



IMPLEMENTATION OF SEQUENTIAL SEARCHING ALGORITHMS ON SNABID SYSTEMS

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ABSTRACT

SNABID is a store that operates in the field of food industry, where its main activity is to produce and sell a variety of bakeries and cakes. SNABID has an online store website in which there is a catalog of products provided. The SNABID system has a product catalog search feature. The aim of this research is to implement the Sequential Searching algorithm to facilitate the search of products in the product catalog menu within the SNABID online store website. The phase of Sequential Searching algorithm is to determine the amount of data stored on an array, perform repetitions, perform matching of data on the array. If the data is the same as the one you are looking for, it means that the data has been found successfully. On the other hand, if until the end of the repeat does not have the same data as the one sought, it means that no data was found. The result of this research is that Sequential Searching algorithms can be applied to product searches based on product names and run well according to planning and almost all problems on the manual sales system can be solved with the presence of this SNABID system. In terms of storage, processing and processing become more efficient.

Keywords: SNABID, Sequential Searching algorithm, array,

I. INTRODUCTION

The rapid development of technology has a significant impact in various fields. Not exceptionally in the field of business sales and purchases especially in the business of bread stores that are increasingly competitive between business operators. Sales is one of the most important marketing activities in order to business goals[1].

SNABID is a store that operates in the field of food industry, where its main activity is to produce and sell a variety of bakeries and cakes. SNABID has many catalogues of good products ranging from the type of bakery, cake to wet cakes as a whole available. SNABID also already has an online store website that contains a catalogue of products provided, so customers can easily know the type of product until the ordering of products through the system occurs.

The SNABID system is made of course has a search feature (Searching) product catalog. The aim of this research is to implement the Sequential Searching algorithm to facilitate the search of products in the product catalog menu within the SNABID online store website. Search is a fundamental process in data processing. Sequential searching is a sequential search algorithm in which the process compares each element one by one in a row, from the first element to the element you are looking for in the find or the whole element has been checked [2].

In the SNABID system has been created, the search feature uses the Sequential Searching algorithm to find the product catalogues desired by customers. Product data that has been stored in the database is collected on an Array and then from the Array it will be done the search process with the Sequential Searching algorithm. If the data you are looking for is in the array, the data will be displayed. If not, the message will be displayed that the data is not available. Sequential search is the process of comparing each element of an array one by one in a row starting from the first element until the element sought is found or until the last element of the array is found[3].

The process of searching data with the Sequential Search method is quite simple and easy. The data search process is performed by matching the data performed in sequence one by one starting from the first data to the data in the last sequence[4].

The implementation of sequential searching algorithms on SNABID systems is web-based using the PHP programming language and user interface using Code Igniter as well as MySQL as a database server.

II. METHOD OF RESEARCH

A. Sequential Search Algorithm

Sequential search is the process of comparing each element of an array one by one in a row starting from the first element until the element sought is found or until the last element of the array.

The sequential search algorithm is as follows:

- a. First, the data is compared one by one in a row in the data set with the data being sought until that data is found or not found.
- b. Basically, this search only repeats data from 1 to the amount of data. (n).
- c. Each repeat compares the data to the data being sought.
- d. If the data is the same as the one you are looking for, it means that the data has been found successfully. On the other hand, if until the end of the repeat does not have the same data as the one sought, it means that no data was found[3].

B. Methods of system development

In the development phase of the SNABID system, this study used the waterfall method. The waterfall model provides a sequential or sequential approach to the software lifecycle ranging from analysis, coding design, testing, and support stages. (support). The waterfall method is a classic life cycle model whose application development process is carried out in sequence (systematic) of each stage [5]. The stages in the method of developing the waterfall system are as follows:



Fig. 1. The Waterfall Method

System needs analysis is carried out intensively to specify the software needs in order to be understood and adapted to the needs of the user. This needs analysis is defined objectively in terms of input and output needs. The collection needs can be obtained through observation or observation. The needs already acquired are then analyzed to obtain data that must be met by the program to be built.

Software design is a multi-step process that focuses on the design of software program creation including data structure, software architecture, interface representation, and encoding procedures. Once data is collected and system needs are known, then the data is processed into a database and determines its data structure. Then design the SNABID system architecture that will be built and implement the sequential searching algorithm so that it can be applied according to user needs using UML (Unified Modelling Language). Unified modelling language or more commonly referred to as UML is a tool that has an object-oriented modeling concept that describes systems like real life modeled in the form of objects and represented by specific symbols.[6]

After the design phase and generate the overall design and architecture of the implementation of sequential searching algorithms on the SNABID system that will be built using UML, then build the SNABID system by implementing the sequential Searching algorithm using PHP programming and user interface using the Codeigniter framework.

Testing focuses on software both logically and functionally to ensure that all parts have been tested. This is done to minimize errors and ensure the resulting output is as desired. Tests were also carried out on the SNABID system. The test was carried out using the blackbox testing method. Black box testing is called behavioral testing. Where the interior structure, the logic of the software tested is unknown to the testers. Testers are based on specifications and do not need to do code analysis. Black box testing is done from the end user's point of view [7].

In the support phase of the SNABID system on the SNABID Store this database backup is carried out periodically. In addition, structural or coding improvements are performed when debugging occurs when the application is used or implemented.

III. RESULTS AND SPEECH

The results of the study entitled Implementation of Sequential Searching Algorithms on SNABID Systems are as follows:

A. Login Menu



Fig. 2. Login Menu

When the application is first launched, the user must log in. Only users with an account can use the SNABID system. In this system, there are two levels of user: ordinary user (user) and admin. Users with a user level can access the menu dashboard, Product Features, Product basket while users with an admin level may access Master Data (Customer and Product), Transaction Data (Production and Inventory), and Overall report data. Admin can also add and remove new user accounts. On SNABID systems, then there is a password security system that uses MD5 as user information security.

B. User and Administrator Dashboard

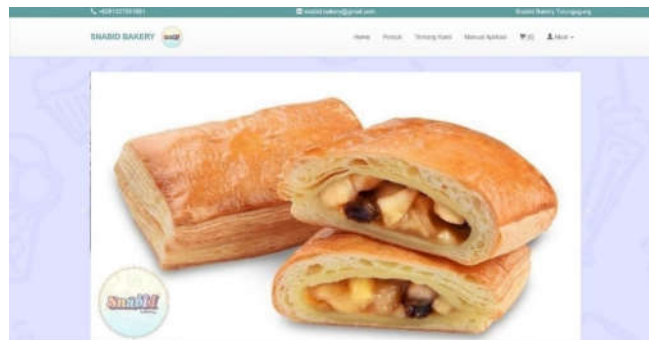


Fig. 3 User and Administrator Dashboard

On the User dashboard there are also menus Home, Products, About Us, Application Manual and Shopping Cart. On the status dashboard there are no users who are using the SNABID system. The user must first log in to access the entire menu. On the Admin dashboard there is also the menu Data Master, Transaction Data, Reports, Maintenance. On the status dashboard there is an Admin that is using the SNABID system.

C. Product Menu

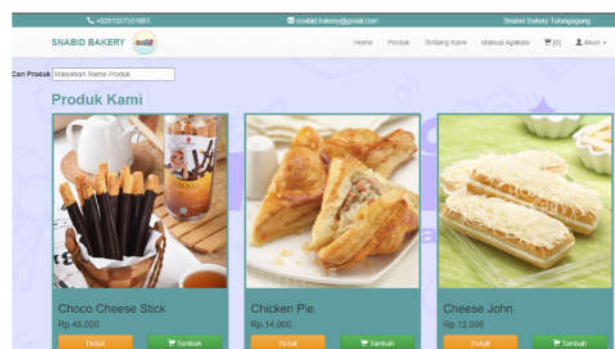


Fig. 4. Product Menu

Product menu can only be accessed by users who have logged into the SNABID system. In this product menu, users can see product data starting from product names and product prices. Then in this menu there is the product search feature to make it easier for users to find the product they want by entering the “name of the product”, then there is a product detail button and add to add the product to the shopping cart on the SNABID system.

D. The Shopping Chart and Manual Application Menu

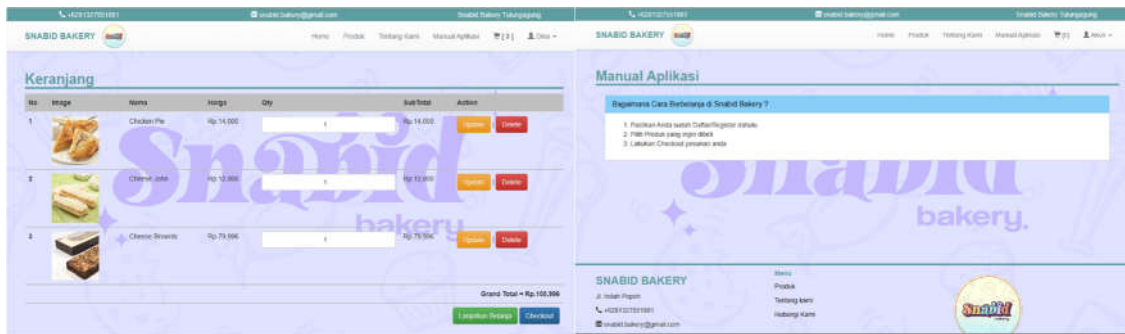


Fig. 5. The Shopping Chart and Manual Application Menu

The shopping cart menu can only be accessed by users who have logged in to the SNABID system. This menu has a function to accommodate the product variants that will be purchased by the user, then in the shopping cart also displays the amount purchased, the price per unit of the product to the total total transaction. The user can only check out to get the desired product. In the App Manual menu, the user can see how to shop in the SNABID system. The system also displays several procedures to facilitate users in shopping and creating accounts in the SNABID system.

E. About Us Menu

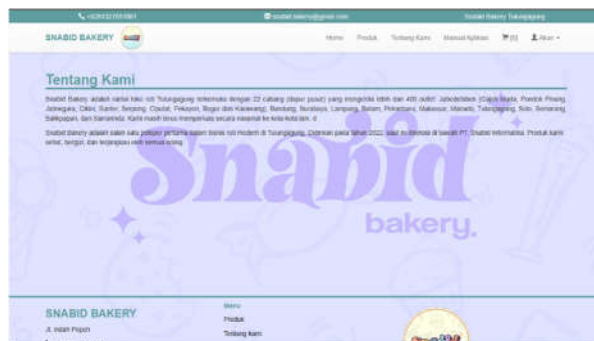


Fig. 6. About Us Menu

In the menu About Us there is information about SNABID bread stores from the number of branches to the progress marketing and the development of branch management in major cities. We also provide information about the first branches established so that they can have many branches in major cities, primarily Jabodetabek.

F. The Sequential Search Algorithm

Sequential Searching is a data search technique in which data is searched sequentially from front to back or from beginning to end. In the product menu there is a data search column, such as the image below.



Fig. 6. Product Search Menu

On this search feature Sequential Searching works when the user enters the search keyword in the search column then the system will work and find and display the data the user is looking for. If the data you are looking for is in the database, then the system will display the data as in Figure 7.

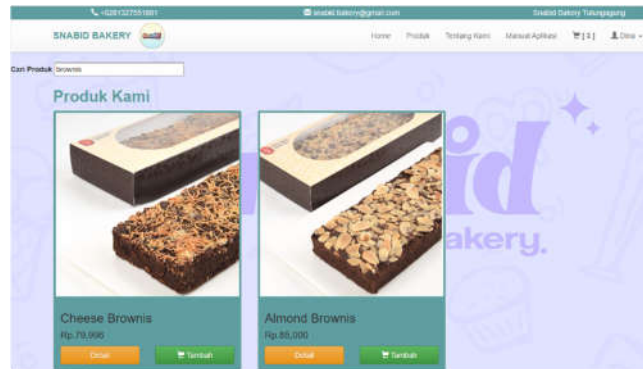


Fig. 7. Result Product Search

Sequential Searching algorithm occurs in real-time with other words the system performs the search directly when the user finishes typing keywords on the search column then in the intrusion, this technique utilizes the Java Event feature namely KeyEvent on the class java.awt.event.KeyEvent. With this technique the search will be simpler and faster to do. Here is a copy of the Sequential Searching algorithm code applied to the application in Figure 8.

```

1
2 public class Sequentialsearch {
3     public static void main(String[] args) {
4         String[] produk = {"Choco","Roti","Brownis","Bingka"};
5         sequentialSearch(produk,"Roti");
6     }
7
8     public static void sequentialSearch(String[]data,String keyword){
9         boolean status = false;
10        for (int i = 0; i<data.length; i++){
11            //cek apakah data di temukan
12            if (keyword.equalsIgnoreCase(data[i])){
13                System.out.println(keyword + " ditemukan pada posisi ke-" + (i+1) + " dan pada"
14                + "index ke-" + i);
15                status = true;
16                break;
17            }
18        }
19        //ketika data tidak ditemukan
20        if(status == false){
21            System.out.println(keyword + "Tidak ditemukan");
22        }
23    }
24 }
25

```

Fig. 8. Code Program Java Class

In Figure 5, Method sequential search has two parameters: array and key, where array is a collection of data with an integer type and key is the keyword or data that will be searched on the collection. A method is a set of instructions or program commands that are given a specific name. The Algorithm of Sequential Search is all data stored in the database in the call is then saved in the array. On the data array that is stored only the product name only because the search will be done based on the name of the product only according to the plan in the previous chapter. This is the sequential search algorithm:

1. Determine the amount of data stored in the array. $\text{Int } i = \text{data.length}$
2. Repeat FOR as much as the amount of data and perform a sequential or sequential search for the data stored in the data array. $\text{for } (\text{int } i = 0; i < \text{data.length}; i++)$
3. Determine the matching of data stored in the array with the keyword searched (key) using the IF command. $\text{if } (\text{data}[i] == \text{key})$

V. CONCLUSION

From the results of the analysis, planning, testing and implementation of programs that have been carried out against the SNABID system, it can be concluded as follows:

1. The speed system works well. From the test results of the various aspects of the application have been in line with the planning and research objectives.

2. Sequential searching algorithms can be applied to product searches based on product names and run well as planned.

3. Almost all problems on the manual sales system can be solved with the presence of this SNABID system. In terms of storage, processing and processing become more efficient.

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