

## STUDY GUIDE

# WHY PYTHON?

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## Key Terms and Definitions

- » **Python:** A free, object-oriented programming language used in a wide variety of development contexts. It features many libraries that have been developed to add functionality, including:
- » **Pandas:** Allows for the cleaning, organization, and structuring of data. Think of this as an agile Excel for use within Python.
- » **scikit-learn:** Includes a wide variety of statistical and machine learning models.
- » **TensorFlow:** Used for developing neural networks.
- » **NumPy and StatsModels:** Allow for advanced mathematical calculations and statistical analyses.
- » **Other Programming Languages:**
  - **R:** A free, open-source language with an emphasis on statistical analysis and mathematics-heavy applications.
  - **SQL:** A query language used to develop and interact with databases.
  - **Java:** Often takes over once initial models have been created in less agile languages (e.g. R), as it is scalable and includes tools for processing large data sets (like Hadoop or Hive).
  - **Scala:** Useful for large-scale machine learning, which incorporates JavaScript and allows for interaction with real-time, streaming data.
  - **Matlab:** An older language that requires a subscription but remains popular in academic applications and other niche fields.
  - **Julia:** A newer language that is emerging as a competitor to R and Python.

## Guiding Questions

1. What would make a programming language more or less useful?
2. What is the benefit of open-source software?
3. What makes Python such a "friendly" language?

## Additional Resources

- » [Programming Languages](#)
  - A list of several of the most popular programming languages and when they would be used.

» [Python](#)

- The official site for Python, including documentation and user guides.