AI for Finance

Class 2: Python Basis

Ray Ge

Quant RUC (人大量化) & IE Finance

January 16, 2026

0 Python Background?

No python background, No panics

- Previously, some students sent me email about their worries
- They worried the weak foundation of python for the quant modeling work
- As mentioned in last class, math + economics + English account for 99% of our class
- You need to trust youself, since you all overcame hard parts including math, economics ...

No python background, No panics

1. Python is a easy tool to learn after having the skill aforementioned and python is really useful and powerful tool
2. As the an economist, You need to master the ability to learn new things to catch up with the trend of research
3. I have some research assistants. They learned to program from 0 to proficiency in several months

Python Training in 2 Weeks

- We will learn how to use Python in 2 weeks
- Everyone can master Python in this period, if you try hard
- Keywords: practice, self-study and teamwork

The target for the python basis

1. know the basis syntax of the python
2. know how to writing **loops** & **if condition** in python
3. know how to use the **Functions** and **Classes** objects in python

How we build a good foundation for modeling?

1. We use website of the section 1 of QuantEcon to study the python basis
   https://python-programming.quantecon.org/intro.html

2. QuantEcon is the website found by Thomas Sargent for quant students from different backgrounds

3. QuantEcon has three sections, the first section is the good source to study the python basis for the quant students

How we build a good foundation for modeling?

Thomas J. Sargent

Economist

Thomas John Sargent is an American economist and the W.R. Berkley Professor of Economics and Business at New York University. He specializes in the fields of

https://python-programming.quantecon.org/intro.html

Introduction to Python

- 1. About Python
- 2. Getting Started
- 3. An Introductory Example
- 4. Functions
- 5. Python Essentials
- 6. OOP I: Introduction to Object Oriented Programming
- 7. OOP II: Building Classes

QuantEcon: Introduction to Python

QuantEcon: Introduction to Python

9. NumPy
10. Matplotlib
11. SciPy
12. Numba
13. Parallelization
14. Pandas
15. Writing Good Code
16. More Language Features
17. Debugging Other
18. Troubleshooting
19. Execution Statistics

QuantEcon by Sargent

1. Go to the website https://git.ruc.edu.cn/tigercut/quantecon22
2. Download the ipynb codes in the QuantEcon folder
3. Use the Jupyterlab to open the ipynb

Functions, Classes, Loop

- 1. About Python
- 2. Getting Started
- 3. An Introductory Example
- 4. Functions
- 7. OOP II: Building Classes

Scientific Libraries

- 8. Python for Scientific Computing
- 9. NumPy
- 10. Matplotlib
- 11. SciPy

The last part of the Python basics

We will focus on the contents listed below:

- Pandas: the toolkit for the data scientist
- Other trivial things: PEP8, debugger and etc.

Pandas

Pandas is a software library written for the Python programming language for data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series. It is free software released under the three-clause BSD license. The name is derived from the term "panel data", an econometrics term for data sets that include observations over multiple time periods for the same individuals. Its name is a play on the phrase "Python data analysis" itself. Wes McKinney started building what would become pandas at AQR Capital while he was a researcher there from 2007 to 2010.

Pandas

- 14_pandas.ipynb from the Sargent's QuantEcon
- Pandas 100 tricks from the Kaggle

Other Useful Tips for Python

1. PEP8 (15_writing_good_code.ipynb)
2. Jupyter Magic Codes (16_python_advanced_features.ipynb)
3. Debugger (17_debugging.ipynb)

How to Work Together in Modeling? Git!!!

- Git is efficient tool for modeling teamwork
- Through this semester, we will use this tool for homework, cooperation, mid and final modeling works

Create Your Home Folder in our Git Repo

- Go to https://github.com/Quant-of-Renmin-University/Quant_IE/tree/main/Models
- Create a folder named "your name"
- If you encounter any issues, please let me know before the end of the class. We need to it for the next exam and future projects