Economic Analysis With Python

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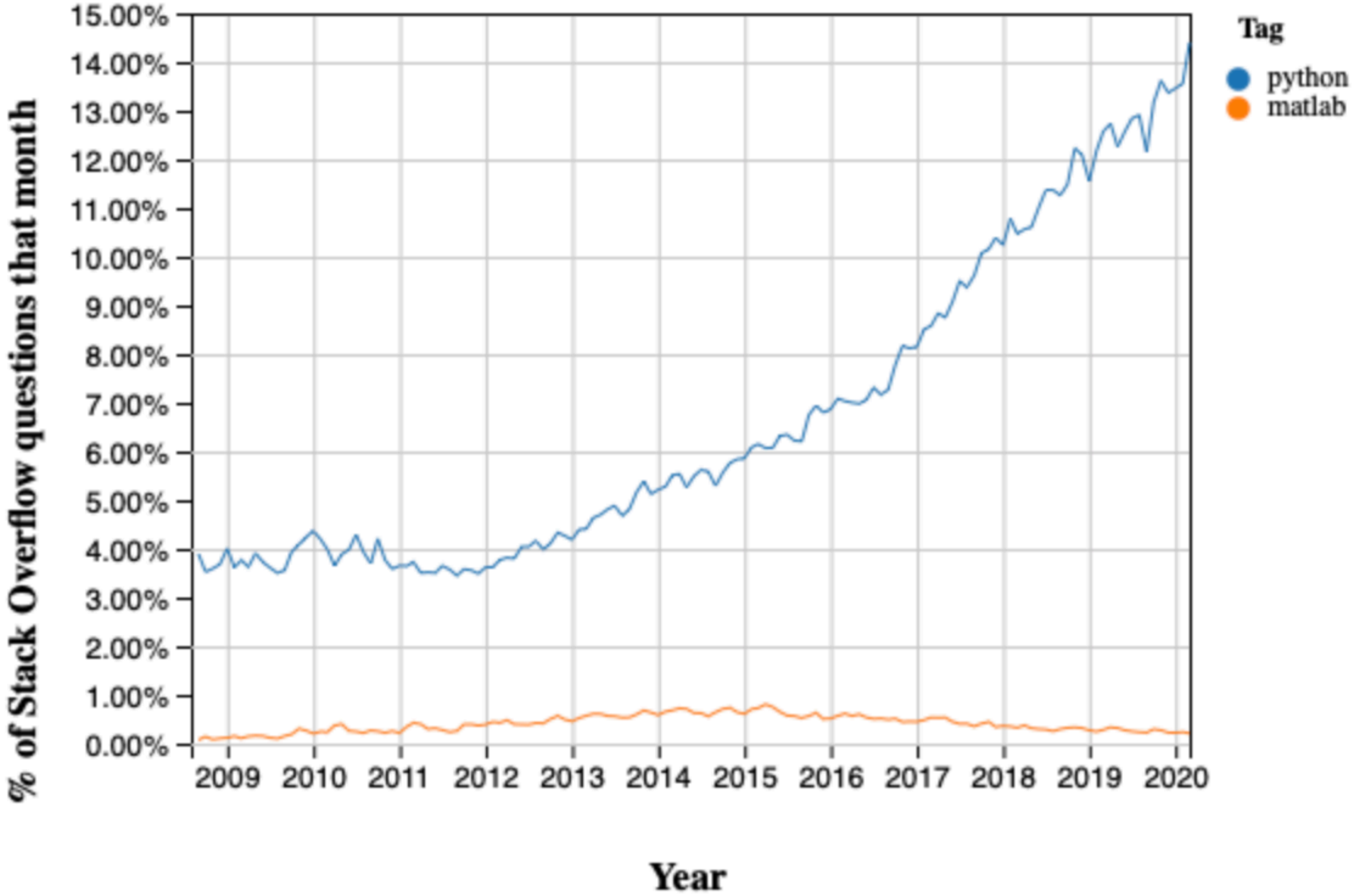
What is Python?

- Python is a general-purpose programming language conceived in 1989 by Dutch programmer Guido van Rossum.
- Free and open source.
- Its development is coordinated through the Python Software Foundation.
- The third most popular programming languages, after C and Java.
- The most popular language among hackers.

Python's goals

- An easy and intuitive language just as powerful as major competitors
- Open source, so anyone can contribute to its development
- Code that is as understandable as plain English
- Suitability for everyday tasks, allowing for short development times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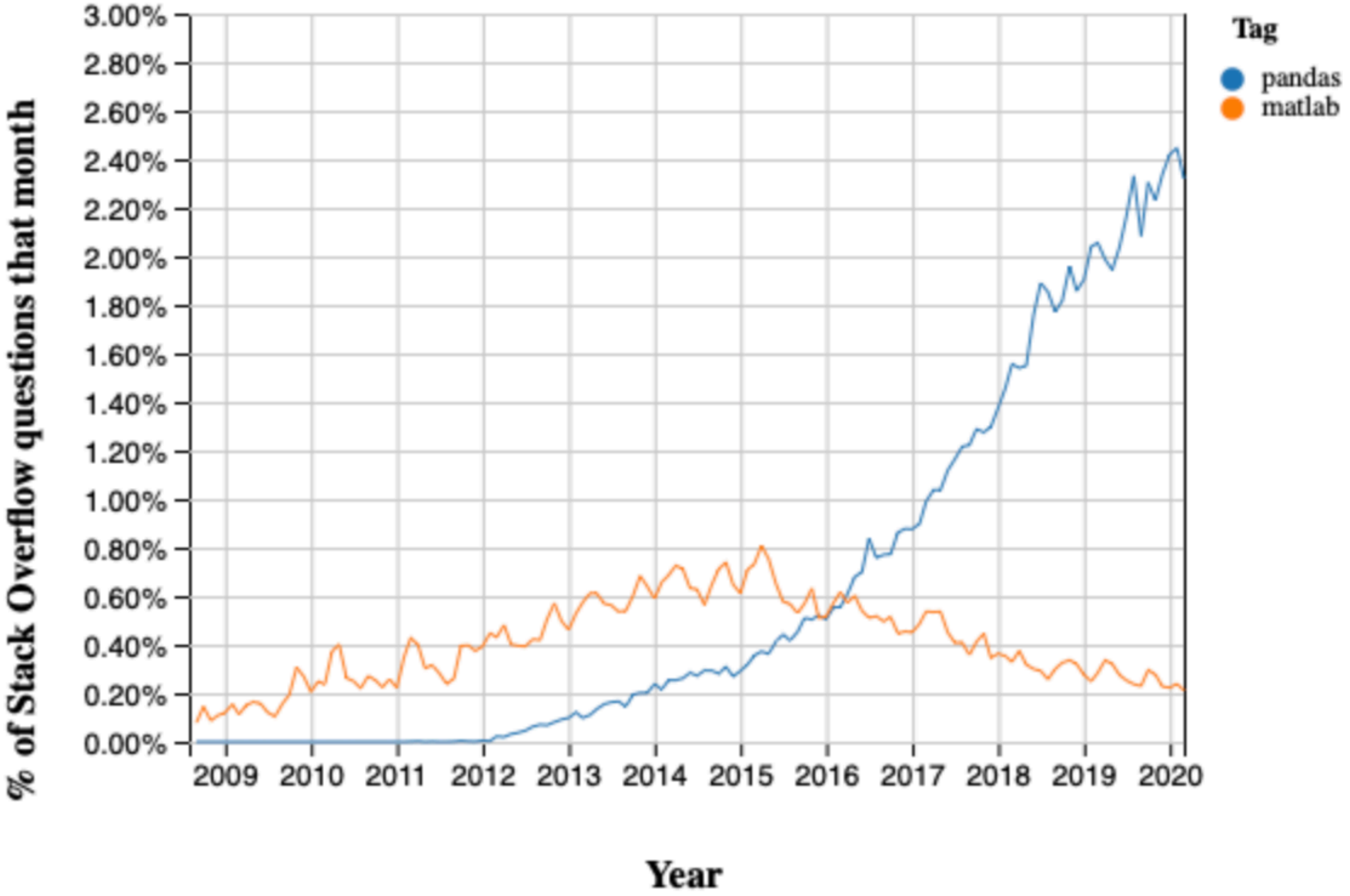
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Features

- A small core language
- Many libraries and packages
- Object-oriented programming

This class

- This course teaches the fundamentals of Python and apply them to problems in economics and finance.
- The following topics in Python will be covered:
  - Collections, control flow, function,
  - Object-oriented programming and classes,
  - Numpy, Pandas, data visualization,
  - Time series techniques.

Difference from other Python classes

- Economics and finance topics:
  - Economic growth
  - Asset pricing
  - Cobweb economy
  - Rational vs. boundedly rational expectations
  - Behavioral economics
  - Forecasting

Online textbook

- QuantEcon DataScience: https://datascience.quantecon.org
- QuantEcon is an online computational economics project designed and written by Nobel Laureate Thomas Sargent.
- Main tool: Jupyter Notebook

Grading

- Participation (5%). Attendance and participation in classroom activities.
- Problem sets (35%). A number of problem sets will be assigned and graded. It is important to complete homework on time. There is a late penalty of 0.83% an hour, or 20% a day.
- Two midterm exams (30% total, 15% each).
- Final project (30%).
  - You must submit a topic for approval. The topic must be approved by me by the instructor before April 11.
- The final project is due on May 13, the last day of class.

Installation

Two options for running Python

- Local installation (preferred): https://www.anaconda.com/products/individual
- Cloud computing
  - Click “open notebook” in the online textbook to get started
- Detailed instructions can be found in the online textbook: https://datascience.quantecon.org/introduction/local_install.html

Jupyter Notebook

- This is the actual file that allows you to **mix code and text**.
- The content inside a Jupyter notebook is organized into two types of cells.
  - Markdown cells
    - Inputs are written in markdown and can contain formatted text, images, equations, and more.
  - Code cells
    - Inputs Contain Python code.