LITERATURE SURVEY

S.NO	TITLE	PROPOSED WORK	TOOLS USED/ALGORITHM	TECHNOLOGY	ADVANTAGES/DISADVANTAGES
1.	Prediction of Food Production Using Machine Learning Algorithms of Multilayer Perceptron and ANFIS	This research proposes two machine learning models for the prediction of food production. The adaptive network-based fuzzy inference system and multilayer perceptron methods are used to advance the prediction models. Time-series data related to livestock and agricultural productions in Iran from 1961 to 2017 have been collected from the FAOSTAT database. First, 70% of this data was used to train ANFIS and MLP, and the remaining 30% of the data was used to test the models. The results disclosed that the ANFIS model with generalized bell-shaped built-in membership functions has the lowest error level in predicting food production.	1.Multilayer Perceptron (MLP) 2.The Adaptive Network-based Fuzzy Inference System (ANFIS)	Data Science	ADVANTAGES This study contributes to food security research by providing a repayable tool to predict the future of agricultural and livestock production. DISADVANTAGES One of the limitations of this study is that forecasts for agricultural and livestock production are based only on time series data. Another limitation of this article is the generalization of the finding that the ANFIS model outperforms the MLP model because this finding is limited to the time series data of Iran and the result may differ in data related to another country.
2.	Food Demand Prediction Using the Nonlinear Autoregressive Exogenous Neural Network	The aim of this research is to develop models for food demand prediction based on a nonlinear autoregressive exogenous neural network. The research focuses on processed foods, such as bread or butter. The architectures of the developed models differed in the number of hidden layers and the number of neurons in the hidden layers, as well as with different sizes of the delay line, were tested for a given product. The results of the research show that depending on the type of product, the prediction performance slightly differed. The results of the R2 measure ranged from 96,2399 to 99,6477, depending on particular products. The proposed models can be used in a company's intelligent management system for the rationalcontrol of inventories and food production. This can also lead to a reduction in food waste.	1.NARXNN (Nonlinear Autoregressive Exogenous Neural Network) 2.MLFNN	Artificial Intelligence, Data Science	ADVANTAGES It is an effective technique for building prediction models of time series. It can support the rational control of food inventory and production while reducing waste and costs in the supply chain. DISADVANTAGES The main limitation of the developed models is the lack of the possibility of analysing small datasets (below 100 rows of data).
3.	Food Demand Prediction Using Machine Learning	In this paper, number of order is used to forecast stock of items, using machine learning with internal and external data. In this we provide an appropriate algorithm for demand forecasting which is capable of overpowering the wastage of short life items. Proposed algorithm like Bayesian Linear Regression, LASSO, XG Boost algorithm are used that considerably improves the forecasting performance. Here we are researching food demand forecasting methods using internal data such as number of orders.	1.Bayesian Linear Regression 2.Random Forest 3.Support Vector Machine (SVM) 4.LASS0 5.XGBoost	Data Science, Machine Learning	ADVANTAGES In this paper we presented penalized regression method, Bayesian Linear Regression K-nearest Neighbour, Decision tree approach as a food demand method. As we go through different algorithm for prediction the accuracy rate keeps on improving. There was not big difference other than precision rate of forecasting. XG boost is a decision-based boosting algorithm which is used for increasing the accuracy rate. DISADVANTAGES Refined prediction can be done based on many other factors like cultural habits, religious holiday, consumer preferences etc. This method can be used for predicting work force requirement, automated food ordering based on forecasting results.

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4.	Models for predicting perishable products demands in food trading companies	To analyse forecasting models and techniques to determine the demand for perishable food products in small and medium sized food retail business. Small and medium-sized enterprises (SMEs) have economic, structural and organizational characteristics that put them at a disadvantage compared to large corporations (Erum, Rafique and Ali, 2017). In addition, SMEs make up the majority of the global business sector and constitute an important source of employment and income, primarily for developing economies Accurate forecasting of perishable foods prevents the loss of these products and contributes to increased customer satisfaction. In this article, we conducted a systematic review of the literature on the main models for forecasting perishable food demands in small and medium enterprises developed during the period 2013-2018 .	1.Causal Models 2.Soft computing models 3.Hybrid models 4.Time series method	Data Science	ADVANTAGES These models contribute to improve the production plans of organizations, reduce product losses and increase customer satisfaction. It determined that the Asian continent and Latin America are the geographic areas with the greatest number of publications on forecasting models during the period. DISADVANTAGES The number of studies on this subject in the field of perishable foods is smaller than other fields of application.
5.	Food Demand Forecasting Using Machine Learning And Statistical Analysis	Target is to predict number of orders for given data. As this problem falls under regression category which deals with a continuous value output, there are certain methods or algorithms which are built for same purpose. Random Forest Regressor, XG Boost Regressor, Support Vector Regressor are the three methodologies to be considered. Based on certain condition it makes decisions. A decision tree is a kind of structure that looks like a hierarchical tree system. It is based on certain conditions, has a node as a function, and has parameters that are used to make some decisions that lead to decisions.	1.Prediction 2. Random Forest 3.Xg Boost 4.Support Vector Machines 5.Clustering	Data science, Machine learning	ADVANTAGES The model was able to predict the number of orders for requested and given next 10 weeks of input data as a test validation data. All the three algorithms were able to make prediction model and out of them Random Forest Regressor was able to outstand as a robust and reliable predictive model for the same. DISADVANTAGES There is a huge demand and need of Data Science in Food Industry as meals are one of important basic need for a human being. Reducing food wastage is an challenge and absolute way of making profit for the food delivery or manufactures. Manufacturing of raw products generally depends upon features like price, discount, area and many things.