Difference Between Data Science and X Data Scientists +8

What is the difference between a data analyst and a data scientist?

This question previously had details. They are now in a comment.

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68 Answers

Julia Scavicchio, Business Software, Technical Writing
Answered May 6, 2016 · Upvoted by Gilbert Duy Doan, M.A. Mathematics & Data Science, San Jose State University (2021)

We've separated data professionals into four categories: **Architect, Engineer, Analyst, Scientist**. This was developed to help businesses hire data professionals based on their needs, and for professionals to know the skills that are in demand.

Here are our tables and a summary. You can find Elizabeth Mazenko's research here: https://www.betterbuys.com/bi/comparing-data-science-roles/

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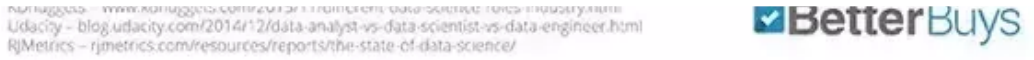
ROLES
RESPONSIBILITES
Data Architect
Develops data architecture to effectively capture, integrate, organize, centralize and maintain data. Core responsibilities include:
Data Warehousing Solutions
Extraction, Transformation and Load (ETL)
Data Architecture Development
Data Modeling
Data Engineer
Develop, test and maintain data architectures to keep data accessible and ready for analysis. Key tasks are:
Extraction Transformation and Load (ETL)
Installing Data Warehousing Solutions
Data Modeling
Data Architecture Construction and Development
Database Architecture Testing
Data Analyst
Processes and interprets data to get actionable insights for a company. Responsibilities include:
Data Collection and Processing
Programming
Machine Learning
Data Munging
Data Visualization
Applying Statistical Analysis
Data Scientist
Data analysis once data volume and velocity reaches a level requiring sophisticated technical skills. Core tasks are:
Data Cleansing and Processing
Predictive Modeling
Machine Learning
Identifying Questions
Running Queries
Applying Statistical Analysis
Correlating Disparate Data
Storytelling and Visualization

Sources:
KDnuggets – www.kdnuggets.com/2015/11/different-data-science-roles-industry.html
Udacity – blog.udacity.com/2014/12/data-analyst-vs-data-scientist-vs-data-engineer.html
RJMetrics – rjmetrics.com/resources/reports/the-state-of-data-science/

BetterBuys

		DATA SCIENTIST	DATA ANALYST	DATA ARCHITECT	DATA ENGINEER
LANGUAGES TO KNOW	R	✔	✔		✔
	Python	✔	✔		✔
	SAS	✔			✔
	Hive	✔		✔	✔
	MatLab	✔			✔
	SQL	✔	✔	✔	✔
	NOSQL		✔		✔
	Pig	✔		✔	✔
	Spark	✔		✔	
	HTML		✔		
	Hadoop	✔			✔
	Javascript		✔		
	Java				✔
	C/C++		✔		✔
	C++				
	XML			✔	
	SPSS				✔
	Ruby				✔
	Perl				✔

Sources:



Data Architect: A Data Architect is the go-to person for data management, especially when dealing with any number of disparate data sources. With an extensive knowledge of how databases work, as well as how the acquired data relates to the business's operations, the Data Architect, ideally, is able to speculate how changes will affect the company's data use, then manipulate the data architecture to compensate for them.

- Responsibilities: *Data warehousing, ETL, architecture development, modeling*
- Languages: *Hive, SQL, Pig, Spark, XML*

Data Engineer: This role is closely related to the Data Architect. The Data Engineer also works on the management side of data, making some people think the titles are interchangeable. However, a Data Engineer, who usually has a strong background in software engineering, builds, tests and maintains the data architecture.

- Responsibilities: *ETL, installing data warehousing solutions, data modeling, data architecture and development, database architecture testing*
- Languages: *R, Python, SAS, MatLab, SQL, NOSQL, Pig, Hadoop, Java, C/C++, Ruby Perl*

Data Analyst: Data Analyst works to interpret data to get actionable insights for the company. With a strong background in statistics and the ability to convert data from a raw form to a different format (data munging), the Data Analyst collects, processes and applies statistical algorithms to structured data.

- Responsibilities: *Data collection and processing, programming, machine learning, data munging, data visualization, applying statistical analysis*
- Languages: *R, Python, SQL, NOSQL, HTML, Java Script, C/C++*

Data Scientist: A Data Scientist's mission is similar to that of a Data Analyst's: find actionable insights that are key to a company's growth and decision-making. However, a Data Scientist role is needed when a company's data volume and velocity exceeds a certain level that requires more robust skills for sorting through a rolling sea of unstructured data (big data) to identify questions and pull out critical information. The person then cleanses the data for proper analysis and creates new algorithms to run queries that relate data from disparate sources.

On top of these skills, a Data Scientist also needs strong storytelling and visualization skills to share insights with peers across the company.

- Responsibilities: *Data cleansing and processing, predictive modeling, machine learning, identifying questions, running queries, applying statistical analysis, correlating disparate data, storytelling and visualization*
- Languages: *R, Python, SAS, Hive, MatLab, SQL, Pig, Spark, Hadoop*

Afshan Khan, Apply analytical and problem-solving skills to Big Data
Answered Sep 28, 2017

Most of the people thinks that both are same but there is a minute difference between Data Scientist and Data Analyst if you will see in a concentrated way.

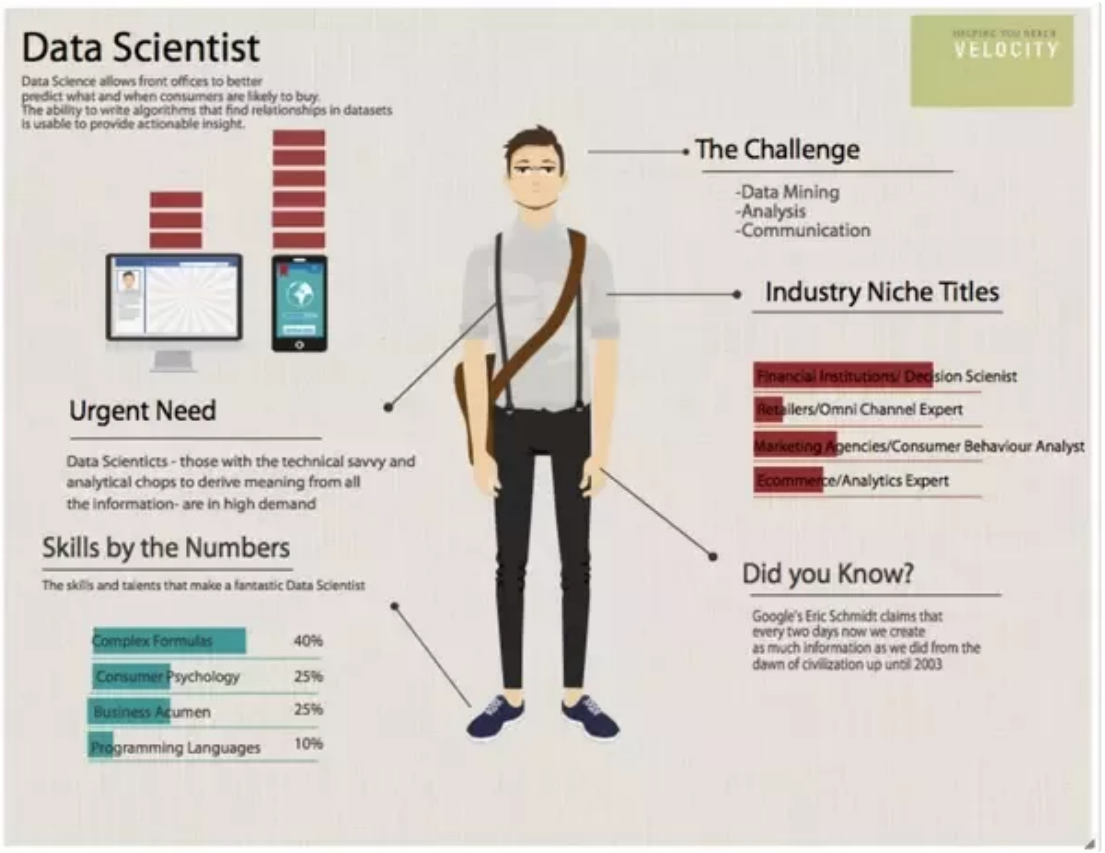
SO let's see the key differences between Data scientist and Data Analyst.

Data Scientist vs Data Analyst according to Definition

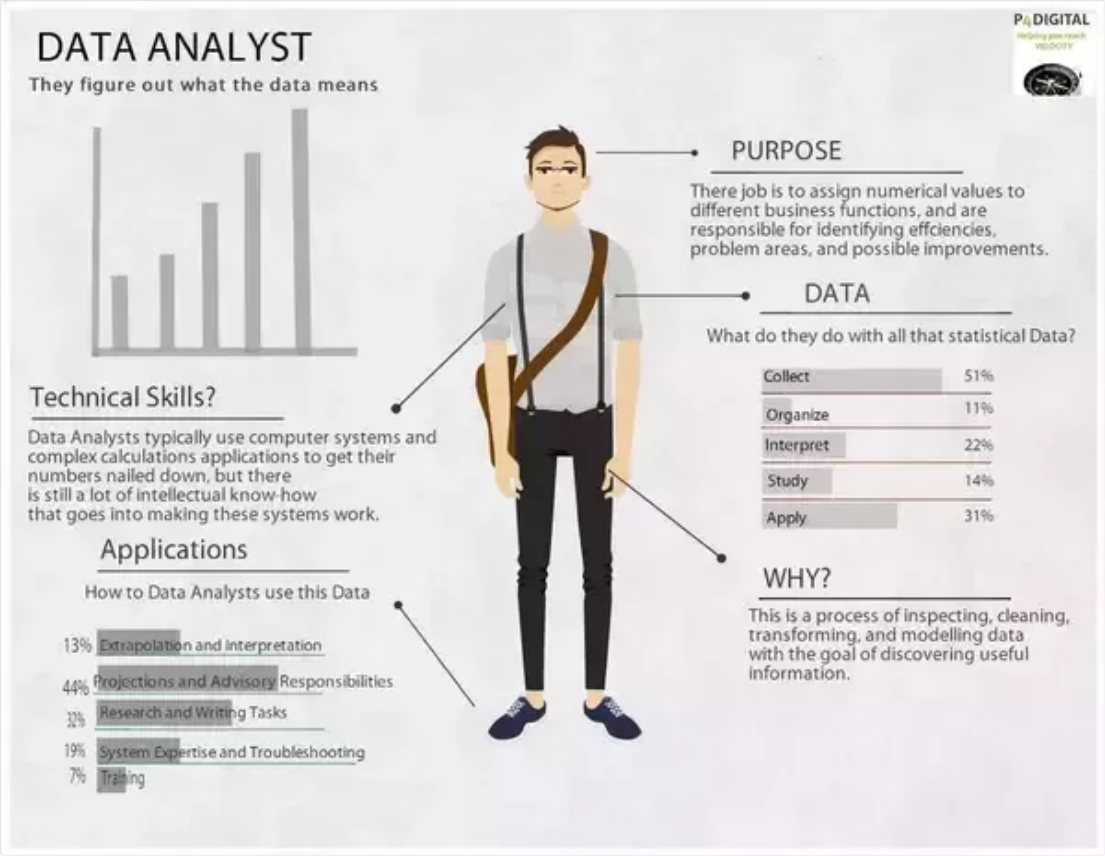
- A Data Scientist role is to predict future based on past patterns. While Data analyst finds meaningful information from data.
- The role of Data scientist is to generate its own question. But Data analyst finds the answers to others sets of questions.
- As Data scientists have the what ifs. But Data analysts are the ones who do the day-to-day analysis
- Data scientist addresses business problems. It also gives an accurate prediction of the value of business once solved. Whereas Data Analyst only address business problems
- Data scientist uses **machine learning** for extracting information. But Data Analyst uses an **R / SAS** tool for extracting information.

- The role of Data scientist is to explore and examines information. He explores information from many disconnected sources. But Data Analyst explores and examines data from a single source.
- The prediction of Data Scientist is very high. It can be accurate up to 90%. But, Data analysts don't predict. They only solve the question given by the business.
- A Data scientists will formulate questions. They formulate those questions whose solutions are likely to benefit the business. But Data Analyst only solves the questions given by business.
- A Data scientist must have sound knowledge in statistical models and machine learning. Data Analyst needs sound knowledge in SAS/R

Now look at the infographic of Data Scientist:



Now look at the infographic of Data Analyst:



The responsibilities of a Data scientist and Data Analyst is also different.

Data Analyst vs Data Scientist according to Responsibilities

a) A Data Scientist Responsibilities

- Data cleansing and processing.
- Prediction of the business problem. His roles are to give future results of that business.
- Develop machine learning models and analytical methods.
- Find new business questions that can then add value to the business.

- Data mining using state-of-the-art methods.
- Presenting results in a clear manner and doing the ad-hoc analysis.

b) Data Analyst Responsibilities

- Identify any data quality issues in data acquisition.
- Solving business problems. By mapping and then tracing the data.
- A Data analyst should coordinate with engineers to gather new data.
- Perform statistical analysis of business data.
- Documenting the types and structure of the business data.

Data Analyst vs Data Scientist roles based on skill sets

a) Data Scientist roles according to their skill sets

- The Data creatives
- Data Developers
- Data Researchers
- The Data Businesspeople

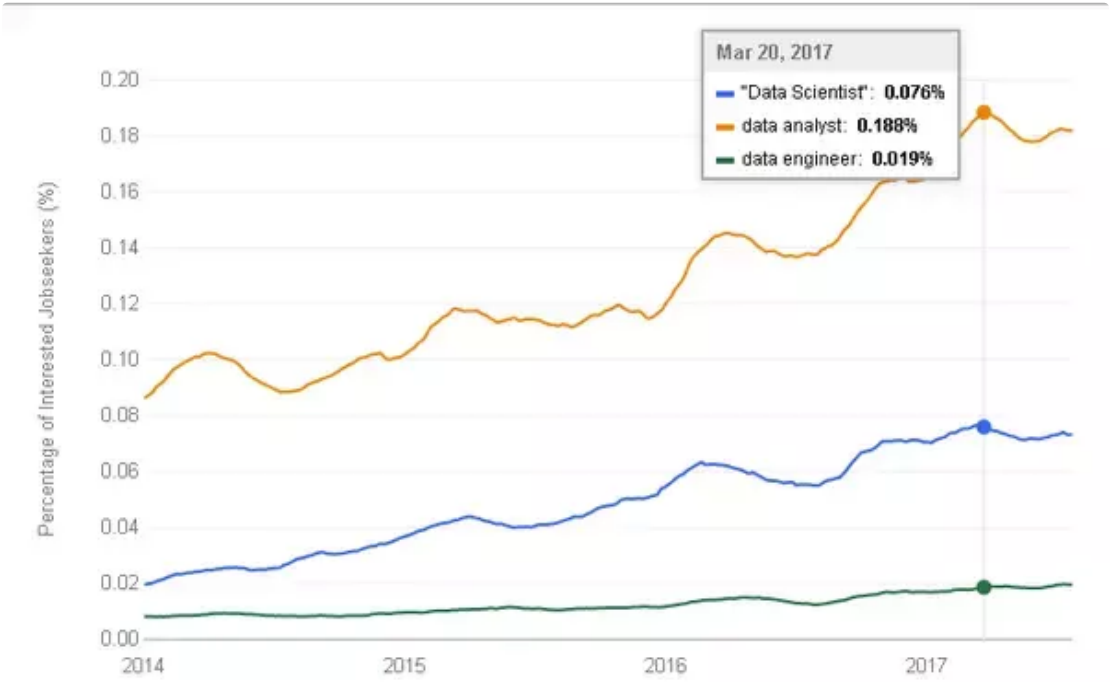
b) Data Analyst roles according to their skill sets

- Database Administrators
- Operations
- The Data Architects
- A Data Analysts

4. Data Scientist vs Data Analyst – Salary

Below statistics shows the salary of Data Scientist vs Data Analyst-

Next, let's see the percentage of interested job seekers by Job Search | Indeed



To know more refer below link:

Differences between Data Scientist and Data Analyst

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Sean McClure, Director of Data Science, Space-Time Insight

Updated Sep 4, 2017

Originally Answered: What is the difference between a data scientist and a data analyst?

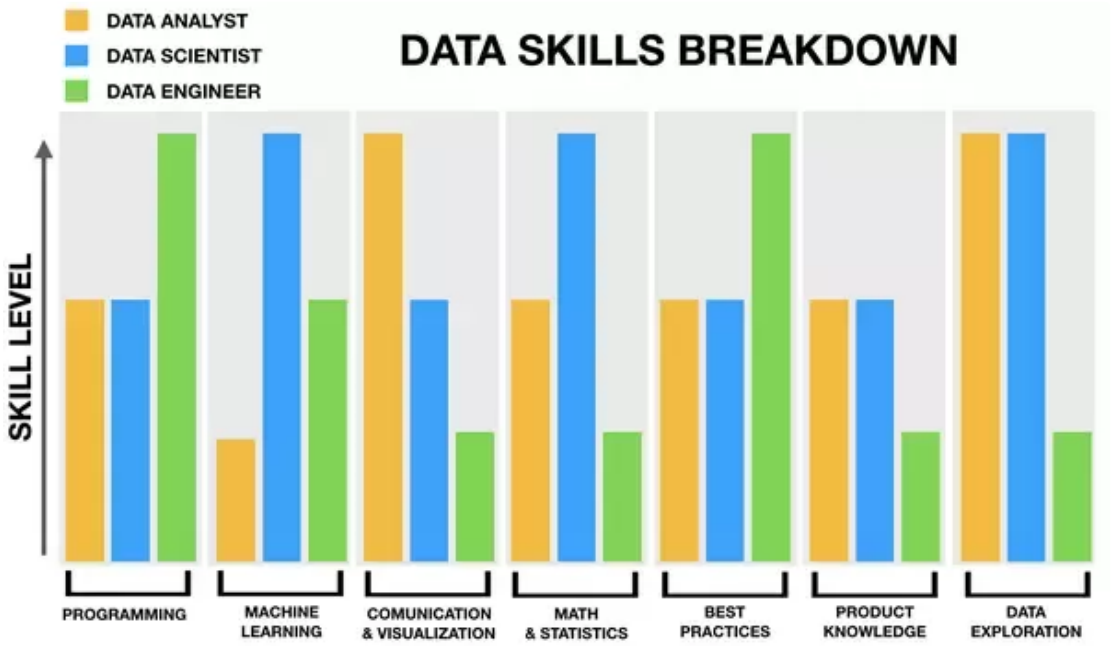
We typically separate the data roles into 3 distinct but overlapping positions; The Data Analyst, Data Scientist and Data Engineer.

The **Data Analyst** typically runs queries against new data to find trends important for the organization and to help prepare data for the Data Scientists. Data Analysts are typically very good at SQL as well as being knowledgable of the core metrics an organization deems important. They can also write scripts and produce intuitive visuals.

The **Data Scientist** is primarily tasked with building models using machine learning. These models are expected to engender an organization's software with product features that predict and explain; making applications adaptive. The quality of a Data Scientist's models depends directly on how well they understand and prepare data, thus they will work with the Data Analyst when it comes to understanding and preparing data to build better models.

The **Data Engineer** takes what is created in the "lab" and helps put it into production. They work with Data Scientists to make sure the engineering they put in place handles machine learning models correctly (how much do models need to scale, how are the models trained, how are models kept fresh, etc). In some companies Data Engineers will also work with Data Analysts to ensure data ingestion and conversion is taking into account the right metrics, from the right sources etc.

All 3 roles help support the conversion of raw data to deployed features inside products. Here is a general comparison of some core skills, but remember that every individual on a team will vary in terms of their strengths and focus.



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Tahseen Ahmad, The sexiest job of 21st century

Updated Jul 27, 2017

Originally Answered: What is the difference between a data scientist and a data analyst?

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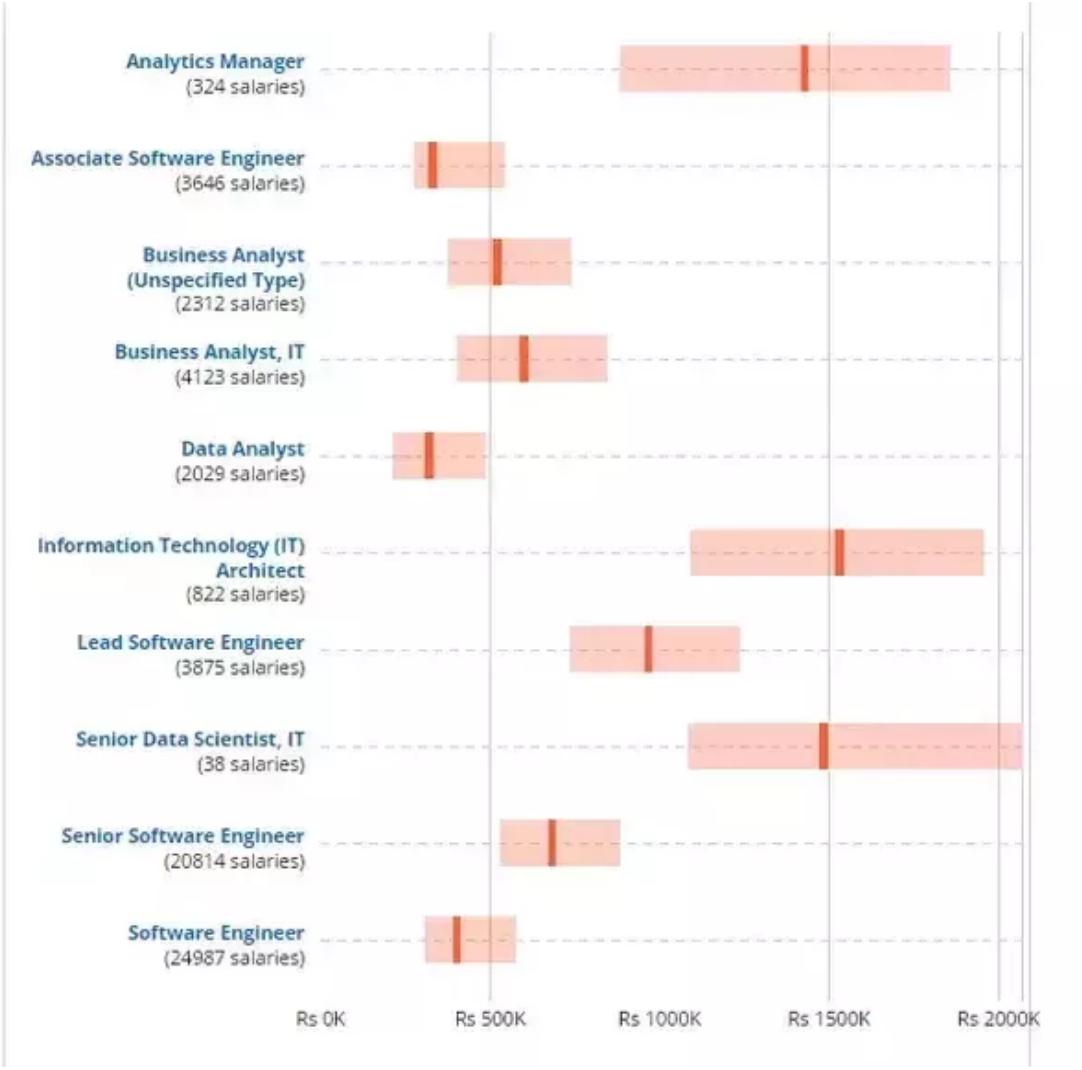

Data Analyst vs. Data Scientist - Comparison

- Data analyst and Data Scientist skills do overlap but there is a significant difference between the two. Both the job roles requires some basic math know-how, understanding of algorithms, good communication skills and knowledge of software engineering.

- Data analysts are masters in SQL and use regular expression to slice and dice the data. With some level of scientific curiosity data analysts can tell a story from data.
- A data scientist on the other hand possess all the skills of a data analysts with strong foundation in modelling, analytics, math, statistics and computer science.
- What differentiates a data scientist from a data analyst is the strong acumen along with the ability to communicate the findings in the form of a story to both IT leaders and business stakeholders in such a way that it can influence the manner in which a company approaches a business challenge.

Based on the recent trends one can see the technologies which are in most demand by these companies.

Ricardo Vladimiro, Game Analytics and Data Science Lead @ Miniclip
Answered Sep 28, 2016 · Upvoted by Gilbert Duy Doan, M.A. Mathematics & Data Science, San Jose State University (2021)

Originally Answered: What's the different between a data scientist and data analyst?

I've seen the term data scientist applied to roles that went from "having high SQL experience" to "prepare Excel reports for executives". Naturally I don't agree with either of those but on the other hand I don't think there's a unified view of what is a data scientist.

The way I think about it, if you think of a spectrum that goes from engineering to business, data engineers are in the engineering side, data scientists in the middle and data analysts on the business side. Their language and tools overlap considerably especially for the data scientist.

To be quiet honest a data scientist is a data analyst. The difference, as I see it, is the tools and the output. To better illustrate I'll use the example of Miniclip:

- A Miniclip data or game analyst is someone that analyses our games and the players of our games. Game analysts run ad-hoc analysis, run experiments and are in charge of the day to day operations of all game analytics of their games. Their output comes in the form of dashboards and reports. Their background is math or science. Their tools are R and SQL and they engage with big data on a daily basis.
- A Miniclip data scientist is someone that uses our data to create products that would not be possible to create by standard tools. I call those "data products". They are either interactive, allowing business users to engage with data in ways that they normally can't, or automated, which often means machine learning predictive models. Tools are a lot more engineering oriented, Python and CLI are go to tools but R and SQL is also present.

This doesn't necessarily mean that data analysts don't create data science products. They do! But it is not their core responsibility. The same applies to our data engineers. Our lead data engineer is probably our most knowledgeable data scientist at the time I write this. Likewise it doesn't mean that data scientists don't run ad-hoc analysis... again... they do! but often with the objective of supporting data science product development.

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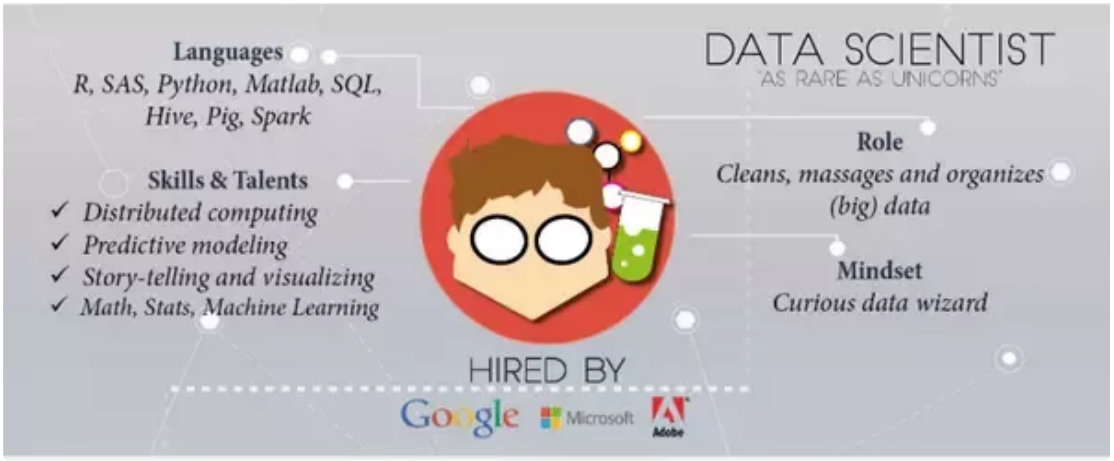
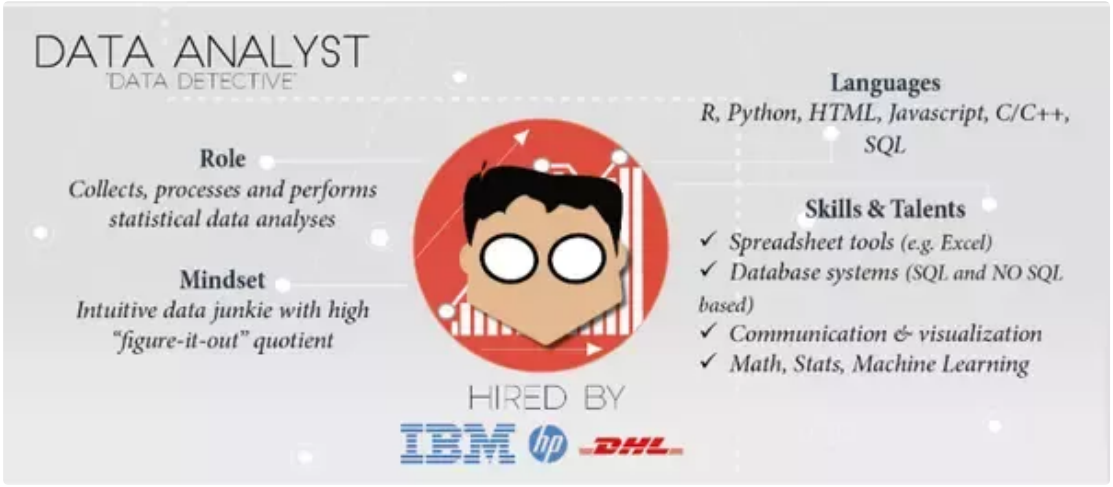
Karlijn Willems, worked at Deloitte Consulting
Answered Jan 20, 2017 · Upvoted by Gilbert Duy Doan, M.A. Mathematics & Data Science, San Jose State University (2021)

Definitions are great, but what happens in the industry might slightly differ; What often happens is that the data industry job positions and their descriptions often have titles that sound very fancy, but that don't resemble the roles that the data science industry has. Likewise, they put a title with the job description that doesn't really match the skill set that one would hope to see when looking for a job as a 'data scientist' or a 'data analyst'.

When you do go and look at those roles, the job descriptions basically say the following about data scientists:



When it comes to data analysts, the job descriptions point out the following:



In general, I'd say that the two are very similar and that is also a reason why some job descriptions mix up the two when they're looking for a person to fill a position in their company.

And indeed, there is some overlap, but also not entirely. The knowledge basis from which to start (maths, stats, machine learning), for example, is very similar, but you mainly see differences in the way that the two roles make use of this knowledge to do their daily job: while the data scientist will use it to model data and to make use of distributed computing, the data analyst will mainly use the knowledge to make meaningful analysis in spreadsheet tools, query databases and visualize the results with tools such as Tableau.

The data scientist can and will of course also know and make use of all these tools, but he will really be more occupied with wrangling the data to a point where you can extract even more meaningful insights and predict outcomes. You see that this is similar, but also more advanced than what a data analyst does.

If you want to see the whole infographic, make sure to check out The Data Science Industry: Who Does What (Infographic) .

Anirudh Sharma, Exploring Data Science
Answered Jun 28

To understand the difference between Data Analyst and Data Scientist, let's understand these two roles and what skills they should have.

What Is Data Science?

People have tried to define data science for over a decade now, and the best way to answer the question is probably via a Venn diagram. Created by Hugh Conway in 2010, this Venn diagram consists of three circles - math and statistics, subject expertise (knowledge about the domain to abstract and calculate) and hacking

skills. Essentially if you can do all three, you are already highly knowledgeable in the field of data science.

Data science is a concept used to tackle big data and includes data cleansing, preparation, and analysis. A data scientist gathers data from multiple sources and applies machine learning, predictive analytics, and sentiment analysis to extract critical information from the collected data sets. They understand data from a business point of view and are able to provide accurate predictions and insights that can be used to power critical business decisions.

What Skills Make a Data Scientist?

Anyone who's interested in building a strong career in this domain should gain key skills in three departments: analytics, programming and domain knowledge. Going one level deeper, the following skills will help you carve out a niche as a data scientist:

You can go through our Data Science Tutorial videos to begin with:

Further, you can go through following playlist to master Data Science:

Data Science Tutorial Videos | Simplilearn - YouTube

Data Analytics: It is the process of examining raw data sets & draw conclusions about the information they contain, with the help of specialized systems and software. Data analytics is widely used in commercial industries to help organizations to make more-informed business decisions and by scientists and researchers to verify or disprove scientific models, theories and hypotheses

What Is a Data Analyst?

A data analyst is usually the person who can do basic descriptive statistics, visualize data and communicate data points for conclusions. They must have a basic understanding of statistics, a very good sense of databases, the ability to create new views, and the perception to visualize the data. Data analytics can be referred to as the basic level of data science.

What Are the Skills Required to Become a Data Analyst?

A data analyst should be able to take a specific question or a specific topic and discuss what the data looks like and represent that data to relevant stakeholders in the company. If you're looking to step into the role of a data analyst, you must gain these four key skills:

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