

Chapter 6

Forecasting the Daily Sales of a Franchise

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ABSTRACT

Historically, restaurant managers used either historical data or simple logical methods to estimate customer numbers or sales volume. These techniques usually consist of an intuitive prediction based on the experience of the manager. However, restaurant sales forecasts are a complex task because they are influenced by numerous factors that can be classified as time, weather conditions, economic factors, and random events. In this case, old techniques may give insufficient results. It is aimed to compare the estimation Simit which is one of the most consumed daily snacks in Turkey sales accuracy of the learning methods and determine the model that provides the highest accuracy and determine the factors affecting the buying behavior of one of the leading Simit chain stores in Turkey in the food sector by using popular machine learning algorithms.

DATA ANALYSIS

The first step in learning the machine before estimating the data is the Data clearing and visualization process. It is necessary to bring the data that we have found without applying the Machine Learning methods into a processable form. It is necessary to visualize the Basic Effects in the Model. We have received from the company and we interviewed the authorities and we classified the variables as follows. Since our variables are categorical variables, we tried to derive the relationship with the dependent variable mostly with barplots and decision trees.

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We used R Programming for data processing. After the variables are translated into the corresponding formats. We converted the time values into time format and converted the values to be used as factors. This is followed by Data feature engineering. Here we need to derive new variables from making your data more meaningful. As a reason to do this, you may need to convert the time series into a feature series to reflect the temporal model.

Table 1. Important days

	Tanım	Tip	Aralık	Açıklama	
1	IsNationalHoliday	Factor	0,1	National Holiday	Important Days
2	Ramazan	Factor	0,1	Ramadan	

Table 2. Seasonal variations

	Tanım	Tip	Aralık	Açıklama	
1	IsWeekend	Factor	0,1	Weekend or not	Seasonal Variations
2	WeekDays	Factor	1,2,3,4,5,6,7	Weekdays or not	
3	Weeks	Date		Date of Weeks	
4	Year	Date		Date of Years	
5	Month	Date		Date of Months	
6	MonthDT	Factor	Ocak-Aralık	Month of the year	

Table 3. Weather conditions

	Tanım	Tip	Aralık	Açıklama	
1	Temp.avg	integer		Average Temperature	Weather Conditions
2	Dew.Point.avg	integer		Average Dew	
3	Humidity.avg	integer		Average Humidity	
4	Press.avg	integer		Average Press	
5	Visibility.avg	integer		Visibility	
6	Wind.avg	integer		Average Wind	
7	Precip	numeric		Precipitation	

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