

SALA JALALUDIN

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PROFESSIONAL SUMMARY

Statistics student at Universitas Sultan Ageng Tirtayasa focused on data science and data-driven modeling. Experienced in building and publishing an open-source Python package (FramePeek, available on PyPI) for automated exploratory data analysis, as well as applying statistical analysis and machine learning algorithms (unsupervised learning: K-Means, GMM, Hierarchical Clustering, PAM, DBSCAN) to a large-scale customer segmentation project (over 1 million transactions) and a customer churn analysis. Strong foundation in inferential statistics, structured analytical and problem-solving skills, and experience leading scientific and student organizations. Seeking to build a career as a Data Scientist in a data- and research-driven environment.

EDUCATION

Universitas Sultan Ageng Tirtayasa — Statistics Program | GPA: 3.74 / 4.00 2024 – Present

- Relevant coursework: Descriptive & Inferential Statistics, Regression Analysis & Statistical Modeling, Programming for Data Analysis (Python & R)

SMAN 1 Bayah — Mathematics and Natural Sciences 2021 – 2024

- Strong foundation in mathematics and quantitative logic; active in scientific organizations (KIR, OSIS)

DATA PROJECTS

FramePeek — Open-Source Python Package for Pandas EDA 2026

- Designed and built an open-source Python package from scratch to automate the early stages of the EDA process on pandas DataFrames
- Built a single core function (profile) that generates a structured data profile covering overview, column profiling, missing values, duplicates, numeric & categorical distributions, outliers, correlations, target analysis, and data quality warnings
- Applied software engineering discipline: type checking (mypy), linting (ruff), and unit testing (pytest) with a 100% code coverage target
- Published the package to PyPI (pip install framepeek) with full documentation (getting started guide, API reference, changelog) and shipped 5 versions (0.1.0–0.2.2)
- Project links: [GitHub](https://github.com) | [PyPI](https://pypi.org)

RFM-Based Customer Segmentation

- Performed customer segmentation on the Online Retail II dataset (1,067,371 transactions, 5,878 unique customers) using the RFM (Recency, Frequency, Monetary) approach
- Applied and compared five unsupervised learning algorithms: K-Means, Gaussian Mixture Model (GMM), Hierarchical Clustering, PAM/K-Medoids, and DBSCAN
- Evaluated cluster quality using internal criteria (Silhouette Width, Shadow Value, Davies-Bouldin Index, and Calinski-Harabasz Index) to determine the best algorithm and cluster count
- Built the full analysis pipeline in R (tidyverse, factoextra, cluster, mclust, fpc, dbSCAN) and Python (pandas, scikit-learn)
- Compiled a complete report in R Markdown and Jupyter Notebook format with README documentation

Customer Churn Analysis

- Conducted Exploratory Data Analysis (EDA) to identify key factors associated with customer churn
- Analyzed the relationship between churn and user activity, subscription duration, discount frequency, payment method, and region
- Calculated churn rate, inter-variable correlation, and customer behavior trends using Python and SQL
- Generated data-driven insights as a basis for customer retention strategy recommendations
- Prepared systematic, easy-to-follow project documentation (README)

TECHNICAL & ANALYTICAL SKILLS

Programming & Tools

- Python (pandas, numpy, scikit-learn, matplotlib, seaborn) — data cleaning, EDA, machine learning, data visualization
- SQL — DDL (CREATE, ALTER, DROP), JOINS (INNER/LEFT/RIGHT/FULL), database design (ERD, normalization 1NF–3NF), analytical queries and aggregation
- R (tidyverse, factoextra, cluster, mclust, fpc, dbSCAN) — statistical analysis and machine learning
- pytest, mypy, ruff, setuptools — unit testing, type checking, linting, and Python packaging
- Git & GitHub — version control and project documentation

Machine Learning & Statistics

- Unsupervised learning: K-Means, Gaussian Mixture Model (GMM), Hierarchical Clustering, PAM/K-Medoids, DBSCAN
- Model evaluation: Silhouette Width, Davies-Bouldin Index, Calinski-Harabasz Index, Shadow Value
- Inferential statistics: hypothesis testing, regression analysis, statistical modeling
- Exploratory Data Analysis (EDA), feature understanding, data preparation

Soft Skills

- Data interpretation for business decision-making
- Insight development and report writing
- Analytical thinking and problem-solving
- Teamwork, coordination, and leadership

WORK EXPERIENCE

Teaching Assistant — Database & SQL (STA623211), Statistics Laboratory, UNTIRTA	2026
- Facilitated practicum sessions for the Database & SQL course for Statistics students, covering DDL (CREATE, ALTER, DROP TABLE), ERD design and normalization (1NF–3NF), JOINS (INNER, LEFT, RIGHT, FULL), and R–MySQL integration via RMySQL/DBI - Guided students through hands-on MySQL case studies, from database schema design to writing multi-table queries, aggregations, and sorted results - Supported practicum grading components (lab reports and post-tests) per the Statistics Laboratory's assessment guidelines	
Operations Assistant & Cashier — Family Retail Business, <i>Bayah, Lebak</i>	2021 – 2024
- Served dozens of customers daily with friendly, solution-oriented communication, helping locate products and building strong relationships to maintain local customer loyalty - Assisted in managing, arranging, and checking the quality of vegetable stock and daily necessities to ensure products remained fresh and fit for sale	

ORGANIZATIONAL EXPERIENCE

Staff, Department of Interest & Talent Development — HIMASTA UNTIRTA	2025 – Present
- Contributed to the planning and implementation of interest and talent development programs for Statistics students - Collaborated with the department team to coordinate activities and evaluate programs - Supported academic and non-academic activities aimed at improving student competency	
Chairman, KIR Angkasa — SMAN 1 Bayah	2023 – 2024
- Initiated and established a new scientific extracurricular aligned with the school's vision and mission - Led the planning and implementation of organizational work programs - Coordinated members and ensured continuity of organizational activities	
Vice Chairman, KILAS — SMAN 1 Bayah	2023
- Supported the chairman in strategic planning and decision-making - Coordinated members in academic activities and student interest development - Maintained internal communication and collaboration within the organization	
Member, OSIS (Student Council) — SMAN 1 Bayah	2023
- Participated in coordination meetings and the execution of school activities - Supported cooperation and communication among members	

ACHIEVEMENTS

1st Place, Essay Competition — Semarak HAKORDIA Banten	2022
Selected as the best essay at the regional level on the theme of anti-corruption awareness	
3rd Place, Journalism Competition — FLS3N	2023
Achieved a regional ranking for analytical and journalistic writing skills	

TRAINING & CERTIFICATIONS

- How to Clean Data with Python — Codecademy (data cleaning techniques, missing-value handling, data preparation)

LANGUAGES

- Indonesian — Native
- English — Basic Working Proficiency