Does Data Science require coding?  
Well, it does. The question is how much and what can you do about it.



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# Introduction

“I have been researching, and Data Science is a good field to be in.”

Whether a fresher or an experienced professional, people looking to move into Data Science always want to know, “Does data science need coding?”.   
  
Let’s understand a little more first. Data Science is a field that is a combination of *mathematics, business and technology*. In a constantly evolving field, the **mathematical** understanding of Data Science remains *consistent*. Now, it is a question of the rest. Let’s understand more:

* **Business**: Data Science is a business-agnostic field. Whatever domain you come from, you can leverage your business knowledge to do better data science.   
    
  For instance, if you are from a CA background, you can help Fintech companies. In addition, given your strong understanding of financial data, you can understand more than most. However, based on your interest, it is possible to work in any domain of Data Science.
* **Technology**: Technology is a field that keeps evolving every day. A lifelong learning mindset must be applied to keep up with the pace of technology.   
    
  Once we understand the foundational elements of technology, it becomes vital that we keep upgrading ourselves based on the latest in technology.

Now that we have established that we need to be up to date with technology let’s understand a little more about our original question.

## Does Data Science require coding?

**The short answer**   
*Yes*

**The long answer**

* **For freshers**: Coding in Data Science is not how you did it back in school or college. It takes a different form in the real world. However, much of what we learn in Data Science already exists in easily usable functions. Data Science is practical. Google will be your saviour and have all the answers, but to ask the right questions, you need to understand how to code. A little contreversial, but in my opinion, fact of the matter is,

No Data Scientist is a Data Scientist without Google.

Looking at the data, you need to figure out what will be the input and the possible output. We have the input and available functions you can use as code, and then we get the result. A significant chunk of the work is to interpret the output. As we discussed, coding is required.   
  


* **For working professionals who do not code**: I will assume that you have some fear about whether you can learn code or not. That is probably the wrong thing to wonder – because the answer is yes. The question is, are you willing to learn to code.   
    
  If you do not code at your job right now, you likely don’t like to code. However, let’s say you are in a management position in Data Science going ahead. To accurately guide your team, you need hands-on coding experience to know what they are talking about. Coding is required.
* **For working professionals who code:** Coding is required in Data Science, and you can pick it up. There is a learning curve in Data Science because, along with code, you will also need to unlearn and relearn mathematics and business.   
    
  Instead of just deliverables, being a Data Scientist is challenging and fun. You will need to think about how you can add value to the bottom line of the company you work with. This will include business and thought leadership elements you have not considered before.

# Why is Coding Required in Data Science?

Data Science is a field where **experiments** are carried out on data to help improve the quality or bottom line of the enterprise. We just use Excel to analyze data. Large volumes of data are generally present on a cloud platform, and a Data Scientist must perform analytics.

To do this, a Data Scientist needs to have a robust toolkit where they are free to experiment. Any experimentation, data manipulation and visualization should be possible to strive to achieve the end result. It’s not engineering; it’s actual science that consists of performing experiments, where some succeed, and most fail.

The freedom to do anything comes with code.

Coding is required in Data Science because:

* **Sourcing Data:** Regardless of the cloud platform or source, code can help get the data from wherever it is stored
* **Data Transformation:** Knowing how to code can help to manipulate, fix and transform the data as required – this can be done via multiple platforms
* **Exploratory Data Analysis:** The patterns in data can be deciphered with the help of code; it is vital to explore large datasets to understand the visible and latent patterns that exist
* **Experimenting with Data:** Working on different hypotheses to see if there is backing for a data-driven decision can be done with the help of code
* **Machine Learning & Modelling:** Having the freedom to make models and perform machine learning on data can be done with the help of code
* **Visualization:** Giving a Data Scientist to visualize the data in multiple ways is a powerful tool that can change how we go about solving a problem; code gives us that freedom

The freedom to do anything is the main reason coding is required in Data Science. So, in the next section, let’s go over how much coding is needed for Data Science.

# How Much Coding is Needed for Data Science?

Depending on your selected role, varying degrees of coding are required for each position. However, a good start would be understanding the fundamentals of one coding language and a querying language. Remember, when you code in the real world, Google is your best friend. All of us are Data Scientists because Google is there to help us.

Data Scientists would not be Data Scientists if Google did not exist.

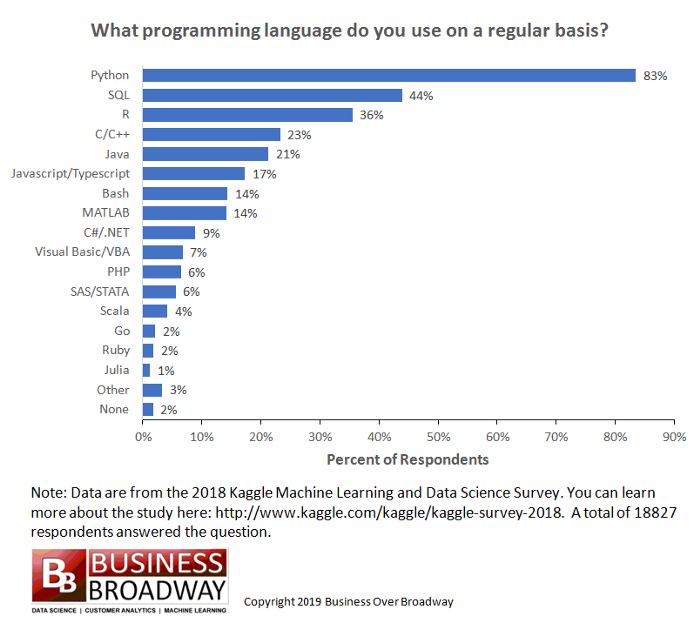
I have another article – Is Data Science for all, explaining the roles in detail. In this section, let’s go over some of the roles and the amount of coding that is required:

* **Data Engineer:** A data engineer would need to be an expert in SQL and understand the fundamentals of python/R. A knack for detail can help you become a better Data Engineer.   
  Over time, a Data Engineer will gain expertise in a Cloud platform such as Amazon Web Service (AWS), Google Cloud Platform (GCP) or Microsoft Azure. Doing certifications on these cloud platforms can help aid your entry into Data Engineering.
* **Machine Learning Engineer:** A Machine Learning Engineer needs to have expertise in a coding language such as Python/R and understand the fundamentals of a querying language such as SQL. Value addition for this role is the fundamentals of Software Engineering, like basic Data Structures.
* **Business Analyst:** Depending on the company you are applying for, this is a role that requires less coding. Understanding the fundamentals of SQL and a visualization tool such as Power BI and Tableau can help you become a better Data Scientist.
* **Data Scientist:** Needs to know everything mentioned above. There must be a keen interest to learn, irrespective of the technology stack or problem. Data scientists must keep learning throughout their career, irrespective of platform, coding language, tools and technologies.

Now that we know how much coding is required in Data Science, let’s briefly discuss the programming languages used.

# What Programming Languages are Used in Data Science?

If you are setting out to learn a new language specifically for Data Science, the best language to learn is Python. Some blogs highlight a whole host of languages, tools and technologies. I’ll tell you about the ones to learn to crack 90% of interviews.

  
[Source](https://towardsdatascience.com/programming-languages-for-data-scientists-afde2eaf5cc5)

In case you would https://www.kaggle.com/kaggle-survey-2021

# Can You Become a Data Scientist Without Coding?

# How Can You Start Learning Coding for Data Science

# What Jobs in Data Science Require Coding?

# Conclusion

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