

# **FOODSCAPE: A MACHINE LEARNING APPROACH FOR FOOD DEMAND FORECASTING IN RESTAURANTS**

**D.M. Thilina Supunsara Dissanayake**

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**Department of Computing**

**Informatics Institute of Technology, Sri Lanka**

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## **Abstract**

The right amount of food is an important part of maximizing restaurant revenues and also satisfying customers. When demand is lower than production, assets and resources will be lost, and when demand is more than availability there will be a lack of consumer satisfaction. This scenario is a real-life challenge for resource optimization, which can be efficiently overcome by machine learning, pattern recognition, and data mining techniques.

Demand forecasting systems are developed to the anticipation of the future demand for a specific product. This study is an outcome of the project to build such a demand forecasting system. The developed solution, FoodScape was built by making use of previous sales data and additional attributes of promotions and discount data to forecast the demand for a food item for the upcoming week.

FoodScape is focused on regression and a machine learning model that was trained by applying a voting regressor with several other regression algorithms. A web graphical interface was facilitated to interact and escort the user. Prediction is made considering the inputs captured by the user. The demand for food items will be able to forecast one by one and the results will be displayed separately.

**Keywords:** Demand forecasting, Machine learning, Regression, Food Demand