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# Regression Analysis

12.8

In [Regression Analysis](#), you can use [Linear Regression](#) and [Nonlinear Regression](#) to automatically define valuation functions and thereby determine numeric target values. If you wish to generate the valuation functions, you need to train the analysis process using historic data.

After you have determined the valuation functions either by defining them directly or by training them on the basis of historic data, you can then apply them to other datasets as part of a prediction.



A beverage outlet wants to attract the younger end of the market by introducing a product from a higher price category into its product range.

## Linear Regression

The beverage outlet wants to estimate its revenue potential in the drinks market. Assuming that the revenue from the sale of drinks has a linear dependency on income and household size, a [linear regression](#) is performed on data where the revenue is already known. Training determines the influence that income, household size, and region have on the revenue from the sale of drinks. The function that is trained using this data can now be applied to prospects in order to calculate the potential revenue from such customers in this market.

## Nonlinear Regression

- The beverage outlet also wants to investigate the relevance of the attribute "age" for its potential revenue in the drinks market. Revenue here is unlikely to have a linear dependency on age. Nonlinear dependencies can also be analyzed by using [nonlinear regression](#).
- A newspaper publisher wants to identify customers with a high propensity to churn (in this instance, a strong likelihood of canceling their newspaper subscriptions). The publisher's customer database contains details relating to age, income, household size, academic qualifications, length of the subscription, and region, as well as a field for canceled subscriptions. If a customer canceled their subscription in the past quarter, this field contains the value 1, otherwise it contains the value 0. The function [Nonlinear Regression](#) is then trained using this data. The result of training should show the relationship between the different customer attributes and the canceled subscription field. The trained function then generates a value for each customer in the customer database, and this value can be used to reflect *that customer's propensity to churn*.

## See Also

[Special Settings for Regression Analysis](#)



