

## What Is Data Science? A Beginner's Guide To Data Science

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As the world entered the era of big data, the need for its storage also grew. It was the main challenge and concern for the enterprise industries until 2010. The main focus was on building a framework and solutions to store data. Now when Hadoop and other frameworks have successfully solved the problem of storage, the focus has shifted to the processing of this data. Data Science is the secret sauce here. All the ideas which you see in Hollywood sci-fi movies can actually turn into reality by Data Science. Data Science is the future of Artificial Intelligence. Therefore, it is very important to understand what is Data Science and how can it add value to your business.

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In this blog, I will be covering the following topics.

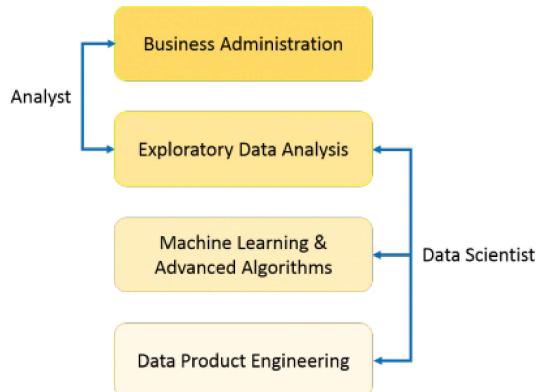
- [What is Data Science?](#)
- [Why Data Science?](#)
- [Who is a Data Scientist?](#)
  - [What does a Data Scientist do?](#)
- [How is it different from Business Intelligence \(BI\) and Data Science?](#)
- [The lifecycle of Data Science with the help of a use case](#)

By the end of this blog, you will be able to understand what is Data Science and its role in extracting meaningful insights from the complex and large sets of data all around us. To get in-depth knowledge on Data Science, you can enroll for live [Data Science with Python Certification](#) Training by Edureka with 24/7 support and lifetime access.

### What is Data Science?

Data Science is a blend of various tools, algorithms, and machine learning principles with the goal to discover hidden patterns from the raw data. But how is this different from what statisticians have been doing for years?

The answer lies in the difference between explaining and predicting.



As you can see from the above image, a Data Analyst usually explains what is going on by processing history of the data. On the other hand, Data Scientist not only does the exploratory analysis to discover insights from it, but also uses various advanced

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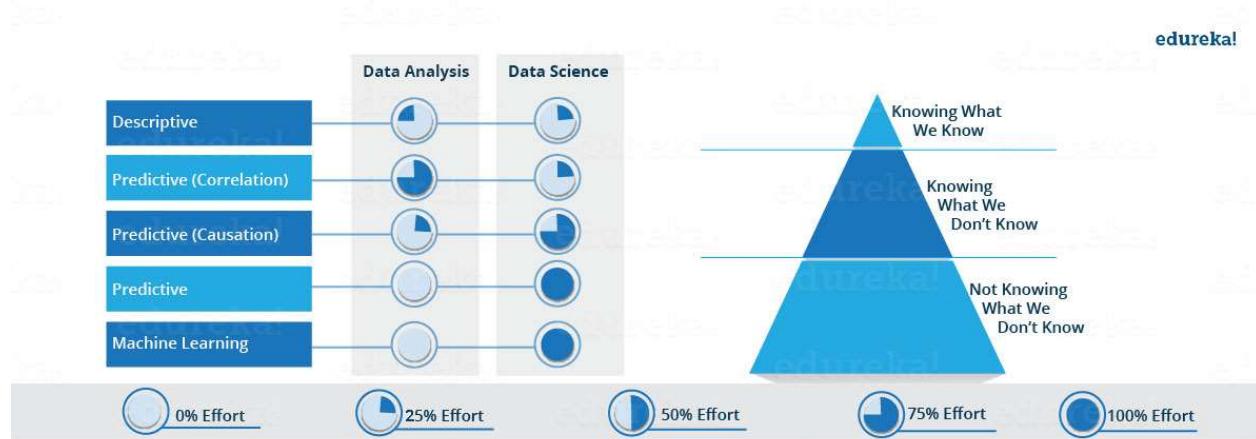
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- **Prescriptive analytics:** If you want a model that has the intelligence of taking its own decisions and the ability to modify it with dynamic parameters, you certainly need prescriptive analytics for it. This relatively new field is all about providing advice. In other terms, it not only predicts but suggests a range of prescribed actions and associated outcomes. The best example for this is Google's self-driving car which I had discussed earlier too. The data gathered by vehicles can be used to train self-driving cars. You can run algorithms on this data to bring intelligence to it. This will enable your car to take decisions like when to turn, which path to take, when to slow down or speed up.
- **Machine learning for making predictions** — If you have transactional data of a finance company and need to build a model to determine the future trend, then machine learning algorithms are the best bet. This falls under the paradigm of supervised learning. It is called supervised because you already have the data based on which you can train your machines. For example, a fraud detection model can be trained using a historical record of fraudulent purchases.
- **Machine learning for pattern discovery** — If you don't have the parameters based on which you can make predictions, then you need to find out the hidden patterns within the dataset to be able to make meaningful predictions. This is nothing but the unsupervised model as you don't have any predefined labels for grouping. The most common algorithm used for pattern discovery is Clustering.  
Let's say you are working in a telephone company and you need to establish a network by putting towers in a region. Then, you can use the clustering technique to find those tower locations which will ensure that all the users receive optimum signal strength.

Let's see how the proportion of above-described approaches differ for Data Analysis as well as Data Science. As you can see in the image below, Data Analysis includes descriptive analytics and prediction to a certain extent. On the other hand, Data Science is more about Predictive Causal Analytics and Machine Learning.



Now that you know what exactly is Data Science, let now find out the reason why it was needed in the first place.

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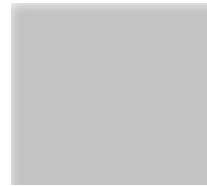
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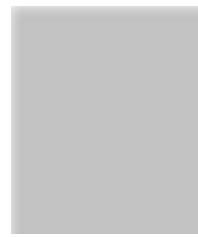


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