

Data Science vs. Big Data vs. Data Analytics



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Data is everywhere. In fact, the amount of digital data that exists is growing at a rapid rate, doubling every two years, and changing the way we live. [According to IBM](#), 2.5 billion gigabytes (GB) of data was generated every day in 2012.

An [article by Forbes](#) states that Data is growing faster than ever before and by the year 2020, about 1.7 megabytes of new information will be created every second for every human being on the planet.

Which makes it extremely important to at least know the basics of the field. After all, here is where our future lies.

In this article, we will differentiate between the Data Science, Big Data, and Data Analytics, based on what it is, where it is used, the skills you need to become a professional in the field, and the salary prospects in each field.

DATA IS GROWING FASTER THAN EVER BEFORE.



Each person-
1.7 megabytes
created



WHAT ARE THEY?



Data Science is a field that comprises of everything that related to data cleansing, preparation, and analysis.



Big Data is something that can be used to analyze insights which can lead to better decision and strategic business moves.



Data Analytics Involves automating insights into a certain dataset as well as supposes the usage of queries and data aggregation procedures.

WHERE ARE THEY USED?



WHAT ARE THE SKILLS REQUIRED?



DATA SCIENTIST

- In-depth knowledge in SAS and/or R
- Python coding
- Hadoop platform
- SQL database/coding
- Working with unstructured data

BIG DATA SPECIALIST

- Analytical skills
- Creativity
- Mathematics and
- Statistical skills
- Computer science
- Business skills

DATA ANALYST

- Programming skills
- Statistical skills
- Mathematics
- Machine learning skills
- Data wrangling skills
- Communication and Data Visualization skills
- Data Intuition

DATA SCIENTIST



BIG DATA SPECIALIST

\$62,066
per year.

DATA ANALYST

\$60,476
per year.

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Let's first start off with understanding what these concepts are.

What They Are

Data Science: Dealing with unstructured and structured data, Data Science is a field that comprises of everything that related to data cleansing, preparation, and analysis.

Data Science is the combination of statistics, mathematics, programming, problem-solving, capturing data in ingenious ways, the ability to look at things differently, and the activity of cleansing, preparing and aligning the data.

In simple terms, it is the umbrella of techniques used when trying to extract insights and information from data.

A woman with dark hair, wearing a white top, is smiling and gesturing with her hands. The background is a blurred blue and white. Overlaid on the image is a play button icon inside a white circle, which is centered on a yellow horizontal bar. To the left of the play button, the text 'Watch the course' is in white, and 'PREVIEW of' is in white on a red background. To the right of the play button, the text 'DATA SCIENCE WITH R' is in black on a yellow background.

Watch the course

PREVIEW of



DATA SCIENCE
WITH R

Big Data: Big Data refers to humongous volumes of data that cannot be processed effectively with the traditional applications that exist. The processing of Big Data begins with the raw data that isn't aggregated and is most often impossible to store in the memory of a single computer.

A buzzword that is used to describe immense volumes of data, both unstructured and structured, Big Data inundates a business on a day-to-day basis. Big Data is something that can be used to analyze insights which can lead to better decisions and strategic business moves.

The definition of Big Data, given by Gartner is, "Big data is high-volume, and high-velocity and/or high-variety information assets that demand cost-effective, innovative forms of information processing that enable enhanced insight, decision making, and process automation".

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Data Analytics: [Data Analytics](#) the science of examining raw data with the purpose of drawing conclusions about that information.

Data Analytics involves applying an algorithmic or mechanical process to derive insights. For example, running through a number of data sets to look for meaningful correlations between each other.

It is used in a number of industries to allow the organizations and companies to make better decisions as well as verify and disprove existing theories or models.

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The Applications of Each Field

Applications of Data Science:

- Internet search: Search engines make use of data science algorithms to deliver best results for search queries in a fraction of seconds.
- Digital Advertisements: The entire digital marketing spectrum uses the data science algorithms - from display banners to digital billboards. This is the main reason for digital ads getting higher CTR than traditional advertisements.
- Recommender systems: The recommender systems not only make it easy to find relevant products from billions of products available but also adds a lot to user-experience. A lot of companies use this system to promote their products and suggestions in accordance with the user's demands and relevance of information. The recommendations are based on the user's previous search results.

Applications of Big Data:

- Big Data for financial services: Credit card companies, retail banks, private wealth management advisories, insurance firms, venture funds, and institutional investment banks use big data for their financial services. The common problem among them all is the massive amounts of multi-structured data living in multiple disparate systems which can be solved by big data. Thus big data is used in a number of ways like:
 - Customer analytics
 - Compliance analytics
 - Fraud analytics
 - Operational analytics
- Big Data in communications: Gaining new subscribers, retaining customers, and expanding within current subscriber bases are top priorities for telecommunication service providers. The solutions to these challenges lie in the ability to combine and analyze the masses of customer-generated data and machine-generated data that is being created every day.
- Big Data for Retail: Brick and Mortar or an online e-tailer, the answer to staying the game and being competitive is understanding the customer better to serve them. This requires the ability to analyze all the disparate data sources

Applications of Data Analysis:

- **Healthcare:** The main challenge for hospitals with cost pressures tightens is to treat as many patients as they can efficiently, keeping in mind the improvement of the quality of care. Instrument and machine data is being used increasingly to track as well as optimize patient flow, treatment, and equipment used in the hospitals. It is estimated that there will be a 1% efficiency gain that could yield more than \$63 billion in the global healthcare savings.
- **Travel:** Data analytics is able to optimize the buying experience through the mobile/ weblog and the social media data analysis. Travel sights can gain insights into the customer's desires and preferences. Products can be up-sold by correlating the current sales to the subsequent browsing increase browse-to-buy conversions via customized packages and offers. Personalized travel recommendations can also be delivered by data analytics based on social media data.
- **Gaming:** Data Analytics helps in collecting data to optimize and spend within as well as across games. Game companies gain insight into the dislikes, the relationships, and the likes of the users.
- **Energy Management:** Most firms are using data analytics for energy management, including smart-grid management, energy optimization, energy distribution, and building automation in utility companies. The application here is centered on the controlling and monitoring of network devices, dispatch crews, and manage service outages. Utilities are given the ability to integrate millions of data points in the network performance and lets the engineers use the analytics to monitor the network.

The Skills you Require

To become a Data Scientist:

- **Education:** 88% have a Master's Degree and 46% have PhDs
- **In-depth knowledge of SAS and/or R:** For Data Science, R is generally preferred.
- **Python coding:** Python is the most common coding language that is used in data science along with Java, Perl, C/C++.
- **Hadoop platform:** Although not always a requirement, knowing the Hadoop platform is still preferred for the field. Having a bit of experience in Hive or Pig is also a huge selling point.

- Working with unstructured data: It is most important that a Data Scientist is able to work with unstructured data be it on social media, video feeds, or audio.

To become a Big Data professional:

- Analytical skills: The ability to be able to make sense of the piles of data that you get. With analytical abilities, you will be able to determine which data is relevant to your solution, more like problem-solving.
- Creativity: You need to have the ability to create new methods to gather, interpret, and analyze a data strategy. This is an extremely suitable skill to possess.
- Mathematics and statistical skills: Good, old-fashioned “number crunching”. This is extremely necessary, be it in data science, data analytics, or big data.
- Computer science: Computers are the workhorses behind every data strategy. Programmers will have a constant need to come up with algorithms to process data into insights.
- Business skills: Big Data professionals will need to have an understanding of the business objectives that are in place, as well as the underlying processes that drive the growth of the business as well as its profit.

To become a Data Analyst:

- Programming skills: Knowing programming languages are R and Python are extremely important for any data analyst.
- Statistical skills and mathematics: Descriptive and inferential statistics and experimental designs are a must for data scientists.
- Machine learning skills
- Data wrangling skills: The ability to map raw data and convert it into another format that allows for a more convenient consumption of the data.