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Project Title: Predictive Sales Analysis and Optimization of Pharmacy Retail Outlets in Sri Lanka using Azure Machine Learning: A Study on the Impact of Store Characteristics and Promotional Strategies on Daily Sales Orders	
	Start Date: 7 JAN 2023
	Submission Date: 6 AUG 2023

**CONSENT**


I agree   
I do not agree

That the University shall be entitled to use any results, materials or other outcomes arising from my project work for the purposes of non-commercial teaching and research, including collaboration.

**DECLARATION**

**I confirm:**

- **That the work contained in this document has been composed solely by myself and that I have not made use of any unauthorised assistance.**
- **That the work has not been accepted in any previous application for a degree.**
- **All sources of information have been specifically acknowledged and all verbatim extracts are distinguished by quotation marks.**

Student Signature: 	Date Signed: 06 / AUG / 2023
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## **Abstract**

Business can gain actionable insights to improve their outcomes by analyzing their massive sale set of data and can have optimizing the business decisions in an effective way. Private companies, being more technology oriented, have concerned on the opportunities provided by data analytics. But most of the companies are postponing to set up the data analytics as they are not competent whether they ready for take the advantage of such technology. The main purpose of this study was to develop a robust sales forecasting model for the pharmaceutical company to accurately predict the sales of OTC products supplied to the pharmacy division of the largest supermarket chain in Sri Lanka. The study constructed five objectives and developed a forecasting model using Azure Machine Learning to forecast the data. The study collected the data through one of leading pharmaceutical companies in Sri Lanka. The empirical findings of the analysis found that the best fitted prediction regression model to forecast the sales data. Boosted Decision Tree Regression model which stands out as the most suitable model for the dataset, offering accurate and interpretable sales forecasts for pharmaceutical retail outlets. The findings of this study beneficial for the corporate managers and top - level managements of this sector when preparing their business entities to adopt machine language analytics.

**Keywords:** *Activity level, Azure Machine Learning, Store level, Temporal Construct*