

**IMPLEMENTASI PREDIKSI PERTUMBUHAN PENDUDUK
KECAMATAN SIDAREJA CILACAP DENGAN ALGORITMA
SUPPORT VECTOR MACHINE BERBASIS WEBSITE
MENGUNAKAN FRAMEWORK STREAMLIT**

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ABSTRAK

Kecamatan Sidareja, Kabupaten Cilacap, menghadapi tantangan dalam pengelolaan data kependudukan, termasuk keterbatasan arsip historis, publikasi data yang tidak efisien (± 100 halaman), dan potensi ketidakakuratan akibat perbedaan sumber atau data usang. Penelitian ini mengimplementasikan sistem berbasis *website* menggunakan *framework* Streamlit untuk memprediksi pertumbuhan penduduk dengan algoritma Support Vector Machine (SVM). Sistem ini menyediakan repositori data terstruktur (tahun 2016–2024) dan *dashboard* interaktif yang memvisualisasikan data kependudukan seperti : jumlah penduduk, migrasi, status perkawinan, putus sekolah, dan kepala keluarga beserta hasil prediksinya. Model SVM dievaluasi menggunakan metrik MAPE (Mean Absolute Percentage Error) dan R-squared, menunjukkan akurasi tinggi untuk semua aspek prediksi. Pengembangan sistem mengadopsi metode *Agile* dengan tahapan perencanaan kebutuhan, desain, pengembangan, pengujian (*blackbox testing*), dan *deployment*. Hasilnya, sistem berhasil mengatasi masalah pengarsipan data, menyajikan prediksi pertumbuhan penduduk yang akurat, dan memfasilitasi analisis data secara *real-time* bagi admin dan pengunjung. Seluruh fungsionalitas terverifikasi beroperasi optimal melalui pengujian.

Kata Kunci: penduduk, prediksi, Sidareja, Streamlit, SVM

**IMPLEMENTATION OF POPULATION GROWTH PREDICTION
IN SIDAREJA SUB-DISTRICT CILACAP
USING A SUPPORT VECTOR MACHINE ALGORITHM
IN A STREAMLIT-BASED WEBSITE FRAMEWORK**

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ABSTRACT

Sidareja Subdistrict, Cilacap Regency, faces challenges in population data management, including limited historical archives, inefficient data publication (± 100 pages), and potential inaccuracies due to conflicting sources or outdated data. This research implements a web-based system using the Streamlit framework to predict population growth with a Support Vector Machine (SVM) algorithm. The system provides a structured data repository (2016–2024) and an interactive dashboard that visualizes demographic data, including: population size, migration, marital status, school dropouts, and household heads along with their prediction results. The SVM model was evaluated using MAPE (Mean Absolute Percentage Error) and R-squared metrics, demonstrating high accuracy across all prediction aspects. The system was developed using the Agile methodology, encompassing stages of requirement planning, design, development, testing (black-box testing), and deployment. The results show that the system successfully addresses data archival issues, delivers accurate population growth predictions, and enables real-time data analysis for both administrators and visitors. All functionalities were verified to operate optimally through testing.

Keywords: population, prediction, Sidareja, Streamlit, SVM