

TourismXplorer: Interactive Dashboard for Data-Driven Decision-Making in Sri Lanka's Tourism Industry

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Abstract: The tourism industry is a critical component of Sri Lanka's economy, necessitating advanced tools for data-driven decision-making to enhance strategic planning and operational efficiency. This study presents the development of a comprehensive tourism dashboard designed specifically for tourism businesses in Sri Lanka. The dashboard offers a holistic view of the tourism landscape by integrating diverse data sources, including annual statistical reports (2018-2023), climate variables from the Sri Lanka Meteorological Department, and TripAdvisor reviews.

The novelty of this research lies in its multifaceted data integration, advanced visualization techniques, and predictive analytics capabilities. The dashboard provides stakeholders with real-time and historical insights into tourism dynamics. It includes key performance indicators (KPIs) such as tourist arrivals, revenue, expenditure, accommodation statistics, climate impact, visitor demographics, and sentiment analysis from reviews. Visualizations range from line, pie, and bar charts to shape maps, heat maps, and word clouds, enhancing data accessibility and interpretability. A standout feature of the dashboard is its predictive analytics page, which allows users to forecast tourist arrivals based on selected explanatory variables such as climate data and customer sentiments. This predictive ability enables stakeholders to simulate various scenarios and better prepare for future trends, making the dashboard an invaluable tool for strategic decision-making. The dashboard's user-friendly interface and customizable filtering options allow users to tailor their analyses based on specific criteria, such as year, region, and visitor attributes. This targeted approach ensures that tourism businesses can leverage the dashboard for practical decision-making, aligning with sustainable tourism development goals by monitoring environmental and social impacts.

This research advances the field of tourism analytics and provides a practical tool for enhancing the strategic and operational capabilities of tourism businesses in Sri Lanka. Future enhancements may include the incorporation of more sophisticated predictive models, which would further improve the dashboard's utility.

Keywords: Tourism Dashboard, Data Integration, Visualization, Predictive Analytics, Sustainable Tourism, Strategic Planning, Sri Lanka

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