

Database Implementation to Improve Transaction Recording Efficiency of Soeka Dimsum MSMEs Using Entity Relationship Charts

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Abstract

This study examines the application of Microsoft Access as a recording system in Soeka Dimsum MSMEs which previously still used the manual method. The purpose of the study is to show how the design of an Entity Relationship Chart-based database can improve efficiency in managing financial data, stock of goods, and revenue according to the required period. The research method used was qualitative descriptive through direct data collection at MSME locations, observation of the recording process, and interviews with business owners. The results of the study show that manual recording makes it difficult for owners to obtain data in real-time and in a structured manner. The implementation of Microsoft Access has proven to be able to simplify the recording flow so that it is more accessible and ultimately increases the efficiency of the data collection process in Soeka Dimsum MSMEs. This practical database solution enables MSME owners to make faster, data-driven business decisions while significantly reducing time spent on administrative tasks, thereby allowing more focus on core business operations and growth strategies.

Keywords: Microsoft Access, Database, MSMEs, Entity Relationship Chart

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INTRODUCTION

The existence of MSMEs currently significantly supports the national economy, given the high unemployment rate in Indonesia, which has led to increasing poverty rates in almost all regions. MSME development must certainly be a primary focus if poverty is to be eradicated. This effort cannot be undertaken solely by the government; all elements of society can contribute to MSME development. In Bogor City, known as one of the centers of economic growth in West Java, MSMEs play a crucial role in economic growth. However, their growth is hampered by various obstacles such as limited access to capital, low digital literacy, and technological limitations (Irawan et al., 2024) .

One of the difficulties faced by MSMEs today is that recording is still manual due to inadequate technology (Pajak et al., 2025) , even though the world has entered the digital era, there are still many MSMEs who choose to record transactions manually due to several factors, one of which is that they have difficulty finding the right platform to answer this problem.

A *database* is a collection of data that has relationships or stands alone and is then stored together on certain media to produce uses according to needs (Pamungkas, 2020). When the system runs the information presentation process, *the database* functions as the main source that provides the data required by users (Anggraeni et al., 2018). When associated with MSMEs, *databases* can help with transaction recording needs, such as sales, inventory, and customer data to avoid errors during manual recording. Efficient inventory management is very important to overcome challenges that occur so that it can increase customer satisfaction and also meet consumer demand (Prayudha et al., 2025).

One suitable medium for storing various MSME *databases* is the Microsoft Access computer application. Microsoft Access is a sophisticated *database management application for processing various types of data, including recording transactions, inventory, and revenue, using practical methods* (Hidayat et al., 2024). Microsoft Access is chosen by home industries and small to medium-sized companies because it can be used by business owners without a technical background but want a practical medium and can reduce the risk of recording errors (Permana et al., 2025). This is in line with a 2021 study by the Central Statistics Agency (BPS), which showed that adopting *database technology* can increase MSME productivity by up to 30% through automated processes.

To design an effective *database*, an *Entity Relationship Chart* is available to be used as an initial sketch that describes entities in diagram form (Afifah et al., 2022). *The Entity Relationship Chart* will facilitate the implementation of data in Microsoft Access for the Soeka Dimsum MSME (Walidain et al., 2022). With *the Entity Relationship Chart*, entities such as "Dimsum Menu" related to "Sales Transactions" can be visualized so that business owners can understand the complexity of the data to be entered.

While previous studies have demonstrated the general benefits of database technology for MSMEs (Hidayat et al., 2024; Permana et al., 2025), there remains a significant research gap in documenting the specific implementation process and practical framework for transitioning from manual to digital recording systems in food-based MSMEs with limited technical capacity. Most existing literature focuses on theoretical database design or large-scale enterprise systems, leaving small culinary businesses without context-specific guidance. This study addresses this gap by presenting a systematic, replicable framework that integrates Entity Relationship Chart-based database design with Microsoft Access implementation, specifically tailored for MSMEs in the culinary sector. The novelty lies in providing a step-by-step practical model that bridges the documented technology adoption barrier (Irawan et al., 2024; Pajak et al., 2025) by demonstrating how non-technical MSME owners can successfully implement structured database solutions for real-time transaction recording, inventory management, and revenue tracking.

Based on the observations above, the manual recording of Soeka Dimsum's sales, which was previously done manually, can be done more easily through *database storage* using an *Entity Relationship Chart* in Microsoft Access. This method is implemented to

make it easier for users, especially Soeka Dimsum's MSME owners, to access or search for sales data so that subsequent sales strategies can be properly evaluated (Hidayat et al., 2024) .

RESEARCH METHODS

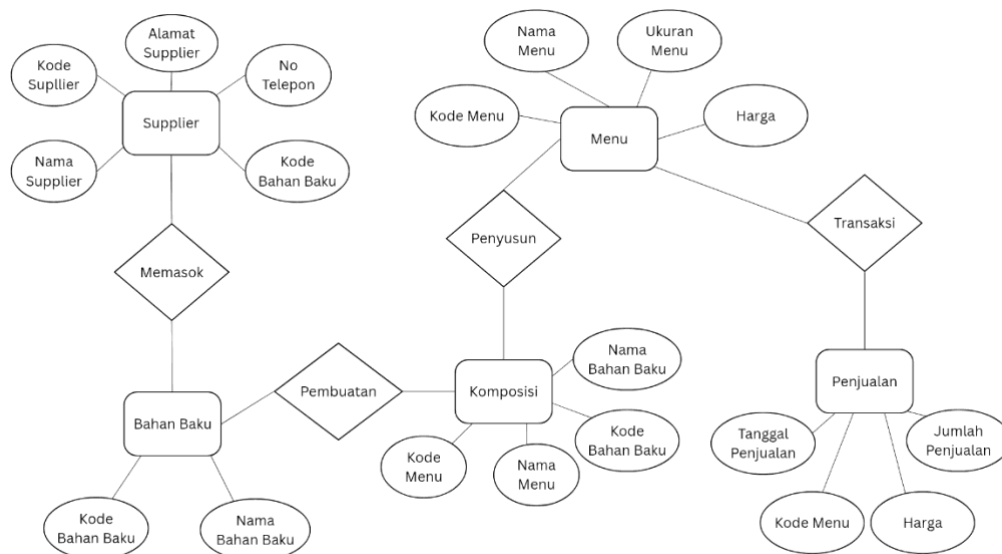
Research methodology is an effort to investigate and trace a problem by using scientific methods carefully and thoroughly to collect, manage, analyze data and draw conclusions systematically and objectively to solve a problem or test a hypothesis to obtain knowledge that is useful for human life (Abubakar, 2021) . Data collection to support this research was conducted on November 12 and 20, 2025, located at the Soeka Dimsum UMKM which operates in the IPB University Vocational School canteen.

The method used in this research is qualitative research with a descriptive case study approach, where the researcher is the main subject in the research process. Qualitative research focuses on real things that are difficult to measure quantitatively (Ekonomi Puspa Dewi Yulianty & Jufri, 2022) . This method also emphasizes understanding and explaining how social relationships develop using a research method that focuses on solving actual problems by collecting, presenting, and analyzing data to provide a clear picture of the object being studied and the results of Microsoft *Access design* based on the needs of MSMEs that can be used to record all transactions effectively and efficiently (Huda & Sembiring, 2022) . Research data was obtained from two types of sources. First, primary data collected through structured interviews with MSME owners, field observations, and analysis of the recording formats that have been used. Second, secondary data obtained from books, research journals, and official reports that provide a theoretical basis related to MSME digitalization, database systems, and the effectiveness of Microsoft Access in information management.

This research is based on the needs of the Soeka Dimsum MSME to be able to control inventory effectively and efficiently. One tool that can be used to assist system design is the *Entity Relationship Diagram* (ERD). An *Entity Relationship Diagram* (ERD) or *ER-D Diagram* is an approach technique that states or illustrates the relationship of a model. In this relationship, the main point is stated in the *ER-D diagram depiction* (Anggita, 2018) . The *ER-D diagram* is used to show data objects (*entities*) and existing relationships. The following is an *Entity Relationship Diagram* (ERD) in the design of the inventory and sales information system for the Soeka Dimsum MSME (Walidain et al., 2022) .

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Gambar 1. Entity Relationship Diagram

RESULTS AND DISCUSSION

Needs analysis

The initial stage aims to identify product characteristics, consumer profiles, and key barriers to promotional strategies. This activity was conducted through in-depth interviews and direct observation of MSMEs (Packaging & Business, 2025). Based on an analysis of the Soeka Dimsum MSME business process, it was discovered that the current transaction recording system still uses two different platforms. Income is recorded through the KlikBi application, while expenses are recorded in Microsoft Excel. This situation creates inefficiencies, especially when the store is busy, preventing transactions from being recorded directly and accurately. To simplify the process, QRIS payment receipts are usually photographed first, while cash transactions are recorded manually.

In addition to transactions, raw material inventory recording is still manual and done at each production stage. This method often leads to inconsistencies in stock data, especially when there are large pre-orders. Data recapitulation is performed at the end of each month, although business owners prefer daily sales reports for faster and more targeted evaluations.

In terms of data storage, all *files* are backed up on the owner's laptop and shared with specific staff. However, full access to records is reserved for the owner, resulting in suboptimal information flow. This situation demonstrates the urgent need for a more structured, efficient, and user-friendly *database system* to improve business effectiveness by providing direct data recording and management (Ambasht, 2023).

OKTOBER	Rabu	1/10/25	Rp934.000	44	Rp685.000
	Kamis	2/10/25	Rp1.169.000	53	Rp790.000
	Jumat	3/10/25	Rp1.215.000	55	Rp815.000
	Senin	6/10/25	Rp773.000	35	Rp530.000
	Selasa	7/10/25	Rp980.000	45	Rp705.000
	Kamis	9/10/25	Rp1.032.000	45	Rp815.000
	Jumat	10/10/25	Rp897.000	40	Rp675.000
	Senin	13/10/25	Rp908.000	44	Rp630.000
	Selasa	14/10/25	Rp615.000	30	Rp530.000
	Rabu	15/10/25	Rp656.000	32	Rp525.000
	Kamis	16/10/25	Rp763.000	36	Rp630.000
	Jumat	17/10/25	Rp546.000	25	Rp420.000
	Senin	20/10/25	Rp1.067.000	49	Rp770.000
	Selasa	21/10/25	Rp894.000	41	Rp525.000
	Rabu	22/10/25	Rp951.000	44	Rp735.000
	Kamis	23/10/25	Rp755.000	36	Rp630.000
	Jumat	24/10/25	Rp963.000	44	Rp735.000
	Senin	27/10/25	Rp1.335.000	62	Rp845.000
	Selasa	28/10/25	Rp1.390.000	62	Rp780.000
	Rabu	29/10/25	Rp1.429.000	65	Rp890.000
	Kamis	30/10/25	Rp1.480.000	65	Rp850.000
	Jumat	31/10/25	Rp1.433.000	66	Rp845.000
TOTAL			Rp22.185.000	1018	Rp15.355.000

Gambar 2. Penjualan Bulan Oktober menggunakan Microsoft Excel

Database Design

database design was created to support the management and control of transaction recording at the Soeka Dimsum MSME. The following shows the results of the Soeka Dimsum MSME's recording after using Microsoft Access.

In this process, a concept is designed using a relational database, which means that data is stored in interconnected tables, then a physical design is carried out that will determine the format and content of the resulting report (Razaluddin & Evayani, 2019) . To compile the data needed in this study, one main table and several supporting tables are used, namely, the composition table, raw materials, menus, *suppliers* , and sales. All of these tables are interconnected and play an important role in describing the flow of data management, from the provision of materials to the product sales process in compiling the data needed for research (Article, 2023) .

Tabel_Bahan_Baku			
	Nama Bahan Baku	Kode Bahan Baku	Click to Add
+	Mayonaise	A1	
+	Saus Sambal	A2	
+	Saus Tomat	A3	
+	Nori	A4	
+	Keju	A5	
+	Dimsum	A6	
*			

Gambar 3. Contoh Tabel Komposisi

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Adiba Alia Jamilah ¹, Rini Ambarwati ², Tanisha Avriani Putri Setiawan ³, Maitsa Ullinnuha ⁴, Dimas Junianto ⁵

The master table used is the composition table, which contains the main components for compiling the sales *database*, such as Menu code, Menu name, Raw Material code, and Raw Material name. The datasheet view of the item data table can be seen in Figure 3.

Kode Menu	Nama Menu	Kode Bahan	Nama Bahan	Click to Add
D1	Dimsum OG	A4	Nori	
D1	Dimsum OG	A6	Dimsum	
D3	Dimsum Ment:	A1	Mayonaise	
D3	Dimsum Ment:	A2	Saus Sambal	
D3	Dimsum Ment:	A3	Saus Tomat	
D3	Dimsum Ment:	A6	Dimsum	
D6	Dimsum Kuah	A5	Keju	
D6	Dimsum Kuah	A6	Dimsum	
*				

Gambar 4. Contoh Tabel Bahan Baku

The next table is the Raw Materials table, which contains the primary data for compiling the product raw material results *database*. This table lists the names of the product's raw materials. A datasheet view of the raw materials table can be seen in Figure 4.

Kode Menu	Nama Menu	Ukuran Men	Harga	Click to Add
D1	Dimsum OG	Small	Rp15.000	
D2	Dimsum OG	Big	Rp20.000	
D3	Dimsum Ment:	Small	Rp20.000	
D4	Dimsum Ment:	Big	Rp28.000	
D5	Dimsum Ment:	Party	Rp80.000	
D6	Dimsum Kuah	-	Rp22.000	
D7	Chilli Oil	-	Rp3.000	
D8	Cheese Slice	-	Rp3.000	
*			Rp0	

Gambar 5. Contoh Tabel Menu

The next table is the menu table, which contains additional or complementary data for compiling the product menu *database*. This table records product names, sizes, and prices. A datasheet view of the menu table can be seen in Figure 5.

Tabel_Supplier					
Nama Suppl	Kode Suppli	Alamat Supplier	No Telefon	Kode Bahan	Ch
PT Java Egg Inc	P2	Jl Raya Jakarta-Bogor No.KM 31, Mekarsari, Kec. Cimanggis, Kota Depok, Jawa Barat	-	A1	
PT Java Egg Inc	P2	Jl Raya Jakarta-Bogor No.KM 31, Mekarsari, Kec. Cimanggis, Kota Depok, Jawa Barat	-	A2	
PT Java Egg Inc	P2	Jl Raya Jakarta-Bogor No.KM 31, Mekarsari, Kec. Cimanggis, Kota Depok, Jawa Barat	-	A3	
PT Lasallefood	P3	JL DARMAWANGSA NO 76 RT 004/RW006, Klego, Ngempon, Kec. Bergas, Kabupaten Semarang, Jawa Tengah	-	A4	
PT Java Egg Inc	P2	-Jl Raya Jakarta-Bogor No.KM 31, Mekarsari, Kec. Cimanggis, Kota Depok, Jawa Barat	-	A5	
Bambu Dimsur	P1	Jl. SMPN 6 Kalibaru, Kav Bri D6 No.7, Kalibaru, Cilodong, Depok City, West Java	+62 858-8371-6450	A6	

Gambar 6. Contoh Tabel supplier

The next table is the *supplier table*, which contains additional or complementary data for compiling the product *supplier database*. This table lists the product's source *suppliers*. A datasheet view of the *supplier table* can be seen in Figure 6.

Tabel_Data_Penjualan				
Tanggal Pe	Kode Menu	Harga	Jumlah Penjualan	
27/10/2025	D1	Rp15.000	11	
28/10/2025	D1	Rp15.000	12	
29/10/2025	D1	Rp15.000	13	
30/10/2025	D1	Rp15.000	8	
31/10/2025	D1	Rp15.000	11	
03/11/2025	D1	Rp15.000	7	
04/11/2025	D1	Rp15.000	8	
05/11/2025	D1	Rp15.000	8	
06/11/2025	D1	Rp15.000	8	
07/11/2025	D1	Rp15.000	6	
10/11/2025	D1	Rp15.000	9	
27/10/2025	D2	Rp20.000	11	
28/10/2025	D2	Rp20.000	10	
29/10/2025	D2	Rp20.000	2	
30/10/2025	D2	Rp20.000	5	
31/10/2025	D2	Rp20.000	9	
03/11/2025	D2	Rp20.000	5	
04/11/2025	D2	Rp20.000	6	
05/11/2025	D2	Rp20.000	5	
06/11/2025	D2	Rp20.000	4	
07/11/2025	D2	Rp20.000	4	
10/11/2025	D2	Rp20.000	6	
27/10/2025	D3	Rp20.000	28	

Gambar 7. Contoh Tabel Penjualan

Another table used in *the database* is the sales table, which contains additional or complementary data to compile the sales results *database*. This table records the number of products sold during October and November 2025. A datasheet view of the sales table can be seen in Figure 7.

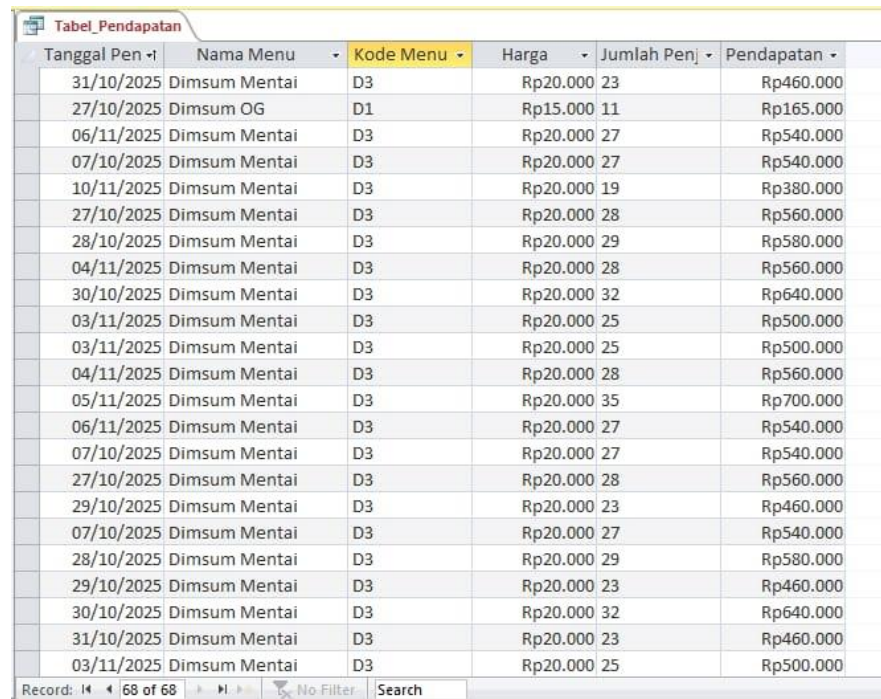
Quarries

The *query* design process can begin once all tables have been designed. The goal of generating a *query* is to manage tables according to requirements, such as grouping data from multiple tables, entering necessary formulas, and ultimately creating reports that meet the needs of MSMEs. The *queries* designed include buy queries, sell queries, and stock queries (Article, 2023).

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Adiba Alia Jamilah ¹, Rini Ambarwati ², Tanisha Avriani Putri Setiawan ³, Maitsa Ullinnuha ⁴, Dimas Junianto ⁵

In the Soeka Dimsum database, a query is used to calculate Total Product Revenue using the formula: [Sales Amount] * [Selling Price]. The result of applying this formula produces a new table containing the calculated data.



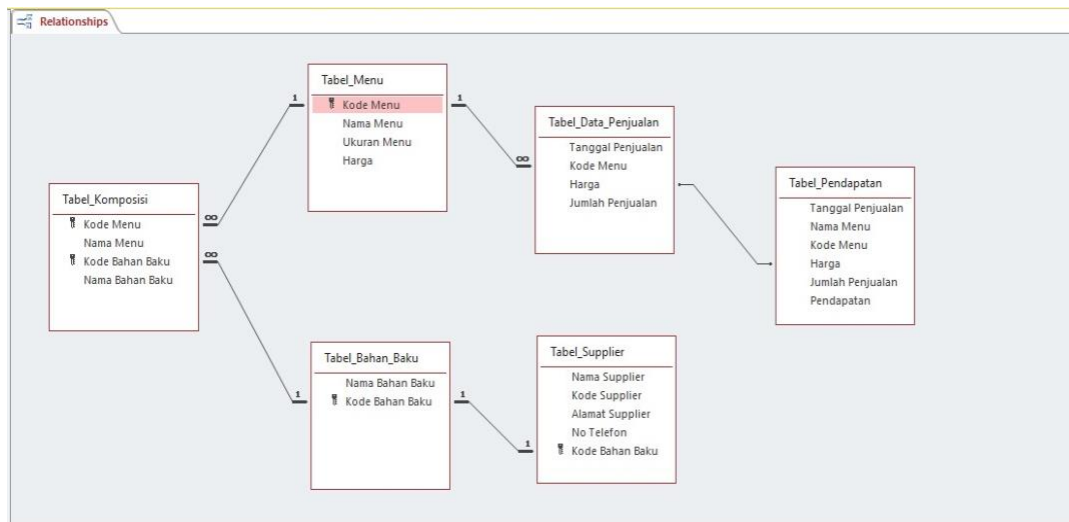
Tanggal Pen	Nama Menu	Kode Menu	Harga	Jumlah Penj	Pendapatan
31/10/2025	Dimsum Mentai	D3	Rp20.000	23	Rp460.000
27/10/2025	Dimsum OG	D1	Rp15.000	11	Rp165.000
06/11/2025	Dimsum Mentai	D3	Rp20.000	27	Rp540.000
07/10/2025	Dimsum Mentai	D3	Rp20.000	27	Rp540.000
10/11/2025	Dimsum Mentai	D3	Rp20.000	19	Rp380.000
27/10/2025	Dimsum Mentai	D3	Rp20.000	28	Rp560.000
28/10/2025	Dimsum Mentai	D3	Rp20.000	29	Rp580.000
04/11/2025	Dimsum Mentai	D3	Rp20.000	28	Rp560.000
30/10/2025	Dimsum Mentai	D3	Rp20.000	32	Rp640.000
03/11/2025	Dimsum Mentai	D3	Rp20.000	25	Rp500.000
03/11/2025	Dimsum Mentai	D3	Rp20.000	25	Rp500.000
04/11/2025	Dimsum Mentai	D3	Rp20.000	28	Rp560.000
05/11/2025	Dimsum Mentai	D3	Rp20.000	35	Rp700.000
06/11/2025	Dimsum Mentai	D3	Rp20.000	27	Rp540.000
07/10/2025	Dimsum Mentai	D3	Rp20.000	27	Rp540.000
27/10/2025	Dimsum Mentai	D3	Rp20.000	28	Rp560.000
29/10/2025	Dimsum Mentai	D3	Rp20.000	23	Rp460.000
07/10/2025	Dimsum Mentai	D3	Rp20.000	27	Rp540.000
28/10/2025	Dimsum Mentai	D3	Rp20.000	29	Rp580.000
29/10/2025	Dimsum Mentai	D3	Rp20.000	23	Rp460.000
30/10/2025	Dimsum Mentai	D3	Rp20.000	32	Rp640.000
31/10/2025	Dimsum Mentai	D3	Rp20.000	23	Rp460.000
03/11/2025	Dimsum Mentai	D3	Rp20.000	25	Rp500.000

Gambar 8. Tabel Pendapatan

The results of the query design can be displayed after all the required data is selected in the query and the "Run" option on the Microsoft Access toolbar is selected. After this process, the query results will be displayed as shown in Figure 8.

Relationship

In Microsoft Access, a *relationship* refers to the way data is connected between two or more tables. This relationship serves to maintain data integrity and prevent data inconsistencies, such as orphan records. Several types of relationships can be implemented, namely *one-to-many*, *many-to-many*, and *one-to-one*. By defining these relationships, users can create *queries* that integrate information from various tables by utilizing *primary keys* and *foreign keys* as the basis for the connection (Gefri et al., 2025).



Gambar 9. Tampilan Relationship

Report

Database Penjualan

Soeka Dimsum 27 Okt-10 Nov

Tanggal Penjualan	Harga	Jumlah Penjualan	Nama Menu
27/10/2025	Rp15.000	11	Dimsum OG
28/10/2025	Rp15.000	12	Dimsum OG
29/10/2025	Rp15.000	13	Dimsum OG
30/10/2025	Rp15.000	8	Dimsum OG
31/10/2025	Rp15.000	11	Dimsum OG
03/11/2025	Rp15.000	7	Dimsum OG
04/11/2025	Rp15.000	8	Dimsum OG
05/11/2025	Rp15.000	8	Dimsum OG
06/11/2025	Rp15.000	8	Dimsum OG
07/11/2025	Rp15.000	6	Dimsum OG
10/11/2025	Rp15.000	9	Dimsum OG
27/10/2025	Rp20.000	11	Dimsum OG
28/10/2025	Rp20.000	10	Dimsum OG

Gambar 10. Database Penjualan

Reports in Microsoft Access are a feature that presents data in a structured format. *Reports* allow users to group data based on their needs, resulting in more relevant information ready for evaluation and final decision-making.

Form Design

The form design makes it easier for readers, in this case the owner of the Soeka Dimsum business, to see the results of the data collection that has been carried out in a more attractive and easy-to-understand manner with buttons including go to first record, go to previous record, go to next record, and go to last record.

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Gambar 11. Tampilan Form Utama



Gambar 12. Tampilan Form Daftar Menu



Gambar 13. Tampilan Form Laporan Penjualan

Gambar 14. Tampilan Form Daftar Supplier

CONCLUSION

Based on the results and discussions that have been carried out, it can be concluded that the use of a *database* created with Microsoft Access can help Soeka Dimsum MSMEs in the process of recording transactions and inventory. The use of *databases* has proven to be more effective and efficient compared to previous recording. Basically, Microsoft Access is very helpful in the transaction and recording process of an MSME by retrieving some data, because the Microsoft Access *database system* is more organized than manual recording. It is hoped that *the database* that has been designed for Soeka Dimsum MSMEs can reduce dependence on manual management, increase the speed and accuracy of the recording process, and support data-based decision making.

REFERENCES

- Afiifah, K., Azzahra, ZF, & Anggoro, AD (2022). Analysis of Entity-Relationship Diagram Techniques in Database Design: A Literature Review. *Intech* , 3 (2), 70–74. <https://doi.org/10.54895/intech.v3i2.1682>
- Abubakar, R. (2021). Introduction to Research Methodology. In *SUKA-Press UIN Sunan Kalijaga* (Vol. 1).
- Ambasht, A. (2023). Real-Time Data Integration and Analytics: Empowering Data-Driven Decision Making. *International Journal of Computer Trends and Technology* , 71 (7), 8–14. <https://doi.org/10.14445/22312803/ijett-v71i7p102>
- Anggita, SD (2018). Database Planning Process for Outpatient Medical Record System at Community Health Center. *It (Informatic Technique) Journal* , 6 (2), 111. <https://doi.org/10.22303/it.6.2.2018.111-123>
- Anggraeni, D., Zikra Syah, A., Informasi, S., & Royal Kisaran, S. (2018). Tips And Tricks For Building Relationship And Query In Database. *Journal of Community Service) Royal ISSN* , 1 (2).
- Article, I. (2023). *Design of Microsoft Access-Based Inventory and Sales System for Koko Tua MSME* . 4 (4), 4323–4334.
- Economics Puspa Dewi Yulianty, S., & Jufri, A. (2022). *Empirical Debate: Principles of Qualitative and Quantitative Methods for Research* . 2013 .
- Gefri, RI, Fatiyah Dzihni Mudhiah, Jannah, NR, Nazwa Livia Maulisa, Abiyyu Ramadhan Putra Setiawan, Indah Andriyani Siregar, & Derry Dardanella. (2025). Digitalization of Pakuan Milkshake MSME Data Management Through the Microsoft Access Database System. *Applied Social Journal* , 3 (1), 73–83.

<https://doi.org/10.29244/jstr.3.1.73-83>

- Hidayat, APH, Faza Ridhar Rahman, A., Khairani Marisda, A., Arhab, G., Cahya Kamila, N., Rizki Prabowo, R., & Husen Santosa, S. (2024). Use of Databases to Manage Sales Results Data at the KDH Sancang Coffee Shop. *Journal of Applied Science, Technology & Humanities* , 1 (1), 11–18. <https://doi.org/10.62535/hx4h5d16>
- Huda, NF, & Sembiring, EE (2022). *Designing a Financial Report Accounting Information System Application Using Microsoft Access 2016 (Case Study at PT Maju Industri Indonesia)* . 7 , 106–120.
- Irawan, S., Rumondang Sinaga, A., Kartinawati, A., Hidayat, AP, Dardanella, D., Santosa, SH, Indrawan, P., Apriliani, F., Yusri, D., Wijaya, H., Pangestu, FJ, & Rahmawati, N. (2024). Forecasting Demand for Sandals at Mulyaharja MSMEs in Bogor City. *Journal of Systems and Industrial Engineering* , 05 (02), 120–131.
- Kemasan, D., & Usaha, B. (2025). *Optimizing Visual Identity Strengthening Through Logo Creation and* . 6 (2), 375–383. <https://doi.org/10.47065/jpm.v6i2.2776>
- Pajak, E., Global, P., Dwifanty, DJ, Leobisa, JN, Bernoli, AA, Tje, E., Dima, Y., Jl, A., & Yani, A. (2025). *Contribution of MSMEs to the Indonesian Economy and Opportunities and Challenges in the Digitalization Era Widya Mandira Catholic University, Indonesia* . 2 .
- Pamungkas, CA (2020). *Introduction to Database Systems* . INDONUSA PUBLISHER.
- Permana, I., Ariyanto, EE, Oktavianus Tampubolon, JN, Hanan, H., & Kuswandi, ED (2025). Database Implementation in the Sa'Arina Gambang Bread MSME Using Microsoft Access. *Journal of Information Systems Management and Digital Business* , 2 (2), 91–102. <https://doi.org/10.70248/jismdb.v2i2.1489>
- Prayudha, A., Husen, S., Siskandar, R., Dardanella, D., & Ferro, P. (2025). *Determination of stock in inbound logistics based on optimal order quantity through Smart Application for Chicken Egg Stock (SAFCES)* . 11 (1).
- Razaluddin, M., & Evayani, E. (2019). Designing an Inventory Information System Using Microsoft Access. *Scientific Journal of Accounting Economics Students* , 4 (2), 325–333. <https://doi.org/10.24815/jimeka.v4i2.12261>
- Walidain, CT, Gaffar, MR, & Pramono, TD (2022). *Design and Development of a Microsoft Access-Based Inventory Information System (Case Study on Deu Magaza)* . 1 , 51–67.
- Walidain, CT, Rizal Gaffar, M., Pramono, TD, Firmansyah, Y., Niaga, JA, & Bandung, N. (nd). Design and Development of a Microsoft Access-Based Inventory Information System (Case Study at Deu Magaza). In *Applied Business and Administration Journal* (Vol. 1).