

## Apriori Algorithm For Analyzing Supermarket Shopping Transactions At Xyz Store

Leny Tritanto Ningrum<sup>1\*</sup>, Lukas Umbu Zogara<sup>2</sup>

<sup>1</sup> Sistem Informasi, Universitas Binaniaga Indonesia, Indonesia

<sup>2</sup> Teknik Informatika, Universitas UTPAS, Indonesia

### ABSTRACT

Every company or organization must make the right business strategy to achieve the desired target. The result of each sales data in a company is the occurrence of data that is accumulated and centralized in a database. This is a very useful thing to be able to do an analysis. Many variations of goods are traded, and based on that, it will affect a person's mindset to get products that have similar consumption patterns, find out which products have the highest sales prices and the relationship between customer buying interest in a product and other products. Requires one method. With a priori methods, products that appear can be known simultaneously. A priori methods are included in association rules in data mining. One phase of the method of analyzing the connectedness of a product that is currently applied by researchers in creating a good algorithm is by analyzing frequency patterns. The importance of product relatedness can be identified by two parameters, namely: support and confidence. Support (support value) is the percentage of combinations of items in the database, while confidence (certainty value) means a strong correlation between items in the law of association. a priori solution procedures can help the development of marketing management.

**Keywords:** Algorith; data mining; strategy

Corresponding author: (lenytrinie@gmail.com)

History of Article: Received: July 2022. Revision: August 2022. Published: September 2022.

### Introduction

Utilization of data contained in the decision-making activity support system is not enough to rely only on operational data, it is hoped that a data analysis can be used to explore the potential of stored information. Utilizing the data warehouse that has been owned to explore information that is useful in helping to make decisions, this encourages the release of a branch of science in this case related to extracting important information or patterns or pulling large amounts of data called data mining. The purpose of this research is to find product combinations that are likely to be sold simultaneously based on analysis of customer consumption patterns. Thus it can be determined which products will be stored close to the product place so that it will be able to analyze customer interest in buying related products.

Related research on the a priori algorithm has been carried out by several researchers but on different research objects. As for some case studies research completed using the apriori algorithm, namely research conducted by Sheih Al Syahdan and Anita Sindar (2018) with the title of research with the theme of product sales data mining with the apriori method in mini markets, research conducted by Nurdin and Dewi Astika (2015) which discusses research on data mining techniques as an analysis of sales of goods using apriori in supermarkets, and research by Endah Nursalamah and Nurissaidah Ulinnuha (2017) on analyzing customer consumption patterns for purchasing drugs and medical devices at a mother and child clinic using the apriori algorithm. Based on the description of the research that has been done, it can be described that the apriori algorithm is suitable for application in various fields or sales products in the hope of finding a combination of product sales patterns that match customer

interests, thus in this study the apriori algorithm will be used to analyze customers in order to analyze the consumption patterns of each consumer.

## **Research Method**

### **Data Mining**

Data mining is a process of automatically finding useful information in large data storage areas. The stages of data mining include: Data cleaning, Data merging, Attribute selection, Data transformation (changing the form of data so that it can be processed at the analysis stage), Data mining (the main intelligence process used to form data patterns), Pattern evolution (forming data patterns that represent knowledge of certain data), Knowledge presentation (creating visualizations of the data patterns formed).

### **Apriori Algorithm**

The Apriori algorithm is one of the algorithms for finding the frequency of frequent itemsets using association rule techniques. The Apriori algorithm uses previously known attribute frequency knowledge to process other information. Apriori algorithm identifies possible candidates with respect to minimum support and minimum confidence. Support is the visitor value or percentage of the combination of items in the database. (Erwin, 2009).

## **Result**

The system procedure that runs on this research is that the customer comes to the store and selects the available items based on the store display.

If there is no match then the customer will choose another item or leave the store.

### **Apriori Algorithm Calculation**

Referring to the sales data of staples in a store, all transactions that occur can be recapitulated and used as a reference for data analysis. Recapitulation of product sales data is obtained from monthly sales 2018 from January to November, per-product sales data is shown in Table 1.

Table 1. Supermarket Transaction Patterns

<b>NO</b>	<b>Itemset</b>
1	Deterjen, Kecap, Permen
2	Deterjen, Kecap, Permen
3	Deterjen, Kecap, Sabun
4	Deterjen, Kecap, Snack
5	Deterjen, Kecap, Susu, Permen, Tepung
6	Deterjen, Kecap, Susu, Sabun
7	Deterjen, Kecap, Susu, Sabun
8	Deterjen, Kecap, Susu, Sabun, Permen, Tepung
9	Deterjen, Kecap, Susu, Sabun, Snack
10	Deterjen, Kecap, Susu, Sabun, Snack, Tepung
11	Deterjen, Kecap, Susu, Sabun, Tepung
12	Deterjen, Kecap, Susu, Sabun, Tepung

---

13	Deterjen, Kecap, Susu, Snack, Permen
14	Deterjen, Kecap, Susu, Tepung
15	Deterjen, Minyak, Kecap, Permen, Tepung
16	Deterjen, Minyak, Kecap, Sabun, Snack, Permen, Tepung
17	Deterjen, Minyak, Kecap, Sabun, Tepung
18	Deterjen, Minyak, Kecap, Snack, Permen
19	Deterjen, Minyak, Kecap, Susu, Permen
20	Deterjen, Minyak, Kecap, Susu, Snack, Permen
21	Deterjen, Minyak, Kecap, Susu, Tepung
22	Deterjen, Minyak, Permen, Tepung
23	Deterjen, Minyak, Sabun, Permen, Tepung
24	Deterjen, Minyak, Sabun, Snack
25	Deterjen, Minyak, Sabun, Snack, Tepung
26	Deterjen, Minyak, Sabun, Snack, Tepung
27	Deterjen, Minyak, Susu, Permen
28	Deterjen, Sabun, Tepung
29	Deterjen, Snack
30	Deterjen, Snack, Permen
31	Deterjen, Snack, Tepung
32	Deterjen, Susu, Permen, Tepung
33	Deterjen, Susu, Sabun, Snack
34	Deterjen, Susu, Tepung

---

35	Kecap, Permen
36	Kecap, Permen, Tepung
37	Kecap, Sabun
38	Kecap, Sabun

---

---

39	Kecap, Sabun, Snack
40	Kecap, Sabun, Tepung
41	Kecap, Snack, Permen
42	Kecap, Snack, Permen, Tepung
43	Kecap, Snack, Permen, Tepung
44	Kecap, Susu, Sabun
45	Kecap, Susu, Sabun, Snack, Tepung
46	Minyak, Kecap
47	Minyak, Kecap, Sabun, Permen, Tepung
48	Minyak, Kecap, Sabun, Tepung
49	Minyak, Kecap, Snack, Tepung
50	Minyak, Kecap, Susu
51	Minyak, Kecap, Susu, Sabun, Snack
52	Minyak, Kecap, Susu, Snack, Permen
53	Minyak, Kecap, Susu, Snack, Permen, Tepung
54	Minyak, Permen, Tepung
55	Minyak, Sabun, Snack
56	Minyak, Sabun, Snack, Permen
57	Minyak, Sabun, Tepung
58	Minyak, Susu
59	Permen, Tepung
60	Sabun, Snack, Permen, Tepung
61	Sabun, Tepung
62	Susu

---

---

63	Susu
64	Susu, Permen
65	Susu, Sabun
66	Susu, Sabun
67	Susu, Sabun, Snack, Tepung
68	Susu, Snack, Permen
69	Telur
70	Telur, Deterjen, Kecap, Permen, Tepung
71	Telur, Deterjen, Kecap, Sabun, Permen, Tepung
72	Telur, Deterjen, Kecap, Sabun, Snack
73	Telur, Deterjen, Kecap, Snack
74	Telur, Deterjen, Kecap, Snack, Permen
75	Telur, Deterjen, Kecap, Susu, Permen
76	Telur, Deterjen, Kecap, Susu, Sabun
77	Telur, Deterjen, Kecap, Susu, Sabun, Snack, Permen
78	Telur, Deterjen, Kecap, Susu, Sabun, Snack, Permen, Tepung
79	Telur, Deterjen, Kecap, Susu, Snack, Tepung
80	Telur, Deterjen, Kecap, Susu, Snack, Tepung
81	Telur, Deterjen, Kecap, Susu, Tepung
82	Telur, Deterjen, Minyak
83	Telur, Deterjen, Minyak, Kecap, Permen

---

84	Telur, Deterjen, Minyak, Kecap, Permen
85	Telur, Deterjen, Minyak, Kecap, Permen, Tepung
86	Telur, Deterjen, Minyak, Kecap, Sabun, Snack

---

---

87	Telur, Deterjen, Minyak, Kecap, Sabun, Snack
88	Telur, Deterjen, Minyak, Kecap, Sabun, Snack, Permen, Tepung
89	Telur, Deterjen, Minyak, Kecap, Sabun, Snack, Tepung
90	Telur, Deterjen, Minyak, Kecap, Sabun, Snack, Tepung
91	Telur, Deterjen, Minyak, Kecap, Snack, Permen
92	Telur, Deterjen, Minyak, Kecap, Snack, Permen, Tepung
93	Telur, Deterjen, Minyak, Kecap, Snack, Permen, Tepung
94	Telur, Deterjen, Minyak, Kecap, Snack, Tepung
95	Telur, Deterjen, Minyak, Kecap, Susu, Permen
96	Telur, Deterjen, Minyak, Kecap, Susu, Permen, Tepung
97	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Permen, Tepung
98	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Permen, Tepung
99	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Snack
100	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Snack, Permen, Tepung
101	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Snack, Permen, Tepung
102	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Tepung
103	Telur, Deterjen, Minyak, Kecap, Susu, Sabun, Tepung
104	Telur, Deterjen, Minyak, Kecap, Susu, Snack, Permen, Tepung
105	Telur, Deterjen, Minyak, Kecap, Susu, Tepung
106	Telur, Deterjen, Minyak, Kecap, Tepung
107	Telur, Deterjen, Minyak, Sabun

---

108	Telur, Deterjen, Minyak, Sabun, Snack
109	Telur, Deterjen, Minyak, Sabun, Snack, Permen, Tepung
110	Telur, Deterjen, Minyak, Snack, Permen
111	Telur, Deterjen, Minyak, Snack, Permen

- 112 Telur, Deterjen, Minyak, Susu,  
Permen
- 113 Telur, Deterjen, Minyak, Susu,  
Permen, Tepung
- 114 Telur, Deterjen, Minyak, Susu,  
Permen, Tepung
- 115 Telur, Deterjen, Minyak, Susu, Sabun
- 116 Telur, Deterjen, Minyak, Susu, Snack,  
Tepung
- 117 Telur, Deterjen, Permen
- 118 Telur, Deterjen, Permen, Tepung
- 119 Telur, Deterjen, Sabun
- 120 Telur, Deterjen, Snack
- 121 Telur, Deterjen, Snack
- 122 Telur, Deterjen, Snack
- 123 Telur, Deterjen, Snack
- 124 Telur, Deterjen, Snack, Permen
- 125 Telur, Deterjen, Susu
- 126 Telur, Deterjen, Susu, Permen
- 127 Telur, Deterjen, Susu, Sabun, Snack,  
Permen, Tepung
- 128 Telur, Deterjen, Susu, Sabun, Tepung
- 129 Telur, Deterjen, Tepung
- 130 Telur, Kecap, Sabun
- 131 Telur, Kecap, Sabun, Snack, Permen
- 
- 132 Telur, Kecap, Sabun, Snack, Permen
- 133 Telur, Kecap, Sabun, Snack, Tepung
- 134 Telur, Kecap, Susu
- 135 Telur, Kecap, Susu, Sabun, Snack,  
Permen, Tepung
- 136 Telur, Kecap, Susu, Snack, Permen

137	Telur, Kecap, Susu, Snack, Permen
138	Telur, Kecap, Susu, Snack, Permen, Tepung
139	Telur, Kecap, Susu, Snack, Permen, Tepung
140	Telur, Minyak
141	Telur, Minyak, Kecap, Permen
142	Telur, Minyak, Kecap, Sabun, Permen, Tepung
143	Telur, Minyak, Kecap, Sabun, Snack, Permen, Tepung
144	Telur, Minyak, Kecap, Snack
145	Telur, Minyak, Kecap, Snack, Tepung
146	Telur, Minyak, Kecap, Snack, Tepung
147	Telur, Minyak, Kecap, Snack, Tepung
148	Telur, Minyak, Kecap, Susu, Permen, Tepung
149	Telur, Minyak, Kecap, Susu, Sabun, Snack
150	Telur, Minyak, Kecap, Susu, Sabun, Snack, Permen, Tepung
151	Telur, Minyak, Kecap, Susu, Sabun, Snack, Permen, Tepung
152	Telur, Minyak, Kecap, Susu, Sabun, Tepung
153	Telur, Minyak, Kecap, Susu, Snack, Permen
154	Telur, Minyak, Kecap, Susu, Snack, Tepung
155	Telur, Minyak, Kecap, Susu, Tepung
156	Telur, Minyak, Kecap, Tepung
<hr/>	
157	Telur, Minyak, Permen
158	Telur, Minyak, Permen, Tepung
159	Telur, Minyak, Sabun, Snack, Permen, Tepung
160	Telur, Minyak, Sabun, Snack, Tepung
161	Telur, Minyak, Snack, Permen



162 Telur, Minyak, Snack, Permen,  
Tepung

163 Telur, Minyak, Snack, Permen,  
Tepung

164 Telur, Minyak, Snack, Tepung

165 Telur, Minyak, Susu

166 Telur, Minyak, Susu, Permen, Tepung

167 Telur, Minyak, Susu, Sabun, Permen

168 Telur, Minyak, Susu, Sabun, Permen,  
Tepung

169 Telur, Minyak, Susu, Sabun, Permen,  
Tepung

170 Telur, Minyak, Susu, Sabun, Snack

171 Telur, Minyak, Susu, Sabun, Snack,  
Permen

172 Telur, Minyak, Susu, Sabun, Snack,  
Tepung

173 Telur, Minyak, Susu, Sabun, Tepung

174 Telur, Minyak, Susu, Snack, Permen,  
Tepung

175 Telur, Minyak, Susu, Snack, Permen,  
Tepung

176 Telur, Minyak, Susu, Tepung

177 Telur, Minyak, Tepung

178 Telur, Sabun, Permen

179 Telur, Sabun, Snack

---

180 Telur, Sabun, Snack, Permen, Tepung

181 Telur, Sabun, Tepung

182 Telur, Sabun, Tepung

183 Telur, Snack, Tepung

184 Telur, Susu

185 Telur, Susu, Sabun, Permen

186	Telur, Susu, Sabun, Snack, Permen, Tepung
187	Telur, Susu, Sabun, Snack, Tepung
188	Telur, Susu, Sabun, Tepung
189	Telur, Susu, Snack, Permen, Tepung
190	Telur, Tepung
191	Tepung
192	Tepung, Kecap, Susu, Sabun,
193	Deterjen, Kecap,, Sabun, Snack
194	Deterjen, Kecap, Susu, Sabun, Snack
195	Deterjen, Kecap, Susu, Sabun, Snack, Tepung
196	Deterjen, Kecap, Susu, Sabun, Snack
197	Deterjen, Kecap, Sabun, Snack
198	Deterjen, Kecap, Susu, Sabun, Snack
199	Deterjen, Kecap, Susu, Sabun, Snack
200	Kecap, Susu, Sabun, Snack

---

The tabular format of monthly transaction data, as shown in the following table:

Table 2. Monthly Transaction Data

Bulan	Deterjen	Kecap	Permen	Sabun	Snack	Tepung	Minyak	Susu	Telur
Januari	10	10	10	11	10	19	15	7	15
Februari	9	4	3	6	6	3	5	5	5
Maret	8	12	8	8	8	12	9	5	11
April	10	10	8	5	10	4	7	8	15
Mei	5	6	5	8	6	8	4	4	6
Juni	12	10	8	7	8	7	8	6	12
Juli	13	12	14	10	14	14	11	16	17
Agustus	9	11	10	15	12	10	11	13	14
September	9	7	9	7	8	8	8	9	10
Oktober	12	16	8	8	6	9	13	10	7
November	4	5	6	5	7	6	5	9	10

### Transaction Pattern Analysis Process Based on Frequency

The steps taken to determine transaction patterns can be seen with the k1 example based on the data that has been obtained.

The process of forming C1 or called 1 itemset with a minimum amount of support = 30%. The following is the calculation of the formation of 1 itemset.

$$S(\text{Deterjen}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen}}{\sum 200} = \frac{101}{200} * 100\% = 50,5\%$$

$$S(\text{Kecap}) = \frac{\sum \text{Transaksi Fang Mengandung Kecap}}{\sum 200} = \frac{103}{200} * 100\% = 51,5\%$$

$$S(\text{Permen}) = \frac{\sum \text{Transaksi Fang Mengandung Permen}}{\sum 200} = \frac{89}{200} * 100\% = 44,5\%$$

$$S(\text{Sabun}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun}}{\sum 200} = \frac{90}{200} * 100\% = 45\%$$

$$S(\text{Snack}) = \frac{\sum \text{Transaksi Fang Mengandung Snack}}{\sum 200} = \frac{95}{200} * 100\% = 47,5\%$$

$$S(\text{Tepung}) = \frac{\sum \text{Transaksi Fang Mengandung Tepung}}{\sum 200} = \frac{100}{200} * 100\% = 50\%$$

$$S(\text{Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Minyak}}{\sum 200} = \frac{96}{200} * 100\% = 48,5\%$$

$$S(\text{Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Susu}}{\sum 200} = \frac{92}{200} * 100\% = 46\%$$

$$S(\text{Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Telur}}{\sum 200} = \frac{122}{200} * 100\% = 61\%$$

Table 3. Support of Each Item

Itemset	Support
Deterjen	50,5%
Kecap	51,5%
Permen	44,5%
Sabun	45%
Snack	47,5%
Tepung	50%
Minyak	48,5%
Susu	46%
Telur	61%

The next process is the formation of C2 or called 2 itemsets with a minimum amount of support = 30%. The following is the calculation of the formation of C2 or 2 itemsets:

$$S(\text{Deterjen Kecap}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Kecap}}{\sum 200} = \frac{33}{200} * 100\% = 16,5\%$$

$$S(\text{Deterjen Permen}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Permen}}{\sum 200} = \frac{2}{200} * 100\% = 1\%$$

$$S(\text{Deterjen Sabun}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Sabun}}{\sum 200} = \frac{4}{200} * 100\% = 2\%$$

$$S(\text{Deterjen Snack}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Snack}}{\sum 200} = \frac{8}{200} * 100\% = 4\%$$

$$S(\text{Deterjen Tepung}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Tepung}}{\sum 200} = \frac{1}{200} * 100\% = 0,5\%$$

$$S(\text{Deterjen Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Minyak}}{\sum 200} = \frac{48}{200} * 100\% = 24\%$$

$$S(\text{Deterjen Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Susu}}{\sum 200} = \frac{7}{200} * 100\% = 3,5\%$$

$$S(\text{Deterjen Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Deterjen dan Telur}}{\sum 200} = \frac{59}{200} * 100\% = 29,5\%$$

$$S(\text{Kecap Permen}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan permen}}{\sum 200} = \frac{10}{200} * 100\% = 5\%$$

$$S(\text{Kecap Sabun}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan Sabun}}{\sum 200} = \frac{24}{200} * 100\% = 12\%$$

$$S(\text{Kecap Snack}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan Snack}}{\sum 200} = \frac{16}{200} * 100\% = 8\%$$

$$S(\text{Kecap Tepung}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan tepung}}{\sum 200} = \frac{2}{200} * 100\% = 1\%$$

$$S(\text{Kecap Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan minyak}}{\sum 200} = \frac{0}{200} * 100\% = 0\%$$

$$S(\text{Kecap Susu}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan susu}}{\sum 200} = \frac{58}{200} * 100\% = 29\%$$

$$S(\text{Kecap Telur}) = \frac{\sum \text{Transaksi Fang Mengandung kecap dan telur}}{\sum 200} = \frac{10}{200} * 100\% = 5\%$$

$$S(\text{Permen Sabun}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan sabun}}{\sum 200} = \frac{12}{200} * 100\% = 6\%$$

$$S(\text{Permen Snack}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan snack}}{\sum 200} = \frac{49}{200} * 100\% = 24,5\%$$

$$S(\text{Permen Tenun}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan tepung}}{\sum 200} = \frac{53}{200} * 100\% = 26,5\%$$

$$S(\text{Permen Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan minyak}}{\sum 200} = \frac{4}{200} * 100\% = 2\%$$

$$S(\text{Permen Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan susu}}{\sum 200} = \frac{14}{200} * 100\% = 7\%$$

$$S(\text{Permen Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Permen dan sabun}}{\sum 200} = \frac{0}{200} * 100\% = 0\%$$

$$S(\text{Sabun Snack}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun dan snack}}{\sum 200} = \frac{53}{200} * 100\% = 26,5\%$$

$$S(\text{Sabun Tepung}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun dan tepung}}{\sum 200} = \frac{15}{200} * 100\% = 7,5\%$$

$$S(\text{Sabun Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun dan minyak}}{\sum 200} = \frac{12}{200} * 100\% = 6\%$$

$$S(\text{Sabun Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun dan Susu}}{\sum 200} = \frac{49}{200} * 100\% = 24,5\%$$

$$S(\text{Sabun telur}) = \frac{\sum \text{Transaksi Fang Mengandung Sabun dan Snack}}{\sum 200} = \frac{5}{200} * 100\% = 2,5\%$$

$$S(\text{Snack Tepung}) = \frac{\sum \text{Transaksi Fang Mengandung Snack dan susu}}{\sum 200} = \frac{24}{200} * 100\% = 12\%$$

$$S(\text{Snack Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Snack dan minyak}}{\sum 200} = \frac{6}{200} * 100\% = 3\%$$

$$S(\text{Snack Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Snack dan susu}}{\sum 200} = \frac{18}{200} * 100\% = 9\%$$

$$S(\text{Snack Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Snack dan telur}}{\sum 200} = \frac{1}{200} * 100\% = 0,5\%$$

$$S(\text{Tepung Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Tepung dan minyak}}{\sum 200} = \frac{1}{200} * 100\% = 0,5\%$$

$$S(\text{Tepung Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Tepung dan susu}}{\sum 200} = \frac{7}{200} * 100\% = 3,5\%$$

$$S(\text{Tepung Minyak}) = \frac{\sum \text{Transaksi Fang Mengandung Tepung dan minyak}}{\sum 200} = \frac{1}{200} * 100\% = 0,5\%$$

$$S(\text{Tepung Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Tepung dan telur}}{\sum 200} = \frac{1}{200} * 100\% = 0,5\%$$

$$S(\text{Susu Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Susu dan telur}}{\sum 200} = \frac{6}{200} * 100\% = 3\%$$

$$S(\text{Minyak Susu}) = \frac{\sum \text{Transaksi Fang Mengandung Minyak dan Susu}}{\sum 200} = \frac{19}{200} * 100\% = 9,5\%$$

$$S(\text{Minyak Telur}) = \frac{\sum \text{Transaksi Fang Mengandung Minyak dan telur}}{\sum 200} = \frac{38}{200} * 100\% = 19\%$$

Tabel 4. Tabel Itemset

temset	Jumlah	Support
Deterjen kecap	33	16,5%
Deterjen Permen)	2	0%
Deterjen Sabun	4	2%
Deterjen Snack	8	4%
Deterjen Tepung	1	0,5%
Deterjen Minyak	48	24%
Deterjen Susu	7	3,5%
Deterjen Telur	59	29,5%
Kecap Permen	10	5%
Kecap Sabun	24	12%
Kecap snack	16	8%
Kecap Tepung	2	1%
Kecap Minyak	0	0,5%
Kecap Susu	58	29%

temset	Jumlah	Support
Kecap Telur	10	5%
Permen Sabun	12	6%
Permen Snack	49	24,5
Permen Tepung	53	26,5%
Permen Minyak)	4	2%
Permen Susu	14	7%
Permen Telur	0	0,5%
Sabun Snack	53	26,5%

---

Sabun Tepung	15	7.5%
Sabun Minyak	12	6%
Sabun Susu	49	24,5%
Sabun Snack	53	26.5%
Sabun Telur	5	2,5%
Snack Tepung	24	12%
Snack Minyak	6	3%
Snack Susu	18	9%
Snack Telur)	1	0,5%
Tepung Minyak	1	0,5%
Tepung Susu	7	3,5%
Tepung Telur	1	0,5%
Minyak Susu	19	9,5%
Minyak Telur	38	19%
Susu Telur	6	3%

---

## **Conclusion**

One of the algorithms with a priori techniques on shopping transactions can be applied to support the marketing strategy of companies or other institutions. Making information about the application of promotions available and allowing management to make quick decisions. Implementing an advertising strategy is very important for slow retail. Supporting strategy implementation with a priori algorithms aims to increase the effectiveness of strategy implementation. The algorithm with the a priori method is applied by manual calculation. This is proven by calculating the support and trust values. This a priori algorithm can be applied not only to companies such as the strategy implementation process, but also to other processes that may involve relationships between several other environmental elements or cross-market analysis strategies. In addition, the author suggests that this a priori algorithm-based decision-making method can be compared with other methods..

## **Reference (11pt, Bold)**

- Peng, K., Leung, V. C., & Huang, Q. (2018). Clustering approach based on mini batch kmeans for intrusion detection system over big data. *IEEE Access*, 6, 11897-11906.
- Sari, R. W., Wanto, A., & Windarto, A. P. (2018). Implementasi Rapidminer Dengan Metode K-Means (Study Kasus: Imunisasi Campak Pada Balita Berdasarkan Provinsi). *KOMIK (Konferensi Nasional Teknologi Informasi dan Komputer)*, 2(1).
- Sibuea, M. L., & Safta, A. (2017). Pemetaan Siswa Berprestasi Menggunakan Metode K- Means Clustering. *JURTEKSI (Jurnal Teknologi dan Sistem Informasi)*, 4(1), 85-92.
- Astria, C., Windarto, A. P., Wanto, A., & Irawan, E. (2019, August). Metode K-Means Pada Pengelompokan Wilayah Pendistribusian Listrik. In *Seminar Nasional Sains dan Teknologi Informasi (SENSASI) (Vol. 2, No. 1)*.
- Handoko, K. (2016). Penerapan Data Mining dalam Meningkatkan Mutu Pembelajaran Menggunakan Metode K-MEANS Clustering. *Jurnal Nasional Teknologi dan Sistem Informasi*, 2(3), 31-40.
- H. Ayasso and A. Mohammad-Djafari, "Joint NDT Al Syahdan, S., & Sindar, A. (2018). Data Mining Penjualan Produk Dengan Metode Apriori Pada Indomaret Galang Kota. *Jurnal Nasional Komputasi dan Teknologi Informasi*, 1(2), 268080.
- Nurdin, N., & Astika, D. (2019). Penerapan Data Mining Untuk Menganalisis Penjualan Barang Dengan Menggunakan Metode Apriori Pada Supermarket Sejahtera Lhokseumawe. *TECHSI-Jurnal Teknik Informatika*, 7(1), 132-155.
- Salamah, E. N., & Ulinnuha, N. (2017). Analisis Pola Pembelian Obat dan Alat Kesehatan di Klinik Ibu dan Anak Graha Amani dengan Menggunakan Algoritma Apriori. *Inform: Jurnal Ilmiah Bidang Teknologi Informasi dan Komunikasi*, 2(1).
- Imaduddin, I. R., & Purnata, H. PEMODELAN SISTEM TERDISTRIBUSI MENGGUNAKAN METODE HIRARKI PADA POWER PLANT PEMBANGKIT LISTRIK TENAGA UAP (PLTU).
- Lestiani, M. E. (2020). Faktor-Faktor Dominan Promosi Yang Mempengaruhi Motivasi Konsumen Dalam Membeli Suatu Produk Dengan Menggunakan Metode Ahp. *Jurnal Industri Elektro dan Penerbangan*, 1(1).