



# CoolaData Predictive Analytics



## About CoolaData

CoolaData empowers online companies to become proactive and predictive without having to develop, store, manage or monitor data themselves. It is an open data infrastructure which provides deep behavioral analytics to analyze, visualize, predict and act on data. CoolaData provides a full analytical stack at a fraction of the cost of developing similar capabilities in-house. Its customers get actionable answers to business questions, resulting in improved user acquisition, reduced churn rates, better conversion and higher customer lifetime value.

For more about CoolaData go to [www.cooladata.com](http://www.cooladata.com).

## Predictive Analytics

What would you give to know what your customers will do in the future? Most online companies track information on past customer activity, but the ability to survive and thrive online and in mobile is increasingly tied to the prediction of future actions and transactions.

**Predictive analytics is a broad term which describes a variety of statistical and analytical models used to predict future events.** Businesses use predictive models to identify risks and opportunities based on patterns in their data. These predictive models generate a score for each variable – the higher the score, the more probable it is that a behavior will take place.

Predictive analytics is in use by financial services, travel, healthcare, retail, gaming and more, but banks and financial services are at the forefront of its innovation. Banks utilize scoring models to process anything from credit history and loan applications to customer data and demographics in order to rank individuals by their probability of being a lucrative customer or a defaulter.

Predictive models define the relation between a certain subject's behavior and one or more predefined known variables. Variables in this case can be gender, age, time of purchase, item purchased, location, a sequence of actions online, etc. The model's objective is to predict the likelihood that a similar subject in a different sample will exhibit the same performance. Advancements in computing speed have enabled individual agent modeling systems to effectively simulate human behavior or reactions to given scenarios.

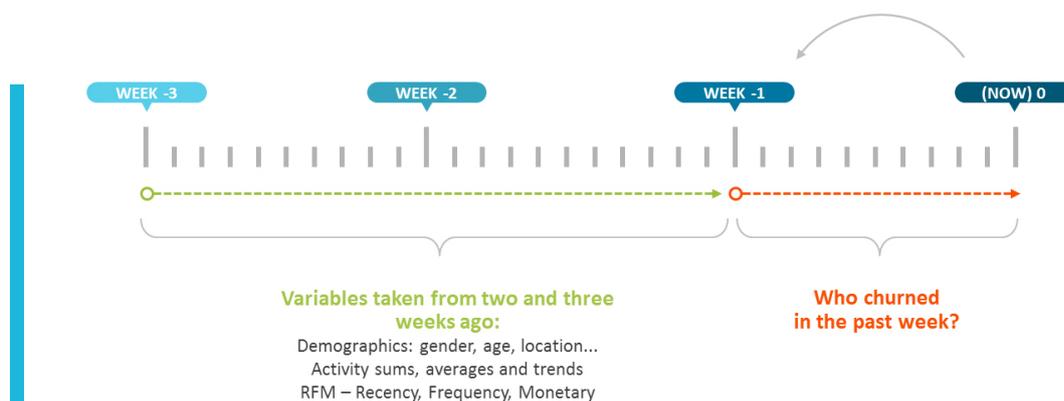
Data mining is an inseparable component when it comes to predictive analytics. We use it to identify trends, patterns and relationships. Only after the identification process is complete, can we move on to develop our predictive models. The overall goal of data mining processes is to extract information from a data set and transform it into an understandable structure for further use – in our case prediction.

It's important to note that many experts use the term predictive analytics broadly to describe two types of future-oriented big data scenarios: predictive and prescriptive. Predictive analytics looks into the future and helps deal with risk assessments and what-if scenarios. Prescriptive analytics focuses on analyzing what would happen based on different alternatives and scenarios, followed by a choice between best options and optimization of what's ahead. There are three phases when comes to business analytics:

1. First, descriptive analytics answers the questions **'what happened?'** and **'why did it happen?'**
2. Next, predictive analytics answers the question **'what will happen?'**
3. And finally, prescriptive analytics adds in the **'why will it happen?'**

The human mind is not capable of analyzing more than 2-3 variables, let alone 50, but functions allow us to analyze an unlimited amount of variables. We can predict what our subject's future behavior will be, based on the assumption that, in general, different humans tend to respond in similar ways to specific actions. This method of using one group's behavior to predict another's is referred to as The Simple Method. So how is it done?

Take a period of three weeks (back) and divide the weeks into a two week period (green) and a one week period (red). Start from the green part which contains weeks one and two. Observe what happened during these two weeks and set up your variables according to the occurrences. Next, look at the final red week and calculate that week's actual real churn rate for each variable. Finally, go to time zero (now) and give your variables scores based on the green weeks to predict the week ahead.

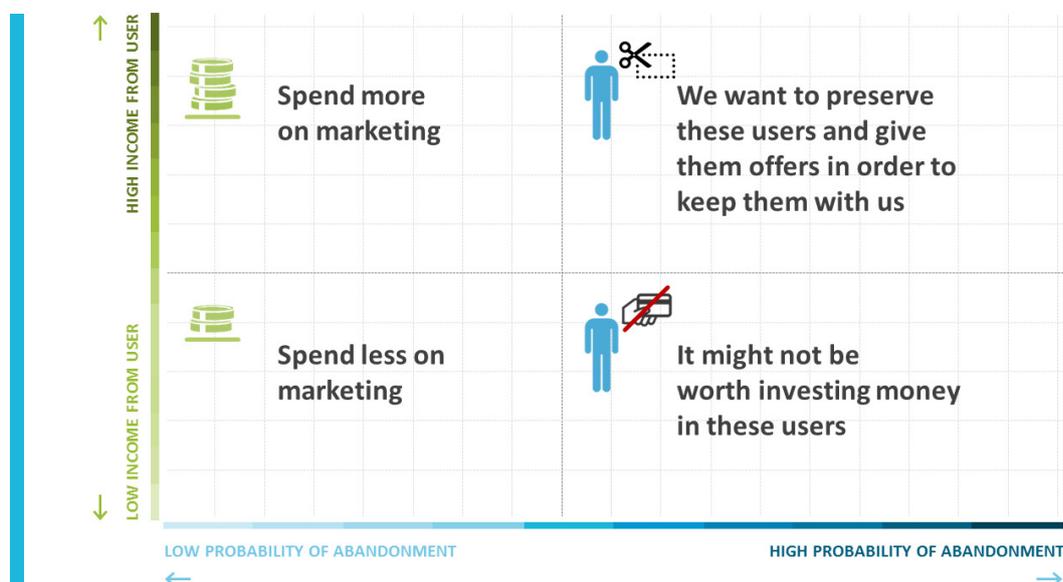


At CoolaData we use advanced BI technology that produces a predictive score for each customer, including logistic regression, linear regression, mark of chains and segmentation. We use these scores to build our predictive models and figure out which variables have the most effect; or, specifically, to answer questions like 'what's going to happen with a certain user who logged into a game and then left after making it to Level 2?'

The amount of variables used is what makes predictive analytics so special. The more variables included, the higher the prediction's quality (or confidence level).

The regression technique's focus lies on establishing a mathematical equation as a model to represent the interactions between the different variables in consideration. Machine learning, or the ability of a computers to learn, is used in a wide variety of fields including medical diagnostics, face and speech recognition and analysis of the stock market. In some cases, the relationships between different variables can be very complex and the mathematical form of the dependencies unknown. For such cases, machine learning techniques emulate human cognition and learn from training examples to predict future events.

One of the most common predictive models is used for **churn**, which is useful to have once translated it into business terms. Below, we've created a simple matrix of scenarios and actions which can be of use. Typically we'll want to work hard keeping customers on the upper right: those who spend a lot and have a low probability of abandonment.



### The three main types of predictive models for online businesses deal with:

- **Churn**
- **LTV, otherwise known as Lifetime Value**, is a prediction of the net profit attributed to the entire future relationship with a customer. This figure goes beyond cash and takes into account the long-term quality of a relationship with a customer, often representing an upper limit on spending to acquire new customers. For example, what will my European August revenue be? The purpose of a customer lifetime value metric is to determine the financial value of each customer, and to define, accordingly, how to channel marketing acquisition efforts.
- **NBO (Next Best Offer)** is a customer-centric marketing paradigm that is based both on the customer's interests and on the marketing organization's business objectives. It's a win/win predictive model which only recently has become technologically feasible in real-time. Using NBO enables online companies to interact with their users and answer their needs while ensuring that the action also benefits the company itself.

Big data embodies a priceless collection of experience from which to learn. Every medical procedure, credit application, Facebook post, movie recommendation, fraudulent act and purchase is encoded as data and warehoused. This delivers an amount of samples only a computer could manage to learn from. Businesses collect vast amounts of real-time customer data and predictive analytics uses this historical data, combined with customer insight, to predict future events. Each customer's predictive score informs actions to be taken with that customer.

Predictive analytics uses this score to optimize marketing campaigns and website behavior, increase customer responses, conversions and clicks, and to decrease churn.



Contact us now for a free trial and demo

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