

## ABSTRAK

FORZA GYM Babarsari sebagai pusat kebugaran menghasilkan data operasional berupa data kunjungan anggota dan transaksi penjualan yang belum dimanfaatkan secara optimal sebagai dasar pengambilan keputusan. Fluktuasi kunjungan menyulitkan perencanaan operasional, sedangkan data transaksi belum dianalisis untuk mengetahui pola penjualan. Penelitian ini bertujuan meramalkan jumlah kunjungan anggota menggunakan metode *Autoregressive Integrated Moving Average* (ARIMA) serta menganalisis pola penjualan menggunakan *Market Basket Analysis* (MBA) berbasis algoritma Apriori.

Data yang digunakan terdiri atas 515 data kunjungan harian dan 6.560 data transaksi penjualan pada periode 2 September 2024 sampai 6 Februari 2026. Analisis ARIMA dilakukan melalui uji stasioneritas dengan *Augmented Dickey-Fuller* (ADF), identifikasi parameter ACF dan PACF, estimasi kandidat model, seleksi model terbaik menggunakan *Akaike Information Criterion corrected* (AICc), diagnostik residual dengan uji *Ljung-Box*, serta evaluasi akurasi menggunakan MAE, RMSE, dan MAPE. Analisis MBA dilakukan melalui pra-pemrosesan data, transformasi *one-hot encoding*, pembentukan *frequent itemset*, dan *association rule* berdasarkan nilai *support*, *confidence*, serta *lift*.

Hasil penelitian menunjukkan bahwa model terbaik adalah ARIMA(1,0,5) dengan MAE 9,317, RMSE 12,168, dan MAPE 37,775%. Analisis MBA menunjukkan item dengan frekuensi transaksi tertinggi adalah aqua 600ml, visit, aqua 1.5l, dan perpanjang. Dengan demikian, ARIMA dapat membantu perencanaan operasional jangka pendek, sedangkan MBA mendukung strategi pemasaran berbasis pola penjualan.

**Kata Kunci:** ARIMA, peramalan, *Market Basket Analysis*, kunjungan anggota, pola penjualan.

## **ABSTRACT**

*FORZA GYM Babarsari, as a fitness center, generates operational data in the form of member visit data and sales transaction data, which have not yet been optimally utilized as a basis for decision-making. Fluctuations in visits make operational planning difficult, while transaction data have not been analyzed to identify sales patterns. This study aims to forecast the number of member visits using the Autoregressive Integrated Moving Average (ARIMA) method and to analyze sales patterns using Market Basket Analysis (MBA) based on the Apriori algorithm.*

*The data used consist of 515 daily visit records and 6,560 sales transaction records from September 2, 2024, to February 6, 2026. The ARIMA analysis was conducted through stationarity testing using the Augmented Dickey-Fuller (ADF) test, parameter identification using ACF and PACF, candidate model estimation, best model selection using the corrected Akaike Information Criterion (AICc), residual diagnostics using the Ljung-Box test, and accuracy evaluation using MAE, RMSE, and MAPE. The MBA analysis was carried out through data preprocessing, one-hot encoding transformation, frequent itemset generation, and association rule mining based on support, confidence, and lift values.*

*The results show that the best model is ARIMA(1,0,5), with an MAE of 9.317, RMSE of 12.168, and MAPE of 37.775%. The MBA analysis indicates that the items with the highest transaction frequency are aqua 600ml, visit, aqua 1.5l, and perpanjang. Therefore, ARIMA can support short-term operational planning, while MBA can support marketing strategies based on sales patterns.*

**Keywords:** *ARIMA, forecasting, Market Basket Analysis, member visits, sales patterns.*