

SALES FORECASTING MODELS AS A BASIS FOR BUDGET PREPARATION IN THE LOCAL CREATIVE INDUSTRY: A CASE STUDY OF HIKMAH SASIRANGAN MSME

Hikmahwati^{1*}, M. Rizki Maulana², Julkawait³

^{1,2,3}Politeknik Negeri Banjarmasin, Indonesia

*Corresponding Author:

hikmahwati@poliban.ac.id

Abstract

This study aims to develop a sales forecasting model as a basis for budget preparation in the local creative industry, with a case study of Hikmah Sasirangan MSME in South Kalimantan. The object of the study focuses on two main products, namely satin fabric and silk fabric, using historical sales data from 2020 to 2024. This research employs a descriptive qualitative approach combined with quantitative sales forecasting analysis to understand how forecasting results are interpreted and utilized in managerial decision-making. Data were collected through interviews, observation, and documentation, including sales records and production data. Two forecasting methods were applied, namely the Weighted Moving Average (WMA) and the Semi Average method. The results indicate that the Semi Average method produces higher sales estimates as it captures long-term linear trends, while the WMA method yields more conservative forecasts by emphasizing recent sales data. Based on the comparison, the WMA method was selected as the basis for preparing the 2025 sales budget, as it is considered more realistic and aligned with the production capacity and demand characteristics of the MSME. The findings suggest that selecting an appropriate forecasting model is crucial for improving budgeting accuracy and supporting prudent financial planning in local creative MSMEs.

Keywords: Sales Forecasting, Budgeting, Weighted Moving Average, Semi Average, Creative MSMEs.

1. Introduction

The local creative industry is one of the rapidly growing sectors and contributes significantly to the regional economy. One business that has survived and continues to grow is UMKM Hikmah Sasirangan in South Kalimantan, which produces sasirangan cloth as part of the Banjar cultural heritage. However, in its operations, the UMKM still faces challenges related to demand uncertainty and sales fluctuations. These conditions affect the accuracy of budget preparation, resulting in suboptimal production and financing decisions.

Sales forecasting has become an important instrument in budget preparation as it provides a quantitative overview of projected future sales. Sales forecasting is the process of estimating the quantity of products that will be sold in upcoming periods by utilizing historical data, trend patterns, and internal and external company conditions (Assauri, 2016; Makridakis & Wheelwright, 1974). Sales forecasting not only serves as a predictive tool but also forms the basis for strategic decision-making related to production, inventory control, budget planning, and marketing strategies. In other words, forecasting enables companies to align their resources and production capacity with market demand (Ahagach et al., 2024; Bakri et al., 2019; N. Purba et al., 2022).

At the MSME level, sales forecasting plays a crucial role due to limited capital and production capacity. Many MSMEs face challenges such as unpredictable demand fluctuations, risks of overstocking or stockouts, and difficulties in financial planning (Marlina et al., 2018). Accurate forecasting enables MSMEs to determine production quantities, plan raw material requirements, estimate cash flow, and control costs more effectively. Unfortunately, most MSMEs have not implemented comprehensive forecasting models and tend to rely on intuition.

Therefore, this study was conducted to develop a sales forecasting model as a basis for budget preparation at UMKM Hikmah Sasirangan. Specifically, the research aims to identify sales patterns, determine the most appropriate forecasting model based on historical data, and prepare a more accurate sales budget. This study is expected to contribute to the improvement of MSME management practices, particularly in strengthening data-driven financial planning.

2. Theoretical Background

2.1. Concept of Sales Forecasting

Sales forecasting is the process of estimating the quantity of products that will be sold in future periods by utilizing historical data, trend patterns, as well as internal and external company conditions (Assauri, 2016; Makridakis & Wheelwright, 1974). This technique serves as a foundation for production planning, budgeting, inventory management, and marketing strategy. At the MSME level, forecasting approaches have proven relevant in predicting demand, thereby helping to avoid stock shortages or surpluses (Marlina et al., 2018). Other studies indicate that sales forecasting underpins financial planning and overall business performance (Marlina et al., 2018). Research in the bakery industry in Nigeria further shows that sales forecasting positively contributes to logistics planning, cost control, and organizational performance (Kelly, 2022). Sales forecasting is widely recognized as a strategic tool in business management, as it enables companies to prepare production plans, budgets, inventory control, and marketing strategies based on historical data and market trends. Studies on MSMEs suggest that even simple forecasting techniques can provide reasonably accurate predictions despite limited historical data (Jumardi & Widiastuti, 2021). Moreover, research indicates that historical data-based forecasting techniques are effective for small enterprises, as demand patterns tend to be stable and easily observed (Herlina & Windu, 2025).

2.2. Weighted Moving Average (WMA)

Weighted Moving Average (WMA) is a forecasting method that uses a moving average with specific weights assigned to each period, giving greater weight to more recent data, which makes it more responsive to changes in demand trends (Heizer et al., 2023). This method is often preferred because it can adjust predictions according to recent sales fluctuations. Several studies indicate that WMA produces relatively low error rates and is effective for businesses with moderate sales variations. For instance, Tamtama & Riantisari (2024) found that WMA yielded the lowest prediction errors compared to other methods, making it suitable for small- to medium-sized enterprises. Similarly, Wijaya et al. (2025) reported that WMA helps in planning inventory and sales with considerable accuracy. Even in web-based sales, WMA has proven to be more reliable than smoothing methods, thereby supporting management decisions regarding stock and sales planning (Faizin et al., 2025).

2.3. Semi Average Method

The Semi Average method is a basic forecasting technique that divides historical data into two equal groups and then calculates the average of each group to construct a linear trend line (Husna et al., 2024). This method is considered easy to apply and appropriate when sales patterns tend to be stable without extreme fluctuations (Montgomery et al., 2008). The Semi Average approach is one of the simplest forecasting methods and is most suitable for data exhibiting relatively stable patterns over time (Aslam, 2023). In the context of micro, small, and medium enterprises (MSMEs), this method is useful for identifying long-term trends without requiring complex statistical analysis. Studies by Mnyazi & Makhamara (2023), Himanshu and Patil (2025), and Ahmed et al. (2025) show that the Semi Average method is effective when historical data are limited but display a clearly identifiable trend.

2.4. Accuracy and Selection of Forecasting Methods

The selection of an appropriate forecasting method is influenced by the characteristics of historical data, the stability of demand, and the information needs of management. The Weighted Moving Average (WMA) method is more suitable for sales patterns that change gradually, as it assigns greater weight to more recent data and is therefore more responsive to actual market conditions (Dzulfikar et al., 2025). Comparative studies of various forecasting methods, including the Semi Average method, indicate that the level of forecasting error varies across methods, and that the choice of method largely depends on the nature of historical data and prevailing sales trends (Lestari et al., 2025). Empirical evidence further suggests that each forecasting method has its own strengths and limitations, making accuracy evaluation through error measures such as Mean Absolute Percentage Error (MAPE), Mean Absolute Deviation (MAD), or Mean Squared Error (MSE) essential before determining the most appropriate method (Anwar et al., 2025). Several studies comparing multiple forecasting techniques demonstrate that the most accurate method is not necessarily the most complex, but rather the one that best fits the characteristics of the data and the managerial objectives of the organization.

3. Methods

This study adopts a descriptive qualitative research design aimed at gaining an in-depth understanding of how a local creative industry prepares its sales budget. This approach was selected because it allows the researcher to closely observe business processes, routines, and managerial considerations in interpreting historical data as a basis for decision-making (Furidha, 2023). Through this approach, the study seeks to comprehensively describe the mechanism of sales forecasting applied by UMKM Hikmah Sasirangan and how the forecasting results are translated into an annual sales budget. The primary focus of the research is a single unit of analysis, namely UMKM Hikmah Sasirangan in Banjarmasin City, which has long been recognized as an actor in the local textile-based creative industry. The business owner and individuals involved in production and sales recording serve as the main sources of information, as they possess direct knowledge of business development, demand patterns, and considerations in setting sales targets. The research context encompasses operational dynamics and sales trends during the 2020–2024 period, ensuring that the findings reflect the actual conditions of the enterprise.

The research data were collected through interviews, observation, and documentation. Interviews were conducted directly with the business owner and operational staff to

obtain information regarding the business structure, production stages, product pricing, and sales strategies implemented. Field observations were carried out to examine the production flow and daily operational activities, enabling the researcher to understand the factors contributing to sales performance. Documentation was used to obtain concrete data in the form of production records, sales data, product price lists, and other documents relevant to the preparation of the sales budget. During the analysis stage, qualitative information on business conditions was integrated with quantitative data processing in the form of sales forecasting. Two forecasting methods were applied to provide a more objective perspective, namely the Weighted Moving Average (WMA) and the Semi Average method. The use of these two methods allowed the researcher to assess sales trends more comprehensively and to select the most conservative and realistic estimate as the basis for preparing the sales budget.

The Weighted Moving Average (WMA) method is used to generate projections by assigning specific weights to more recent historical periods. The basic formula of this method is:

$$\text{WMA} = \frac{\sum(w_t \cdot X_t)}{\sum w_t}$$

where X_t represents the sales value in period t , and w_t denotes the weight assigned to each period. Greater weights are given to more recent data, making this method more sensitive to changes in sales trends (Dzulfikar et al., 2025). In the context of micro, small, and medium enterprises (MSMEs), WMA is commonly used due to its simplicity, ease of application, and suitability for businesses with relatively moderate demand fluctuations. In addition, this study also applies the Semi Average method, which divides historical data into two groups of equal size. The average value of each group is calculated, and these two averages are then used to construct a linear trend line using the following equation:

$$Y = a + bX$$

where a is the constant (intercept) and b is the trend coefficient (Ayu et al., 2020). This method is widely used for sales patterns that tend to be stable over time, making it appropriate for MSMEs with relatively consistent demand patterns. After calculating both forecasting methods, the smaller forecast value between the Weighted Moving Average and the Semi Average methods was selected as the basis for preparing the 2025 sales budget, combined with the average sales percentage from previous years. This selected value was then allocated into monthly sales projections using the average monthly sales contribution percentages observed in prior periods.

4. Results and Discussion

The results of this study indicate that sales forecasting at UMKM Hikmah Sasirangan was conducted by applying two forecasting methods, namely the Weighted Moving Average (WMA) and the Semi Average method, to two main product types: satin fabric and silk fabric. The historical sales data used in this analysis cover the period from 2020 to 2024.

4.1. Sales Forecasting Using the Weighted Moving Average Method

The application of the Weighted Moving Average (WMA) method is carried out by assigning greater weights to more recent sales data, making this method more responsive to changes in sales patterns. For satin fabric products, the calculation results indicate that

the WMA value in 2023 was 3,869 units, while in 2024 it adjusted to 3,655 units. This figure reflects a relatively stable sales trend with no significant fluctuations in the most recent period. Meanwhile, for silk fabric products, the WMA forecasting results show an estimated sales volume of 335 units in 2023, which increased to 366 units in 2024. This increase indicates a moderate growth in demand, although it remains within a manageable range.

Table 1. Weighted Moving Average Method

Year	Satin Fabric		Silk Fabric	
	Sales	WMA	Sales	WMA
2020	366	-	121	
2021	1,095	-	183	
2022	3,650	-	365	
2023	3,650	3,869	365	335
2024	3,660	3,655	366	366

Source: processed data (2025)

Based on these results, the sales forecast using the Weighted Moving Average method for 2025 produces an estimated sales volume of 3,655 units for satin fabric and 366 units for silk fabric. These values are subsequently used as the initial basis for preparing the sales budget.

4.2. Forecasting Using the Semi Average Method

The Semi Average method is applied by dividing historical sales data into two equally sized groups and then calculating the average of each group to construct a linear trend line. For the satin fabric product, the calculation results in a constant value (a) of 1,704 and a trend coefficient (b) of 650.

Table 2. Weighted Moving Average Method

Year	Sales (Y)	X	Semi Total	Semi Average	Sales (Y)	X	Semi Total	Semi Average
2020	366	-1	5,111	$\frac{5,111}{3}$ 1,704	121	-1	669	$\frac{669}{3}$ 223
2021	1,095	0			183	0		
2022	3,650	1			365	1		
2022	3,650	1	10,960	$\frac{10,960}{3}$ 3,653	365	1	1,096	$\frac{1,096}{3}$ 265
2023	3,650	2			365	2		
2024	3,660	3			366	3		

Source: processed data (2025)

The Semi Average method forms a linear trend equation as follows:

$$Y = a + bX$$

The trend coefficient (b) is calculated using the following equation:

$$b = \frac{Y_2 - Y_1}{n} \quad (2)$$

where:

Y_1 = the average of Group I

Y_2 = the average of Group II

n = the number of periods in each group

Based on the results of data processing for satin fabric, the following values are obtained:

$$a = 1.704$$

$$b = \frac{3.653 - 1.704}{3}$$

$$b = \frac{1.950}{3}$$

$$b = 650$$

By substituting the values of a , b , and $X = 4$ (the fourth year after the midpoint of the data), the forecasted sales of satin fabric for the year 2025 are calculated as follows:

$$Y = 1.704 + 650(4)$$

$$Y = 4.303$$

Based on the results of data processing for silk fabric, the following values are obtained:

$$a = 223$$

$$b = \frac{365 - 223}{3}$$

$$b = \frac{142}{3}$$

$$b = 47$$

By substituting the values of a , b , and $X = 4$, the forecasted sales of silk fabric for the year 2025 are calculated as follows:

$$Y = 223 + 47(4)$$

$$Y = 413$$

Based on the derived trend equation, the estimated sales of satin fabric in 2025 amount to 4,303 units. For silk fabric, the Semi Average calculation yields a constant value (a) of 223 and a trend coefficient (b) of 47. By applying the linear trend equation, the estimated sales of silk fabric in 2025 are projected at 413 units. These results reflect a long-term upward growth trend, although the growth rate for silk fabric is relatively lower compared to that of satin fabric.

4.3. Comparison of Forecasting Results and Selection of the Preferred Method

The comparative results indicate that the Semi Average method produces higher forecast values than the Weighted Moving Average method for both satin fabric and silk fabric products.

Table 3. Comparison of Sales Forecasts for 2025

Product	Method	
	<i>Weighted Moving Average</i>	<i>Semi Average method</i>
Satin Fabric	3.655	4.303
Silk Fabric	366	413

Source: processed data (2025)

In detail, the sales forecast for satin fabric using the Semi Average method is 4,303 units, while the Weighted Moving Average (WMA) method yields 3,655 units. For silk

fabric, the Semi Average method produces an estimated 413 units, whereas the WMA method results in 366 units.

The findings indicate that the application of the Weighted Moving Average (WMA) and Semi Average methods produces different forecasting values for satin and silk fabrics at Hikmah Sasirangan MSME. The WMA method generates lower forecast values than the Semi Average method for both products. Theoretically, WMA assigns greater weight to more recent sales data, making it more sensitive to actual business conditions and short-term demand changes (Heizer et al., 2023). This finding is consistent with studies by Tamtama & Riantisari (2024) and Wijaya et al. (2025), which show that WMA is more suitable for MSMEs with relatively stable sales patterns but mild fluctuations, a common characteristic of local craft-based creative industries.

In contrast, the Semi Average method produces higher forecast values because it emphasizes the formation of a long-term linear trend from historical data. By dividing the data into two large groups and calculating their averages, this method tends to capture the general direction of growth without considering recent sales variations (Montgomery et al., 2008). In the context of Hikmah Sasirangan MSME, the Semi Average forecasts reflect an assumption of consistent year-to-year sales growth. This result aligns with studies by Himanshu & Patil (2025), and Ahmed et al. (2025), which suggest that the Semi Average method is effective for identifying long-term trends but may lead to overly optimistic estimates when applied to businesses with limited production capacity and seasonal demand dynamics.

Based on the comparison of the two methods, this study determines the Weighted Moving Average (WMA) as the basis for preparing the 2025 sales budget, as it produces more conservative and realistic forecasting values. The selection of this method is consistent with the prudence principle in MSME budgeting, where overly optimistic sales estimates may trigger the risk of overproduction, inventory waste, and pressure on cash flow (A. S. br Purba & Trihastuti, 2023). These findings reinforce the results of studies by Anwar et al. (2025) and Lestari et al. (2025), which emphasize that the most appropriate forecasting method is not necessarily the most complex, but rather the one that best fits the characteristics of historical data and managerial objectives. Therefore, the application of WMA is not only technically relevant, but also supports more measured and informed decision making in business planning at Hikmah Sasirangan MSME.

5. Conclusion

This qualitative study provides an in-depth understanding of the sales budgeting process at Hikmah Sasirangan MSME by applying two forecasting models, namely Weighted Moving Average and Semi Average. The analysis of historical sales data and the interpretation of business practitioners indicate that the Weighted Moving Average method produces lower estimates that are closer to actual operational conditions. This more conservative approach was selected as the basis for sales planning in 2025, as it aligns with production capacity, customer demand patterns, and the relatively stable market characteristics of sasirangan fabrics. The forecasting results project sales of 3,655 units of satin fabric and 366 units of silk fabric in 2025. These projections were subsequently allocated into a monthly sales budget based on the sales contribution patterns of previous years. The distribution pattern shows only minor variations across periods, with the highest sales occurring in odd-numbered months and the lowest sales recorded in February. These findings confirm that MSME sales rhythms tend to be

consistent and follow mild seasonal patterns, enabling the budgeting process to be conducted in a more measurable and realistic manner.

From a theoretical perspective, this study enriches the literature on MSME budgeting by demonstrating that forecasting models are not merely technical tools, but are also shaped by how business owners interpret historical information as a basis for decision making. The qualitative approach illustrates that the selection of forecasting methods is highly dependent on context, experience, and the firm's capacity to manage risk, thereby contributing to a deeper understanding of forecasting practices in local creative industries. From a practical standpoint, the findings offer direct benefits for Hikmah Sasirangan MSME. Forecasting information assists business owners in estimating raw material requirements, regulating production schedules, minimizing the risk of excess or insufficient inventory, and formulating sales strategies that are more responsive to demand patterns. Accordingly, the sales budget functions not only as a planning instrument but also as a control mechanism that strengthens MSME operational efficiency.

Based on these findings, several recommendations can be proposed. First, MSME actors should improve the quality of sales record-keeping so that historical data can be optimally utilized in the forecasting process. Second, more varied forecasting methods may be considered in future periods to capture potential changes in demand patterns. Third, business owners' capacity to interpret data and utilize forecasting information should be enhanced through budgeting and financial management training. In addition, marketing strategies tailored to seasonal patterns may improve sales effectiveness. This study also opens opportunities for future research to explore non-quantitative factors, such as consumer preferences, fashion trends, and digital marketing dynamics, that influence sasirangan product sales.

References

- Ahaggach, H., Abrouk, L., & Lebon, E. (2024). Systematic Mapping Study of Sales Forecasting: Methods, Trends, and Future Directions. *Forecasting*, 6, 502–532. <https://doi.org/https://doi.org/10.3390/forecast6030028>
- Ahmed, M. K., Hossain, M. E., Bhuiyan, M. M. R., Hossain, S., Khair, F. B., Hossain, S., & Manik, M. M. T. G. (2025). Forecasting Sales Trends Using Time Series Analysis: A Comparative Study of Traditional and Machine Learning Models. *Membrane Technology*, 2025(1), 668–682. <https://doi.org/10.52710/mt.325>
- Anwar, F., Baharuddin, S. R., Farhan, M., May, T. B., & Sakti, A. Y. (2025). Evaluasi Kinerja Forecasting Penjualan Berdasarkan MAD, MSE, dan MAPE pada PT XYZ Logistik Manado. *Teknologi*, 27(2), 1–9. <https://ojs.unm.ac.id/teknologi/article/view/78921>
- Aslam, M. (2023). Time series data analysis under indeterminacy. *Journal of Big Data*, 10(126), 1–11. <https://doi.org/10.1186/s40537-023-00806-4>
- Assauri, S. (2016). *Manajemen operasi produksi: pencapaian sasaran organisasi berkesinambungan* (Third edit). RajaGrafindo Persada.
- Ayu, I. G., Saryanti, D., Ayu, I. G., & Indah, P. (2020). Analisis Perancangan Aplikasi Peramalan Persediaan Barang Dagang Sederhana dengan Metode Semi Average Method. *Jurnal Teknik Elektro Dan Komputer*, 9(3), 205–212. <https://ejournal.unsrat.ac.id/v3/index.php/elekdankom/article/view/31415/30355>
- Bakri, R., Data, U., & Probondani Astuti, N. (2019). Aplikasi Auto Sales Forecasting Berbasis Computational Intelligence Website untuk Mengoptimalkan Manajemen

- Strategi Pemasaran Produk. *Jurnal Sistem Informasi Bisnis*, 9(2), 244–251. <https://doi.org/10.21456/vol9iss2pp244-251>
- Dzulfikar, F., Widyastuti, S., & Erwanto, M. (2025). Journal of Computation Science and Artificial Intelligence WEIGHTED MOVING AVERAGE METHOD FOR FORECASTING SALES OF FANS. *Journal of Computation Science and Artificial Intelligence*, 2(2), 8–13. <https://doi.org/10.58468/627v0176>
- Faizin, M. R., Rohman, M. G., & Zamroni, M. R. (2025). Comparison of Weighted Moving Average (WMA) and Single Exponential Smoothing (SES) Methods in Website-Based Sales Forecasting (Case Study: Adi Comp Store). *Journal of Artificial Intelligence and Engineering Applications*, 5(1), 1103–1112. <https://ioinformatic.org/index.php/JAIEA/article/view/1563/1080>
- Furidha, B. W. (2023). Comprehension of the Descriptive Qualitative Research Method: A Critical Assessment of the Literature. *ACITYA WISESA: Journal of Multidisciplinary Research*, 2(4). <https://doi.org/10.56943/jmr.v2i4.443>
- Heizer, J., Render, B., & Munson, C. (2023). *Operations Management: Sustainability and Supply Chain Management* (14th ed.). Global Edition.
- Herlina, & Windu, F. N. (2025). Peramalan dan Penyusunan Anggaran Penjualan Pada UMKM Bibit Buah XYZ di Kota Jambi. *AKUA: Jurnal Akuntansi Dan Keuangan*, 4(3), 392–400. <https://doi.org/10.54259/akua.v4i3.4945>
- Himanshu, N., & Patil, D. D. (2025). International Journal of Research Publication and Reviews Sales Forecasting Using Machine Learning Approaches: A Comparative Study. *International Journal of Research Publication and Reviews*, 6(7), 596–598. <https://ijrpr.com/uploads/V6ISSUE7/IJRPR50084.pdf>
- Husna, H., Lubis, M. Z. M., & Mohamad, Z. Z. (2024). Trend Analysis of Profitability Ratio of Indonesian Sharia Bank Using Semi Average Method. *Jurnal Ilmu Keuangan Dan Perbankan (JIKA)*, 13(2), 367–380. <https://doi.org/10.34010/jika.v13i2.12959>
- Jumardi, R., & Widiastuti, S. H. (2021). Aplikasi Forecasting Penjualan Dan Persediaan Produk Usaha. *JSAI: Journal Scientific and Applied Informatics*, 4(3), 383–390. <https://doi.org/10.36085/jsai.v4i3.2756>
- Kelly, R. (2022). Understanding The Importance of Sales Forecasting In Improving Organizational Performance: A Study On The Bakery Industry In Nigeria. *Interdisciplinary Research Journal of Management and Social Sciences*, 09(1), 91–104. <https://sadijournals.org/index.php/IRJMSS/article/view/324/326>
- Lestari, I. D., Rininda, B. P., Sur, W. A. A., & Hayatie, M. N. (2025). Universitas Ibnu sina (uis). *Realible Accounting Journal*, 4(2), 119–133. <https://ojs3.lppm-uis.org/index.php/RAJ/article/view/899/715>
- Makridakis, S., & Wheelwright, S. (1974). Forecasting Methods for Managers. In *Operational Research Quarterly (1970-1977)* (Vol. 25, Issue 4, pp. 648–649). Palgrave Macmillan Journals on. <http://www.jstor.org/stable/3008101>
- Marlina, W. A., Erizal, N., & Ahmad, F. A. (2018). Forecasting technique using time sequence: model penentuan volume produksi Sanjai di UKM Rina Payakumbuh. *Jurnal Manajemen*, 9(2), 187–196. <https://doi.org/10.32832/jm-uika.v9i2.1567>
- Mnyazi, M., & Makhamara, F. H. (2023). Operational Strategies and Performance of Small and Medium Enterprises in Nairobi City County, Kenya. *International Journal of Business Management, Entrepreneurship and Innovation*, 5(1), 1–18. <https://doi.org/10.35942/jbmed.v5i1.298>
- Montgomery, D. C., Jennings, C. L., & Kulahci, M. (2008). *Introduction to Time Series*

Analysis and Forecasting. Wiley.

- Purba, A. S. br, & Trihastuti, A. (2023). Perhitungan Sales Forecasting Sebagai Alat Perencanaan Dan Pengendalian Kinerja Bisnis (Studi Kasus Pada Toko Dearjosh Computer). *Jurnal Riset Ilmu Akuntansi*, 2(1), 275–292. <https://doi.org/https://doi.org/10.55606/jurnalrisetilmuakuntansi.v2i1.211>
- Purba, N., Sitorus, N. J., & Aisyah, S. (2022). Sistem Supply Chain Management. *Jurnal Manajemen Akuntansi (JUMSI)*, 2(2), 218–227. <https://doi.org/https://doi.org/10.36987/jumsi.v2i2.3059>
- Tamtama, N. N., & Riantisari, R. (2024). Analisis Peramalan Permintaan Melalui Metode Moving Average, Weighted Moving Average dan Exponential Smoothing (Studi Kasus Pada Exist Auto Detailing). *PRIMANOMICS: JURNAL EKONOMI DAN BISNIS*, 22(1), 1–12. <https://doi.org/10.31253/pe.v22i1.2685>
- Wijaya, B. A. S., Mahmudi, A., & Wibowo, S. A. (2025). Perancangan Sistem Peramalan Penjualan Laptop dengan Pendekatan Weighted Moving Average: Studi pada Toko Markas Laptop. *IJAI Indonesia Journal of Applied Informatics*, 9(2), 270–280. <https://jurnal.uns.ac.id/ijai/article/view/95711/pdf>