UNIVERSITI TEKNOLOGI MARA

PREDICTIVE ANALYTICS OF ONLINE TREND SALES AND PRODUCT DEMAND FOR AISY ASYRAF SDN BHD

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ABSTRACT

E-commerce and data-driven marketing innovations have completely changed how businesses operate, particularly in the competitive fashion sector. The difficulty facing Malaysian fashion firm Aisy Aisyraf Sdn. Bhd. is how to use its growing online sales numbers to inform strategic decisions. The lack of systematic trend research, subpar stock forecasting, and reliance on intuition rather than data analysis are the main issues noted. By applying the CRISP-DM (Cross-Industry Standard Process for Data Mining) framework and predictive analytics techniques to a year's worth of online sales data from the company's website, this project seeks to address such issues. The project including phases for data preparation, modelling, and evaluation using programs like Microsoft Excel, RapidMiner and mostly Python. In order to determine trends in consumer behaviour, product performance, and the efficacy of promotions, the following prediction models Decision Tree, Random Forest, and XGBoost created and evaluated, the highest R2 result for performance evaluation goes to XGBoost which is 81.78% for Sales Prediction, 94.52% for Product Demand Prediction, 83.06% for Colour Demand Prediction. The most effective approach for accurately analysing categorical retail data out of all the ones used. To visualise such data and facilitate better decision-making, strategic planning, and marketing alignment, a dynamic dashboard was constructed using Power BI. The dashboard's functionality, usability, and connection to Aisy Aisyraf's business expansion would all be validated by expert review. Finally, how predictive analytics can keep small and medium-sized fashion enterprises competitive, nimble, and customer-focused while also improving business intelligence capabilities.