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Online Resources

Getting the information you need to know

It takes an enormous amount of knowledge to be a skilled programmer. There's libraries to know, syntax to remember, and myriad other details. To add to the difficulty, the technology landscape is constantly shifting as new techniques and tools are invented.

To a novice programmer, learning all of these details and keeping abreast of new developments seems like an impossible task. And it is! Expert programmers who have been working for years don't actually carry an encyclopedia's worth of knowledge in their heads. Instead they have mastered the task of finding information quickly.

How to Search

Here are some techniques for effective web searching:

- Try using "Python" or the name of the library you're using as the first word of your query. This tells the search engine to prioritize results that are explicitly related to the tools you're using.
- Writing a good search query can take multiple attempts. If you don't find helpful results on your first attempt, try again.
- Try using keywords found on the pages you found in your initial search to direct the search engine to better resources in the subsequent search.
- Copy and paste error messages to use as search terms. This will lead you to explanations of the error and potential causes. An error message might include references to specific line numbers of code that you wrote. Only include the part of the error message that comes before this in your search.
- If you can't find an answer to your question, ask it yourself! Communities like StackOverflow have etiquette rules you must learn if you want to participate, but don't let this stop you from using these resources.

Quiz Question

While coding I encountered this error message.

```
UnboundLocalError: local variable 'egg_count' referenced before assignment
```

Which of these search terms is mostly likely to yield helpful results?

- ☐ egg_count referenced before assignment
- ☐ counting with Python
- ☐ reference before assignment

☒ Python UnboundLocalError: local variable



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Hierarchy of Online Resources

While there are many online resources about programming, not all of them are created equal. This list of resources is in approximate order of reliability.

1. [The Python Tutorial](#) - This section of the official documentation surveys Python's syntax and standard library. It uses examples, and is written using less technical language than the main documentation. Make sure you're reading the Python 3 version of the docs!
2. [The Python Language and Library References](#) - The Language Reference and Library Reference are more technical than the tutorial, but they are the definitive sources of truth. As you become increasingly acquainted with Python you should use these resources more and more.
3. **Third-Party Library Documentation** - Third-party libraries publish their documentation on their own websites, and often times at <https://readthedocs.org/>. You can judge the quality of a third-party library by the quality of its documentation. If the developers haven't found time to write good docs, they probably haven't found the time to polish their library either.

4. **The websites and blogs of prominent experts** - The previous resources are primary sources, meaning that they are documentation from the same people who wrote the code being documented. Primary sources are the most reliable. Secondary sources are also extremely valuable. The difficulty with secondary sources is determining the credibility of the source. The websites of authors like [Doug Hellmann](#) and developers like [Eli Bendersky](#) are excellent. The blog of an unknown author might be excellent, or it might be rubbish.
5. **StackOverflow** - This question and answer site has a good amount of traffic, so it's likely that someone has asked (and someone has answered) a related question before! However, answers are provided by volunteers and vary in quality. Always understand solutions before putting them into your program. One line answers without any explanation are dubious. This is a good place to find out more about your question or discover alternative search terms.
6. **Bug Trackers** - Sometimes you'll encounter a problem so rare, or so new, that no one has addressed it on StackOverflow. You might find a reference to your error in a bug report on GitHub for instance. These bug reports can be helpful, but you'll probably have to do some original engineering work to solve the problem.
7. **Random Web Forums** - Sometimes your search yields references to forums that haven't been active since 2004, or some similarly ancient time. If these are the only resources that address your problem, you should rethink how you're approaching your solution.

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