

Case Based Reasoning Expert System Identification of Top Brand Merchant Online Food PT. Solusi Transportasi Indonesia

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ABSTRACT

PT. Solusi Transportasi Indonesia or what we know better as grab, at this time not only engaged in people delivery services, but also other features, one of which is grabfood. Grabfood cooperates with the best restaurants we call merchants in the Greater Jakarta area, Medan, Surabaya, Bandung, Bali, Makassar, Palembang, and several other cities in Indonesia. Grabfood uses 2 payment methods, cash and non-cash. To achieve this goal of developing grabfood services, periodic identification of merchants who are top brands is carried out in order to provide services and increase customer satisfaction. Several things can be done due to the rapid development of technology and information, one of the things that can be done is to identify the Top Brand. One of the easy ways to identify it is to use an expert system. This expert system was created to be used by companies in identifying Top Brand Merchant. Data collection techniques were carried out by conducting interviews with related companies and browsing the internet. The inference method used in the development of this expert system is the case base reasoning method, which is a method that draws conclusions from new cases based on old cases and provides solutions to new cases based on old cases that have the highest similarity value. Cases that commonly occur and are encountered can be used as a reference to identify Top Brand Merchant when there are new cases. The use of cases that have occurred previously or old cases is generally known as case-based reasoning (CBR). This study discusses an expert system to identify Top Brand Merchant using CBR reasoning method with

nearest neighbor similarity measurement method.

Keywords: Expert System, Case Base Reasoning, Neighbor Similarity, Top Brand Merchant

INTRODUCTION

In the current era of globalization, technology is growing very sophisticated. Computers play an important role in the development of this technology. With all its advantages, computers have become an indispensable part of helping humans do tasks and solve problems [1] Expert systems are one of the fields of artificial intelligence engineering that are quite in demand because of their application in various fields, both in science and in business, which have proven to be very helpful in making decisions. and very wide application. An expert system is a computer system designed to be able to reason like an expert in a particular area of expertise [2]The expert system was created not to replace the position of an expert but to require the knowledge and experience of the expert to be available to many people There are several service providers PT. Solusi Transportasi Indonesia (Grab). Grab is already known as an online transportation service provider in Indonesia. Apart from these two, there are many other applications or provider of online taxi services and online motorcycle taxis (ojol), both domestic products and foreign products. Transportation services using online-based

four-wheeled vehicles or online taxis are regulated in Minister of Transportation Regulation (Permenhub) Number 118 of 2018. For two-wheeled vehicles or online motorcycle taxis, it is stipulated through Minister of Transportation Regulation Number 12 of 2019 and Minister of Transportation Decree (Kepmenhub) Number KP 348 of 2019. Besides transportation services PT. Solusi Transportasi Online Indonesia also really appreciates the culinary wealth by expanding the range of services to build Grabfood. GrabFood only partners with the best restaurants, which means a risk-free gastronomic adventure and no more wasted calories. Every order will satisfy the taste buds of foodies. operates daily from 10:00 – 23:59 last order. GrabFood has been operating actively in all areas of Greater Jakarta, Surabaya, Bandung, Bali, Makassar, Medan, Palembang, Semarang, Yogyakarta, Malang, Solo, Manado, Batam, Bandar Lampung, Cirebon, Samarinda, Pekanbaru, Balikpapan, Padang, Pontianak, Banjarmasin, Jambi, Sukabumi, and Cimahi. Cash payments are available in all operating cities. Payments via OVO are currently available in Greater Jakarta, Bandung, Surabaya, Medan, Makassar, Yogyakarta, Semarang, Bali, Lampung and Palembang. Grab is currently expanding the use of cashless in other cities. Save on GrabFood delivery rates starting from IDR 5,000. Changes in delivery rates and restaurant promos will always be informed to users through the Grab application. To achieve the goal of developing GrabFood services, periodic identification of merchants who are TOP Brands is carried out in order to provide services and increase customer satisfaction. Therefore, a case base reasoning study was conducted on an expert system identification of TOP Brand Merchant Online Food PT. Indonesian Transportation Solutions. Cases that commonly occur and are encountered can be used as a reference to identify Top Brand Merchant when there are new cases. The use of cases that have occurred previously or old cases is generally known as

case-based reasoning (CBR) [3] This study discusses an expert system to identify Top Brand Merchant using CBR reasoning method with nearest neighbor similarity measurement method.

Expert System Expert system is a computer-based application that is used to solve problems as thought by experts. Experts referred to here are people who have special skills who can solve problems that cannot be solved by ordinary people [4] An expert system is an artificial intelligence program that combines a knowledge base with an inference system. Inference comes from English, namely inference. Inference is a process of acquiring knowledge based on the experience that occurs In general, an expert system is a system that seeks to adopt human knowledge into the system, so that the system can solve problems carried out by experts. Case-Based Reasoning Briefly Case-Based Reasoning (CBR) is defined as a methodology for problem solving by utilizing previous experience [5] Case-Based reasoning (CBR) is a major paradigm in automated reasoning and machine learning. In CBR, a person who does reasoning can solve a new problem by paying attention to its similarities with one or more solutions to previous problems. Case-Based Reasoning (CBR) method is case-based reasoning to solve new problems by adapting the solutions used to solve old problems [6]

RESEARCH HYPOTHESIS

Research case base reasoning expert system identification TOP Brand Merchant Online Food PT. Solusi Transportasi Indonesia. cases that commonly occur and are encountered can be used as a reference to identify top brand merchants when there are new cases.[7] So the case base method was chosen for this research, the case base method itself adapts solutions that have been used to solve old problems and reuses these solutions for new, similar problems and requires an expert system in this research. An expert system itself is a computer-based application that is used to solve problems as thought by experts. This research aims to

identify the Top Brand Merchant Online Food at PT. Indonesian Transport Solutions and Using Case Base Reasoning to identify Top Brand Merchant Online on PT. Solusi Transport Indonesia.

RESEARCH METHODS

Case Based Reasoning (CBR) is one of the methods used in expert systems. In finding a solution, the Case Based Reasoning (CBR) [8] method looks for similarities between the new problem and the old and previous problems.

$$= (S_1 \cdot 1 + S_2 \cdot 2 + \dots + S_n \cdot 1 + W_2 + \dots + W_n \dots \dots \dots) \quad (1)$$

S = Similarity (similarity value) that is 1 (same) 0 (different)

W = Weight

Case Based Reasoning is a problem-solving method that in finding a solution to a new case, the system will search for solutions from old cases that have the same problem and have happened before the CBR method was developed by Roger schank and colleagues at Yale University in the early 1980s. There are two basic principles in the CBR method, the first principle is that every problem with the same solution has the same solution. There are four case base reasoning (CBR) processes, each of which involves a number of specific steps, which are described in Figure 1 below [9]

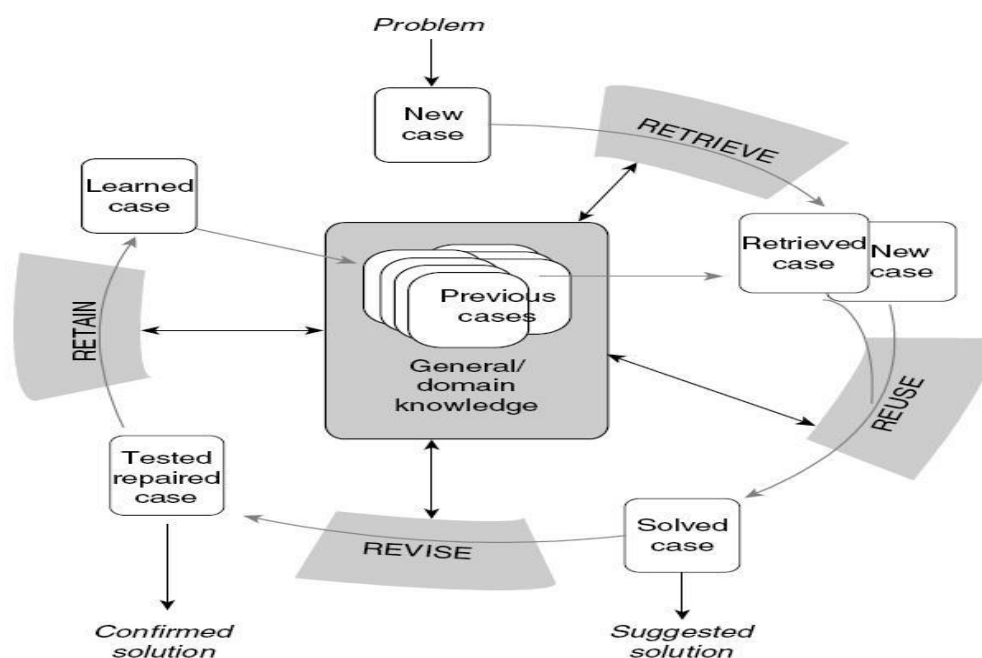


Figure. 1 Case Base Reasoning Procedure

In general, the CBR cycle can be described in 4 processes as follows

1. Retrieve, get back the most similar cases.
2. Reuse, Reuse information and knowledge in the case to deal with problems that occur.
3. Revise, Repair or revisit.
4. Retain, Save parts of the experience that may be useful for handling future problems.

RESEARCH PROCEDURES

In using the Case Based Reasoning method, namely in the Retrieve process, similarities

will be sought between the old case and the new case. In this study, the Nearest Neighbor algorithm will be used to find the similarity of the case The Nearest Neighbor Retrieval (K-Nearest Neighbor or K-NN) algorithm is an algorithm for classifying cases based on learning data that is closest to the case. The special case in which the classification is predicted based on the closest learning data (in other words, k = 1) is called the Nearest Neighbor algorithm [10]

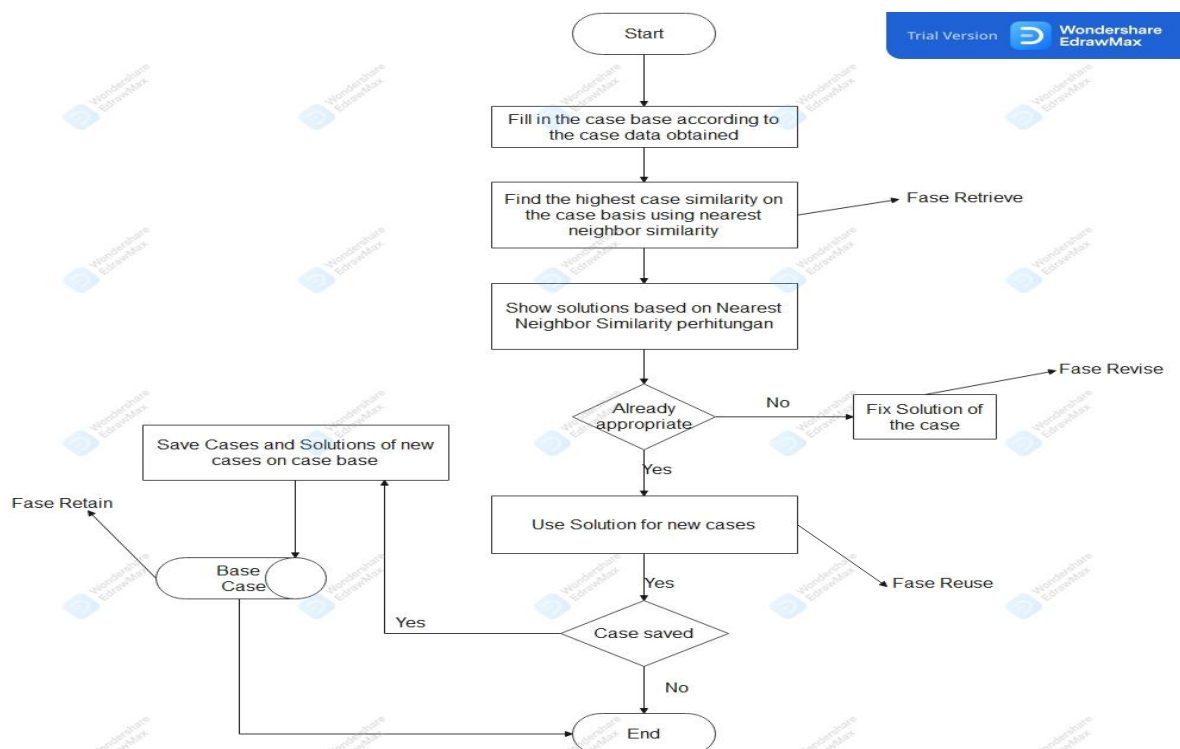


Fig.1. Research Procedures

RESULTS AND DISCUSSION

The calculation of the data begins by inputting the case and then continues by matching the previous cases with the highest level of similarity value and the data that will display the calculation results showing the most dominant merchant or brand with the

previous case and their solutions. The process of finding similarities between new cases and previous cases. Results show cases in merchant weight calculations. Calculations are carried out regularly every week.

Table data obtained

BRAND NAME	RANK	RANK LW	GMV	WOW GMV	CR	DD	AOV	MAX REVENUE	REV
ayam penyet jakarta	1	1	871847210	-11%	0%	838	84663	161510334	2%
restoran garuda	2	2	282041700	-7%	0%	388	82081	17578638	0%
chioken holio	3	3	231357000	-4%	0,00%	378	77786	62517121	0%
angliss bakehouse	4	6	186837600	0%	1,00%	225	112280	54115335	1%
rm. Pondok gurih	5	4	184592260	-16%	2,00%	237	100268	80004833	0%
kwatiau atong	6	8	188634600	-5%	1,00%	248	82337	48876267	1%
choko bakery	7	7	164877600	-7%	0,00%	208	86080	89186228	1%
dimsum citra	8	10	141198000	-1%	1,00%	186	100078	88782121	1%
fingers crispy chicken	9	3	139389288	-6%	1,00%	127	138664	22742686	0%
roti romi	10	14	126380780	8%	0,00%	138	118240	81143244	0%
tip top	11	18	122871000	2%	0,00%	82	174206	17111528	0%
mie tiang lim	12	11	118462664	-10%	0,00%	117	129172	88316486	1%
sushi tei	13	20	117018808	13%	0,00%	84	182442	5788625	0%
ayam kramas	14	9	114288220	-22%	1,00%	128	78484	18658337	0%
carlbowl	15	17	111887785	1%	0,00%	128	108606	27587712	0%
oofle bakery	16	16	110176200	-2%	0,00%	118	118884	81206804	0%
miramar restaurant	17	12	108851100	-10%	1,00%	114	125063	80882180	0%
cap 85	18	13	104808760	0%	0,00%	166	83236	28553488	0%
martabak mekar	19	19	101187000	2%	0,00%	88	134232	23314266	0%
ss fried chicken	20	16	88840876	-11%	0,00%	122	66388	24048228	0%
nasi ayam bps	21	22	88487000	4%	0,00%	126	82888	26488014	0%
seafood 2000	22	23	88713162	-1%	0,00%	162	90682	14846888	0%
killy bakery	23	21	86243062	-10%	1,00%	102	106649	22356827	1%
waroeng presiden	24	28	88080100	3%	0,00%	128	88823	22626638	1%
bakingwing	25	67	80320000	33%	1,00%	88	168708	22801235	1%



Figure 3. Result Top Brand Week on Week

CONCLUSION

This expert system was created to be used by companies in identifying Top Brand Merchant. Data collection techniques were carried out by conducting interviews with related companies and browsing the internet. The inference method used in the development of this expert system is the case base reasoning method, which is a method that draws conclusions from new cases based on old cases and provides solutions to new cases based on old cases that have the highest similarity value. Cases that commonly occur and are encountered can be used as a reference to identify Top Brand Merchant when there are new cases. The use of cases that have occurred previously or old cases is generally known as case-based reasoning (CBR). This study discusses an expert system to identify Top Brand Merchant using

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easy ways to identify it is to use an expert system.

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REFERENCES

1. S. Batubara, "Analisis Dan Perancangan Sistem Informasi Akuntansi Pengolahan Pendapatan Dan Pengeluaran Biaya Menggunakan Metode Work System Framework," *Analisis Dan Perancangan Sistem Informasi Akuntansi Pengolahan Pendapatan Dan Pengeluaran Biaya Menggunakan Metode Work System Framework*, vol. 5, no. 1, pp. 53–57, 2018.
2. H. SUCIATI Lecturer and F. Nur Adnan, "Expert System Based Application to Predicting Studentsâ€™™ Graduation Timeliness through Case Based Reasoning Approach (A Case at Dian Nuswantoro University)." [Online]. Available: www.dinus.ac.id
3. W. Yulianti, "Aptitude Testing Berbasis Case-Based Reasoning Dalam Sistem Pakar Untuk Menentukan Minat Dan Bakat Siswa Sekolah Dasar," *Rabit : Jurnal Teknologi dan Sistem Informasi Univrab*, vol. 1, no. 2, pp. 104–118, Jul. 2016, doi: 10.36341/rabit.v1i2.28.
4. N. Amaliah, A. Johar, and W. Dharmayana, "Implementasi Metode Case Based Reasoning (Cbr) Dalam Menentukan Klasifikasi Anak Yang Mengalami Reterdasi Mental (Studi Kasus: SLB Yayasan Dharma Wanita Bengkulu)," 2017. [Online]. Available: <http://ejournal.unib.ac.id/index.php/rekursif/33>
5. S. Hendriani, G. W. Nurcahyo, and Y. Yuhandri, "Sistem Pakar Dalam Mengidentifikasi Penanda Minat Karakteristik Ekstrakurikuler Berbasis Case Based Reasoning," *Jurnal Informasi dan Teknologi*, pp. 209–214, Aug. 2021, doi: 10.37034/jidt.v3i4.154.
6. S. A. Rahman and S. Sumijan, "Sistem Pakar Menggunakan Metode Case Based Reasoning dalam Akurasi Penyakit Disebabkan oleh Bakteri Staphylococcus Aureus," *Jurnal Sistim Informasi dan Teknologi*, pp. 13–19, Mar. 2021, doi: 10.37034/jsisfotek.v3i1.38.
7. M. Hanindia Prami Swari, R. Widya Arianti, and F. Muttaqin, "SINTECH Journal | 35 Case-Based Reasoning Pemberian Rekomendasi Profesi Berdasarkan Minat Dan Bakat Siswa Menggunakan Simple Matching Coefficient Similarity", [Online]. Available: <https://doi.org/10.31598>
8. R. Mai Candra and J. Saputra Wirman, "Sistem Diagnosa Kegagalan dalam Budidaya Ikan Konsumsi Air Tawar dengan Menggunakan Metode Case Based Reasoning," *Jurnal Sains, Teknologi dan Industri*, vol. 14, no. 2, pp. 144–149, 2017.
9. L. Effendi, A. Berat Bersih Daging Serta Ciri-Ciri Sapi Normal dan Glongongan, D. Mauli Darajat, S. Lestari, U. Darussalam Gontor, and U. Puskeswan Purwanto Wonogiri, "Analisa Berat Bersih Daging Serta Ciri-Ciri Sapi Normal dan Glongongan Menggunakan Sistem Pakar dengan Metode Case Based Reasoning (CBR) Berbasis Android," *Multitek Indonesia: Jurnal Ilmiah*, no. 2, pp. 1907–6223, 2018, [Online]. Available: <http://journal.umpo.ac.id/index.php/multitek>
10. S. Batubara, S. Wahyuni, and E. Hariyanto, "Seminar Nasional Royal (SENAR) 2018 ISSN 2622-9986 (cetak) STMIK Royal-AMIK Royal, hlm. 81-86 ISSN 2622-6510 (online) Kisaran, Asahan," 2018.

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