

Introduction to Predictive analytics

Predictive analytics is a significant analytical approach used by many firms to assess risk, forecast future business trends, and predict when maintenance is required. Data scientists use historical data as their source and utilize various regression models and machine learning techniques to detect patterns and trends in the data.

The basic goal of predictive analytics is to forecast what will happen in the future with a high degree of certainty. This distinguishes predictive analytics from descriptive analytics, which assists analysts in analyzing what has previously occurred, and prescriptive analytics, which uses optimization techniques to detect optimal solutions to address the trends revealed by predictive analytics.

Examples of Predictive Analytics

Predictive analytics is used in a wide variety of ways by companies worldwide. Adopters from diverse industries such as banking, healthcare, commerce, hospitality, pharmaceuticals, automotive, aerospace, and manufacturing get benefitted from the technology.

Here are a few examples of how businesses are using predictive analytics:

- **Customer Service**

Businesses may better estimate demand by utilizing advanced and effective analytics and business intelligence. Consider a hotel company that wants to estimate how many people will stay in a certain area this weekend so that they can guarantee they have adequate employees and resources to meet demand.

- **Higher Education**

Predictive analytics applications in higher education include enrollment management, fundraising, recruiting, and retention. Predictive analytics offers a significant advantage in each of these areas by offering intelligent insights that would otherwise be neglected.

1. A prediction algorithm can rate each student and tell administrators ways to serve students during the duration of their enrollment using data from a student's high school years.

2. Models can give crucial information to fundraisers regarding the optimal times and strategies for reaching out to prospective and current donors.

- **Supply Chain**

Forecasting is an important concern in manufacturing because it guarantees that resources in a supply chain are used optimally. Inventory management and the shop floor, for example, are critical spokes of the supply chain wheel that require accurate forecasts to function.

Predictive modeling is frequently used to clean and improve the data utilized for such estimates. Modeling guarantees that additional data, including data from customer-facing activities, may be consumed by the system, resulting in a more accurate prediction.

- **Insurance**

Insurance firms evaluate policy applicants to assess the chance of having to pay out for a future claim based on the existing risk pool of comparable policyholders, as well as previous occurrences that resulted in payments. Actuaries frequently utilize models that compare attributes to data about previous policyholders and claims.

- **Software Testing**

Predictive analytics can help you enhance your operations throughout the full software testing life cycle. Simplify the process of interpreting massive volumes of data generated during software testing by using that data to model outcomes. You can keep your release schedule on track by monitoring timelines and utilizing predictive modeling to estimate how delays will affect the project. By identifying these difficulties and their causes, you will be able to make course corrections in individual areas before the entire project is delayed.

Predictive analytics can assess your clients' moods by researching social media and spotting trends, allowing you to anticipate any reaction before it occurs.

Predictive Analytics Tools

Predictive analytics tools use data to help you predict the future. Instead, it informs you of the probability of various scenarios. Knowing these possibilities might assist you in planning various parts of your business.

Predictive analytics is a subset of data analysis. Descriptive analytics, which helps you determine what your data represents, is another part of data analytics. Diagnostic analytics identify the root reasons for what has occurred. Prescriptive analytics is more similar to predictive analytics. This provides you with actionable advice for making better selections.

In other words, predictive analytics lies between data mining, which searches for patterns, and prescriptive analytics, which instructs you what to do with this knowledge. Below is a list of the most popular Predictive Analytics Tools used in the industry.

- **SAS Advanced Analytics**

SAS is the global leader in analytics, with a plethora of various predictive analytics products offered. The list is so broad that it may be difficult to determine which tool(s) you will require for your specific needs. In addition, the firm does not give upfront pricing, making it difficult to compare prices. Nonetheless, with so many different tools available, chances are SAS offers just what you want.

- **IBM SPSS**

IBM SPSS (Statistical Package for the Social Sciences) is a data modeling and statistics-based analytics program. The software can handle both organized and unstructured data. To meet any security and mobility requirements, this software is offered in the cloud, on-premises, or via hybrid deployment.

- **RapidMiner Studio**

RapidMiner Studio blends data preparation and analysis with unique business implementation. You may use this code optimal application to automate reporting based on time intervals or to have events trigger changes in your visualizations.