Find solutions online

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Over the course of this certificate you have learned about many different tools and processes that data professionals use every day—Python, Jupyter Notebooks, scikit-learn, Matplotlib, statsmodels, and many, many more. Knowing how to troubleshoot problems you encounter and where to find updates to packages will make you a more confident, efficient, and effective data professional. In this reading, you'll learn more about some of the resources to consult when you're stuck.

Available documentation

A great place to start when you encounter problems is with the documentation itself. Every code library, module, and package has its own documentation that is published by the developers themselves. If your Seaborn scatterplot isn't behaving the way you want it to, for example, google "Seaborn scatterplot," and one of the first results will be the Seaborn documentation. You'll find all the input parameters and what they do. If you scroll down further, you'll find different examples of the scatterplots as well as the code used to generate them. Most documentation for libraries, packages, and functions is in this same format. One of the easiest ways of fixing your code can be to simply copy code directly from the documentation, paste it into your notebook, and then swap out the data with your own. Don't be afraid to copy code!

Stack Overflow

Sometimes the documentation might be dense, or it might not give you insight into the problem you're having with your specific use case. Stack Overflow is a website where people who are interested in coding can ask questions and seek answers from other coders. It is open to both beginners and experienced professionals. Often you'll find that a search for your problem will return a top result from Stack Overflow. You can also search directly within the site itself. There's a good chance your exact question has already been asked and answered, usually with a variety of different solutions! If not, then you can ask a question yourself, as long as it has to do with a specific programming problem, a software algorithm, or software tools commonly used by programmers; and is a practical, answerable problem that is unique to computer coding. Anyone can search the site for answers, but to ask questions, vote on solutions, or provide answers, you need to make a free account.

Stack Overflow is a resource for code and software-related topics, but you may have other questions about things such as the theory that an algorithm is based on, the process of model development in general, or perhaps a question related to mathematics. These other topics are outside the scope of what Stack Overflow is for. Thankfully, Stack Overflow is part of a larger network of websites known as Stack Exchange. There are dozens of subject-specific question and answer sites within Stack Exchange, which will surely have the information you seek. Some of the most helpful for data professionals include:

- **Stack Overflow:** A site for coders and programmers
- **Cross Validated:** A site for people interested in statistics, machine learning, data analysis, data mining, and data visualization
- **Data Science:** A site for data science professionals, machine learning specialists, and those interested in learning more about the field.
- **Mathematics:** A site for people studying math at any level and professionals in related fields

All of these sites are full of valuable information and answers to nearly every possible question, especially if it's related to beginner-level material. Jump in and join the community!

Kaggle

Kaggle is another indispensable resource for data professionals. It is a vast website with a forum for questions and answers related to data science. It also has a repository of datasets, educational material, and IPython notebooks from beginners and advanced practitioners of data science. As such, Kaggle is a great place to get exposure to other people's code and workflow for things like exploratory data analysis and model development.

In addition, Kaggle hosts modeling competitions and awards prizes to the person or team who develops the highest-scoring model. The data for these competitions comes from existing companies and organizations who are trying to gain insight into phenomena related to their field. There are a wide variety of different competitions taking place at any given time—anything from predicting yardage for the National Football League to detecting gravitational waves for the European Gravitational Observatory. The competitions are particularly useful because the winning solutions are public, so you can discover the strategies used by some of the best machine learning practitioners in the world.

Most of the different parts of Kaggle are free and open for anyone to use, but in order to post things or enter into competitions, you must create a free account. These are just some of the many useful resources that are only a mouse click away. Explore them to get a feel for what works best for you. And remember: everybody gets stuck, especially in the beginning, but there are communities of people who are happy to help. Before long, perhaps you'll be answering questions and helping people too!

A word of caution

Not everything you read online is accurate. When seeking guidance from online resources, it's important to be mindful of the source of any information you find. Data science has recently become a field of great interest and popularity due to its increasing accessibility, rapid development, and capacity to transform the world around us. It also offers many exciting job opportunities. This surge of interest has led to an ever-growing body of online knowledge and resources for data practitioners. But, anybody can write a blog about data science and post it online, and anybody can respond to a question in a data science forum. Although the truth usually rises to the top, there's still plenty of misinformation on the internet. Always consider the credibility of the source of the information and try to cross-verify any claims you encounter. Don't believe everything you read!

Key takeaways

- There are many free resources available to data professionals, and every data professional uses them.
- The documentation is a good place to start when troubleshooting something code-related. Scroll down to check the examples given in the documentation. They're very helpful! You can also copy/paste an error message directly into your search engine and often find an answer just from that.
- Stack Overflow and other Stack Exchange sites like Cross Validated, Data Science, and Mathematics are great places to find answers to questions, and also to ask your own and get help from the data science community worldwide.
- Kaggle is a valuable resource for answers to questions, educational material, datasets, and community-submitted notebooks. It also hosts modeling competitions and posts the solutions of all the winners and runners up.

Resources for more information

- Stack Exchange site list: An overview of all the different sites available on the Stack Exchange Network
- Asking questions on Stack Overflow: A guide to how to ask effective and appropriate questions on Stack Overflow
- Kaggle educational content

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