98     // ...
99
100    // ...
101    $data_id = $id_barang;
102    $data_barang = $id_barang;
103    $data_id = $id_barang;
104    $data_barang = $id_barang;
105
106    // ...
107
108    // ...
109    $data_id = $id_barang;
110    $data_barang = $id_barang;
111    $data_id = $id_barang;
112    $data_barang = $id_barang;
113
114    // ...
115
116    // ...
117    $data_id = $id_barang;
118    $data_barang = $id_barang;
119    $data_id = $id_barang;
120    $data_barang = $id_barang;
121
122    // ...
123
124    // ...
125    $data_id = $id_barang;
126    $data_barang = $id_barang;
127    $data_id = $id_barang;
128    $data_barang = $id_barang;
129
130    // ...
131
132    // ...
133    $data_id = $id_barang;
134    $data_barang = $id_barang;
135    $data_id = $id_barang;
136    $data_barang = $id_barang;
137
138    // ...
139
140    // ...
141    $data_id = $id_barang;
142    $data_barang = $id_barang;
143    $data_id = $id_barang;
144    $data_barang = $id_barang;
145
146    // ...
147
148    // ...
149    $data_id = $id_barang;
150    $data_barang = $id_barang;
151    $data_id = $id_barang;
152    $data_barang = $id_barang;
153
154    // ...
155
156    // ...
157    $data_id = $id_barang;
158    $data_barang = $id_barang;
159    $data_id = $id_barang;
160    $data_barang = $id_barang;
161
162    // ...
163
164    // ...
165    $data_id = $id_barang;
166    $data_barang = $id_barang;
167    $data_id = $id_barang;
168    $data_barang = $id_barang;
169
170    // ...
171
172    // ...
173    $data_id = $id_barang;
174    $data_barang = $id_barang;
175    $data_id = $id_barang;
176    $data_barang = $id_barang;
177
178    // ...
179
180    // ...
181    $data_id = $id_barang;
182    $data_barang = $id_barang;
183    $data_id = $id_barang;
184    $data_barang = $id_barang;
185
186    // ...
187
188    // ...
189    $data_id = $id_barang;
190    $data_barang = $id_barang;
191    $data_id = $id_barang;
192    $data_barang = $id_barang;
193
194    // ...
195
196    // ...
197    $data_id = $id_barang;
198    $data_barang = $id_barang;
199    $data_id = $id_barang;
200    $data_barang = $id_barang;
201
202    // ...
203
204    // ...
205    $data_id = $id_barang;
206    $data_barang = $id_barang;
207    $data_id = $id_barang;
208    $data_barang = $id_barang;
209
210    // ...
211
212    // ...
213    $data_id = $id_barang;
214    $data_barang = $id_barang;
215    $data_id = $id_barang;
216    $data_barang = $id_barang;
217
218    // ...
219
220    // ...
221    $data_id = $id_barang;
222    $data_barang = $id_barang;
223    $data_id = $id_barang;
224    $data_barang = $id_barang;
225
226    // ...
227
228    // ...
229    $data_id = $id_barang;
230    $data_barang = $id_barang;
231    $data_id = $id_barang;
232    $data_barang = $id_barang;
233
234    // ...
235
236    // ...
237    $data_id = $id_barang;
238    $data_barang = $id_barang;
239    $data_id = $id_barang;
240    $data_barang = $id_barang;
241
242    // ...
243
244    // ...
245    $data_id = $id_barang;
246    $data_barang = $id_barang;
247    $data_id = $id_barang;
248    $data_barang = $id_barang;
249
250    // ...
251
252    // ...
253    $data_id = $id_barang;
254    $data_barang = $id_barang;
255    $data_id = $id_barang;
256    $data_barang = $id_barang;
257
258    // ...
259
260    // ...
261    $data_id = $id_barang;
262    $data_barang = $id_barang;
263    $data_id = $id_barang;
264    $data_barang = $id_barang;
265
266    // ...
267
268    // ...
269    $data_id = $id_barang;
270    $data_barang = $id_barang;
271    $data_id = $id_barang;
272    $data_barang = $id_barang;
273
274    // ...
275
276    // ...
277    $data_id = $id_barang;
278    $data_barang = $id_barang;
279    $data_id = $id_barang;
280    $data_barang = $id_barang;
281
282    // ...
283
284    // ...
285    $data_id = $id_barang;
286    $data_barang = $id_barang;
287    $data_id = $id_barang;
288    $data_barang = $id_barang;
289
290    // ...
291
292    // ...
293    $data_id = $id_barang;
294    $data_barang = $id_barang;
295    $data_id = $id_barang;
296    $data_barang = $id_barang;
297
298    // ...
299
300    // ...
301    $data_id = $id_barang;
302    $data_barang = $id_barang;
303    $data_id = $id_barang;
304    $data_barang = $id_barang;
305
306    // ...
307
308    // ...
309    $data_id = $id_barang;
310    $data_barang = $id_barang;
311    $data_id = $id_barang;
312    $data_barang = $id_barang;
313
314    // ...
315
316    // ...
317    $data_id = $id_barang;
318    $data_barang = $id_barang;
319    $data_id = $id_barang;
320    $data_barang = $id_barang;
321
322    // ...
323
324    // ...
325    $data_id = $id_barang;
326    $data_barang = $id_barang;
327    $data_id = $id_barang;
328    $data_barang = $id_barang;
329
330    // ...
331
332    // ...
333    $data_id = $id_barang;
334    $data_barang = $id_barang;
335    $data_id = $id_barang;
336    $data_barang = $id_barang;
337
338    // ...
339
340    // ...
341    $data_id = $id_barang;
342    $data_barang = $id_barang;
343    $data_id = $id_barang;
344    $data_barang = $id_barang;
345
346    // ...
347
348    // ...
349    $data_id = $id_barang;
350    $data_barang = $id_barang;
351    $data_id = $id_barang;
352    $data_barang = $id_barang;
353
354    // ...
355
356    // ...
357    $data_id = $id_barang;
358    $data_barang = $id_barang;
359    $data_id = $id_barang;
360    $data_barang = $id_barang;
361
362    // ...
363
364    // ...
365    $data_id = $id_barang;
366    $data_barang = $id_barang;
367    $data_id = $id_barang;
368    $data_barang = $id_barang;
369
370    // ...
371
372    // ...
373    $data_id = $id_barang;
374    $data_barang = $id_barang;
375    $data_id = $id_barang;
376    $data_barang = $id_barang;
377
378    // ...
379
380    // ...
381    $data_id = $id_barang;
382    $data_barang = $id_barang;
383    $data_id = $id_barang;
384    $data_barang = $id_barang;
385
386    // ...
387
388    // ...
389    $data_id = $id_barang;
390    $data_barang = $id_barang;
391    $data_id = $id_barang;
392    $data_barang = $id_barang;
393
394    // ...
395
396    // ...
397    $data_id = $id_barang;
398    $data_barang = $id_barang;
399    $data_id = $id_barang;
400    $data_barang = $id_barang;
401
402    // ...
403
404    // ...
405    $data_id = $id_barang;
406    $data_barang = $id_barang;
407    $data_id = $id_barang;
408    $data_barang = $id_barang;
409
410    // ...
411
412    // ...
413    $data_id = $id_barang;
414    $data_barang = $id_barang;
415    $data_id = $id_barang;
416    $data_barang = $id_barang;
417
418    // ...
419
420    // ...
421    $data_id = $id_barang;
422    $data_barang = $id_barang;
423    $data_id = $id_barang;
424    $data_barang = $id_barang;
425
426    // ...
427
428    // ...
429    $data_id = $id_barang;
430    $data_barang = $id_barang;
431    $data_id = $id_barang;
432    $data_barang = $id_barang;
433
434    // ...
435
436    // ...
437    $data_id = $id_barang;
438    $data_barang = $id_barang;
439    $data_id = $id_barang;
440    $data_barang = $id_barang;
441
442    // ...
443
444    // ...
445    $data_id = $id_barang;
446    $data_barang = $id_barang;
447    $data_id = $id_barang;
448    $data_barang = $id_barang;
449
450    // ...
451
452    // ...
453    $data_id = $id_barang;
454    $data_barang = $id_barang;
455    $data_id = $id_barang;
456    $data_barang = $id_barang;
457
458    // ...
459
460    // ...
461    $data_id = $id_barang;
462    $data_barang = $id_barang;
463    $data_id = $id_barang;
464    $data_barang = $id_barang;
465
466    // ...
467
468    // ...
469    $data_id = $id_barang;
470    $data_barang = $id_barang;
471    $data_id = $id_barang;
472    $data_barang = $id_barang;
473
474    // ...
475
476    // ...
477    $data_id = $id_barang;
478    $data_barang = $id_barang;
479    $data_id = $id_barang;
480    $data_barang = $id_barang;
481
482    // ...
483
484    // ...
485    $data_id = $id_barang;
486    $data_barang = $id_barang;
487    $data_id = $id_barang;
488    $data_barang = $id_barang;
489
490    // ...
491
492    // ...
493    $data_id = $id_barang;
494    $data_barang = $id_barang;
495    $data_id = $id_barang;
496    $data_barang = $id_barang;
497
498    // ...
499
500    // ...
501    $data_id = $id_barang;
502    $data_barang = $id_barang;
503    $data_id = $id_barang;
504    $data_barang = $id_barang;
505
506    // ...
507
508    // ...
509    $data_id = $id_barang;
510    $data_barang = $id_barang;
511    $data_id = $id_barang;
512    $data_barang = $id_barang;
513
514    // ...
515
516    // ...
517    $data_id = $id_barang;
518    $data_barang = $id_barang;
519    $data_id = $id_barang;
520    $data_barang = $id_barang;
521
522    // ...
523
524    // ...
525    $data_id = $id_barang;
526    $data_barang = $id_barang;
527    $data_id = $id_barang;
528    $data_barang = $id_barang;
529
530    // ...
531
532    // ...
533    $data_id = $id_barang;
534    $data_barang = $id_barang;
535    $data_id = $id_barang;
536    $data_barang = $id_barang;
537
538    // ...
539
540    // ...
541    $data_id = $id_barang;
542    $data_barang = $id_barang;
543    $data_id = $id_barang;
544    $data_barang = $id_barang;
545
546    // ...
547
548    // ...
549    $data_id = $id_barang;
550    $data_barang = $id_barang;
551    $data_id = $id_barang;
552    $data_barang = $id_barang;
553
554    // ...
555
556    // ...
557    $data_id = $id_barang;
558    $data_barang = $id_barang;
559    $data_id = $id_barang;
560    $data_barang = $id_barang;
561
562    // ...
563
564    // ...
565    $data_id = $id_barang;
566    $data_barang = $id_barang;
567    $data_id = $id_barang;
568    $data_barang = $id_barang;
569
570    // ...
571
572    // ...
573    $data_id = $id_barang;
574    $data_barang = $id_barang;
575    $data_id = $id_barang;
576    $data_barang = $id_barang;
577
578    // ...
579
580    // ...
581    $data_id = $id_barang;
582    $data_barang = $id_barang;
583    $data_id = $id_barang;
584    $data_barang = $id_barang;
585
586    // ...
587
588    // ...
589    $data_id = $id_barang;
590    $data_barang = $id_barang;
591    $data_id = $id_barang;
592    $data_barang = $id_barang;
593
594    // ...
595
596    // ...
597    $data_id = $id_barang;
598    $data_barang = $id_barang;
599    $data_id = $id_barang;
600    $data_barang = $id_barang;
601
602    // ...
603
604    // ...
605    $data_id = $id_barang;
606    $data_barang = $id_barang;
607    $data_id = $id_barang;
608    $data_barang = $id_barang;
609
610    // ...
611
612    // ...
613    $data_id = $id_barang;
614    $data_barang = $id_barang;
615    $data_id = $id_barang;
616    $data_barang = $id_barang;
617
618    // ...
619
620    // ...
621    $data_id = $id_barang;
622    $data_barang = $id_barang;
623    $data_id = $id_barang;
624    $data_barang = $id_barang;
625
626    // ...
627
628    // ...
629    $data_id = $id_barang;
630    $data_barang = $id_barang;
631    $data_id = $id_barang;
632    $data_barang = $id_barang;
633
634    // ...
635
636    // ...
637    $data_id = $id_barang;
638    $data_barang = $id_barang;
639    $data_id = $id_barang;
640    $data_barang = $id_barang;
641
642    // ...
643
644    // ...
645    $data_id = $id_barang;
646    $data_barang = $id_barang;
647    $data_id = $id_barang;
648    $data_barang = $id_barang;
649
650    // ...
651
652    // ...
653    $data_id = $id_barang;
654    $data_barang = $id_barang;
655    $data_id = $id_barang;
656    $data_barang = $id_barang;
657
658    // ...
659
660    // ...
661    $data_id = $id_barang;
662    $data_barang = $id_barang;
663    $data_id = $id_barang;
664    $data_barang = $id_barang;
665
666    // ...
667
668    // ...
669    $data_id = $id_barang;
670    $data_barang = $id_barang;
671    $data_id = $id_barang;
672    $data_barang = $id_barang;
673
674    // ...
675
676    // ...
677    $data_id = $id_barang;
678    $data_barang = $id_barang;
679    $data_id = $id_barang;
680    $data_barang = $id_barang;
681
682    // ...
683
684    // ...
685    $data_id = $id_barang;
686    $data_barang = $id_barang;
687    $data_id = $id_barang;
688    $data_barang = $id_barang;
689
690    // ...
691
692    // ...
693    $data_id = $id_barang;
694    $data_barang = $id_barang;
695    $data_id = $id_barang;
696    $data_barang = $id_barang;
697
698    // ...
699
700    // ...
701    $data_id = $id_barang;
702    $data_barang = $id_barang;
703    $data_id = $id_barang;
704    $data_barang = $id_barang;
705
706    // ...
707
708    // ...
709    $data_id = $id_barang;
710    $data_barang = $id_barang;
711    $data_id = $id_barang;
712    $data_barang = $id_barang;
713
714    // ...
715
716    // ...
717    $data_id = $id_barang;
718    $data_barang = $id_barang;
719    $data_id = $id_barang;
720    $data_barang = $id_barang;
721
722    // ...
723
724    // ...
725    $data_id = $id_barang;
726    $data_barang = $id_barang;
727    $data_id = $id_barang;
728    $data_barang = $id_barang;
729
730    // ...
731
732    // ...
733    $data_id = $id_barang;
734    $data_barang = $id_barang;
735    $data_id = $id_barang;
736    $data_barang = $id_barang;
737
738    // ...
739
740    // ...
741    $data_id = $id_barang;
742    $data_barang = $id_barang;
743    $data_id = $id_barang;
744    $data_barang = $id_barang;
745
746    // ...
747
748    // ...
749    $data_id = $id_barang;
750    $data_barang = $id_barang;
751    $data_id = $id_barang;
752    $data_barang = $id_barang;
753
754    // ...
755
756    // ...
757    $data_id = $id_barang;
758    $data_barang = $id_barang;
759    $data_id = $id_barang;
760    $data_barang = $id_barang;
761
762    // ...
763
764    // ...
765    $data_id = $id_barang;
766    $data_barang = $id_barang;
767    $data_id = $id_barang;
768    $data_barang = $id_barang;
769
770    // ...
771
772    // ...
773    $data_id = $id_barang;
774    $data_barang = $id_barang;
775    $data_id = $id_barang;
776    $data_barang = $id_barang;
777
778    // ...
779
780    // ...
781    $data_id = $id_barang;
782    $data_barang = $id_barang;
783    $data_id = $id_barang;
784    $data_barang = $id_barang;
785
786    // ...
787
788    // ...
789    $data_id = $id_barang;
790    $data_barang = $id_barang;
791    $data_id = $id_barang;
792    $data_barang = $id_barang;
793
794    // ...
795
796    // ...
797    $data_id = $id_barang;
798    $data_barang = $id_barang;
799    $data_id = $id_barang;
800    $data_barang = $id_barang;
801
802    // ...
803
804    // ...
805    $data_id = $id_barang;
806    $data_barang = $id_barang;
807    $data_id = $id_barang;
808    $data_barang = $id_barang;
809
810    // ...
811
812    // ...
813    $data_id = $id_barang;
814    $data_barang = $id_barang;
815    $data_id = $id_barang;
816    $data_barang = $id_barang;
817
818    // ...
819
820    // ...
821    $data_id = $id_barang;
822    $data_barang = $id_barang;
823    $data_id = $id_barang;
824    $data_barang = $id_barang;
825
826    // ...
827
828    // ...
829    $data_id = $id_barang;
830    $data_barang = $id_barang;
831    $data_id = $id_barang;
832    $data_barang = $id_barang;
833
834    // ...
835
836    // ...
837    $data_id = $id_barang;
838    $data_barang = $id_barang;
839    $data_id = $id_barang;
840    $data_barang = $id_barang;
841
842    // ...
843
844    // ...
845    $data_id = $id_barang;
846    $data_barang = $id_barang;
847    $data_id = $id_barang;
848    $data_barang = $id_barang;
849
850    // ...
851
852    // ...
853    $data_id = $id_barang;
854    $data_barang = $id_barang;
855    $data_id = $id_barang;
856    $data_barang = $id_barang;
857
858    // ...
859
860    // ...
861    $data_id = $id_barang;
862    $data_barang = $id_barang;
863    $data_id = $id_barang;
864    $data_barang = $id_barang;
865
866    // ...
867
868    // ...
869    $data_id = $id_barang;
870    $data_barang = $id_barang;
871    $data_id = $id_barang;
872    $data_barang = $id_barang;
873
874    // ...
875
876    // ...
877    $data_id = $id_barang;
878    $data_barang = $id_barang;
879    $data_id = $id_barang;
880    $data_barang = $id_barang;
881
882    // ...
883
884    // ...
885    $data_id = $id_barang;
886    $data_barang = $id_barang;
887    $data_id = $id_barang;
888    $data_barang = $id_barang;
889
890    // ...
891
892    // ...
893    $data_id = $id_barang;
894    $data_barang = $id_barang;
895    $data_id = $id_barang;
896    $data_barang = $id_barang;
897
898    // ...
899
900    // ...
901    $data_id = $id_barang;
902    $data_barang = $id_barang;
903    $data_id = $id_barang;
904    $data_barang = $id_barang;
905
906    // ...
907
908    // ...
909    $data_id = $id_barang;
910    $data_barang = $id_barang;
911    $data_id = $id_barang;
912    $data_barang = $id_barang;
913
914    // ...
915
916    // ...
917    $data_id = $id_barang;
918    $data_barang = $id_barang;
919    $data_id = $id_barang;
920    $data_barang = $id_barang;
921
922    // ...
923
924    // ...
925    $data_id = $id_barang;
926    $data_barang = $id_barang;
927    $data_id = $id_barang;
928    $data_barang = $id_barang;
929
930    // ...
931
932    // ...
933    $data_id = $id_barang;
934    $data_barang = $id_barang;
935    $data_id = $id_barang;
936    $data_barang = $id_barang;
937
938    // ...
939
940    // ...
941    $data_id = $id_barang;
942    $data_barang = $id_barang;
943    $data_id = $id_barang;
944    $data_barang = $id_barang;
945
946    // ...
947
948    // ...
949    $data_id = $id_barang;
950    $data_barang = $id_barang;
951    $data_id = $id_barang;
952    $data_barang = $id_barang;
953
954    // ...
955
956    // ...
957    $data_id = $id_barang;
958    $data_barang = $id_barang;
959    $data_id = $id_barang;
960    $data_barang = $id_barang;
961
962    // ...
963
964    // ...
965    $data_id = $id_barang;
966    $data_barang = $id_barang;
967    $data_id = $id_barang;
968    $data_barang = $id_barang;
969
970    // ...
971
972    // ...
973    $data_id = $id_barang;
974    $data_barang = $id_barang;
975    $data_id = $id_barang;
976    $data_barang = $id_barang;
977
978    // ...
979
980    // ...
981    $data_id = $id_barang;
982    $data_barang = $id_barang;
983    $data_id = $id_barang;
984    $data_barang = $id_barang;
985
986    // ...
987
988    // ...
989    $data_id = $id_barang;
990    $data_barang = $id_barang;
991    $data_id = $id_barang;
992    $data_barang = $id_barang;
993
994    // ...
995
996    // ...
997    $data_id = $id_barang;
998    $data_barang = $id_barang;
999    $data_id = $id_barang;
1000   $data_barang = $id_barang;

```

Figure 14. FIFO Automation Source Code on the System

Pembelian Master		dd/mm/yyyy		- sampai - dd/mm/yyyy		Cetak Laporan
Nama Barang	Jumlah	Telah Keluar	Supplier	Harga Beli	Tanggal	Search: <input type="text"/>
ATTACK COLOUR 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.17,919/Box	16 Jan 2023	
ATTACK EASY 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.16,533/Box	16 Jan 2023	
ATTACK MAXIMIZER 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.17,919/Box	16 Jan 2023	
ATTACK SOFTENER 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.17,919/Box	16 Jan 2023	
BU KRIM 5000 MERAH 550G	225	0	PT. Karacoco Nucifera Pratama	Rp.5,247/Box	16 Jan 2023	
BUKRIM 5000 LEMON 550G	25	0	PT. Karacoco Nucifera Pratama	Rp.5,247/Box	16 Jan 2023	
RINSO ANTI NODA 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.15,246/Box	16 Jan 2023	
RINSO MOLTO 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.15,246/Box	16 Jan 2023	
SURF CLEAN FRESH 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.12,524/Box	16 Jan 2023	
SURF LEMON FRESH 900G	25	0	PT. Karacoco Nucifera Pratama	Rp.12,524/Box	16 Jan 2023	

Figure 15. Display Purchase Transaction Menu

It can be seen in the picture above that the FIFO method can be seen on the purchase transaction menu, the number of stock items will decrease and the items that are reduced are the first items purchased or the first items entered.

4. Conclusion

The conclusions of the thesis entitled: "SITORY Web-Based Inventory System Using the FIFO (First In First Out) Method and Caesar Chipper Algorithm" are as follows:

1. The application that has been designed aims to make it easier for users to carry out transaction activities for buying goods and selling goods.
2. With this inventory application, can help users in the process of obtaining information and managing inventory data
3. The data search feature in the inventory information system makes it easy to search for item data to be carried out by the sales process.
4. Minimizing data input errors during the process of buying and selling goods, as well as minimizing data recapitulation errors.
5. This information system can help speed up the process of making reports because the data is already stored in the database so that it is neatly arranged.
6. Information systems accelerate company performance because the available information data is ready to be processed from the database.
7. Data security is safer due to added data security features in the database and does not take up much office space in the company because it is stored on the server.

Reference

- [1] E. R. Wulan, "Komunikasi dan Teknologi Informasi Pendidikan." Accessed: Dec. 25, 2022. [Online]. Available: <http://digilib.uinsgd.ac.id/2257/6/tik.pdf>
- [2] "XAMPP," *Wikipedia*. 2022. [Online]. Available: <https://id.wikipedia.org/wiki/XAMPP>
- [3] ARI IRAWAN, "APLIKASI INVENTORY BARANG DAN ALAT BERBASIS WEB PADA BEBERAPA JURUSAN DI SMKN 4 PALEMBANG," pp. 1-80, 2021, Accessed: Dec. 25, 2022. [Online]. Available: http://repo.palcomtech.ac.id/id/eprint/808/1/PKL_SI_2021_ARI_IRAWAN.pdf
- [4] A. Attaqiy, "Sistem Informasi Persediaan Barang Pada Perusahaan Iron&Sun. Co." Universitas Komputer Indonesia, 2019.
- [5] Q. A. RAHMANI, "RANCANG DAN BANGUN APLIKASI STOCK MENGGUNAKAN METODE FIFO DI PT. CWT COMMODITIES SERVICES," *Kumpul. Karya Ilm. Mhs. Fak. sains dan Tekhnologi*, vol. 1, no. 1, p. 272, 2021.
- [6] Husen Mulachela, "Sistem Adalah Suatu Kesatuan, Berikut Teori dan Cirinya," 2022. [Online]. Available: <https://katadata.co.id/safrezi/berita/61f37503ef773/sistem-adalah-suatu-kesatuan-berikut-teori-dan-cirinya>
- [7] C. B. H. R. R. Coko Iskandar, "Analisis Dan Perancangan Sistem Basis Data Inventori Berbasis Web Pada Pusdatin Kementerian Perindustrian"
- [8] D. Lestari, "Sistem Informasi Inventory Bahan Baku Pada Resto Nonna Osteria Skripsi." Univeristas Komputer Indonesia, 2021.
- [9] E. N. SARI, "PENERAPAN METODE FIFO (first in first out) DALAMMENJAGA EFEKTIFITAS PERSEDIAANPERSPEKTIF EKONOMI ISLAM(Study Kasus Alfamart Sukadana)," *Inst. AGAMA Islam NEGERI METROTAHUN 1439 H / 2018 M*, 2018.
- [10] "Caesar cipher," *Wikipedia*. 2022. [Online]. Available: https://en.wikipedia.org/wiki/Caesar_cipher
- [11] Chris Savarese and Brian Hart, "The Caesar Cipher," *Cryptography*, 2010, [Online]. Available: <http://www.cs.trincoll.edu/~crypto/historical/caesar.html>
- [12] Egar Dika Santosa, "Implementasi Algoritma Caesar Cipher Dan Hill Cipher Pada Database Sistem Inventori Tb Mita Jepara," pp. 1-12, 2015.

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