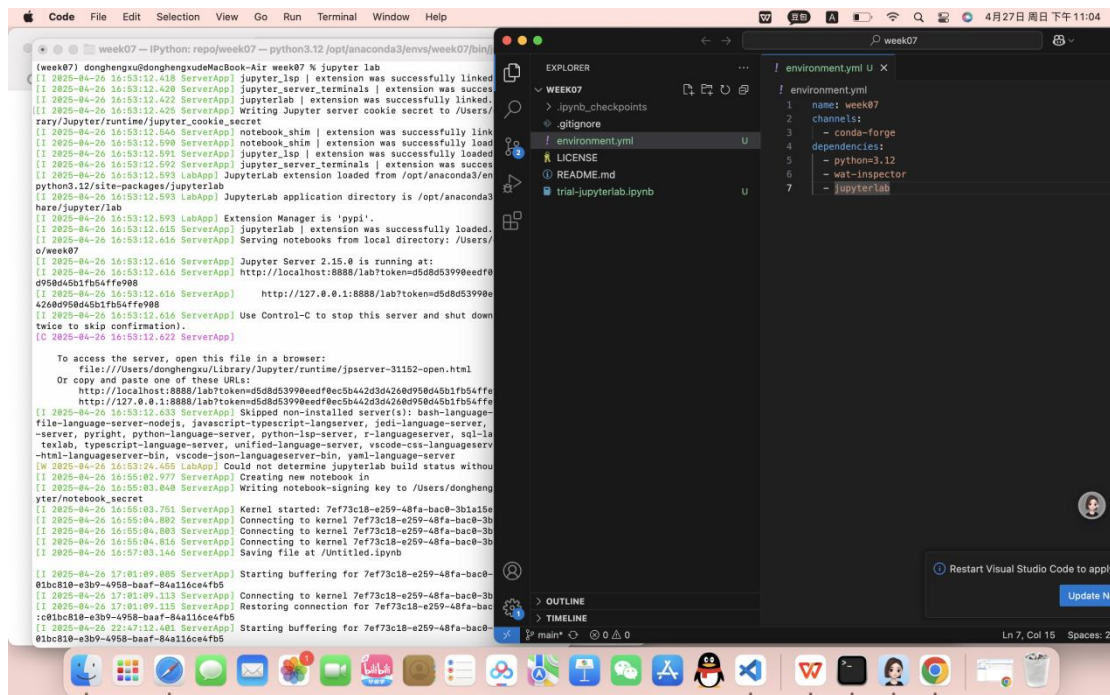


## 第七周报告

用 VS Code 打开项目目录，新建一个 `environment.yml` 文件，指定安装 Python 3.12 和 jupyterlab，然后运行 `conda env create` 命令创建 Conda 环境

在项目目录下，运行 `jupyter lab` 命令，启动 后端 (Backend) 服务，在浏览器里粘贴地址访问 前端 (Frontend) 页面



在单元格 (Cell) 里编写 Python 代码，按 `Shift+Enter` 运行 Cell 并下移

在单元格 (Cell) 上按 `ESC` 切换到 命令模式 (command mode)，按 `Enter` 切换到 编写模式 (edit mode)

在单元格 (Cell) 的命令模式下，按 `j` 选择下一个，按 `k` 选择上一个，按 `a` 在上方添加，按 `b` 在下方添加，按 `dd` 删除，按住 `Shift` 多选，按 `x` 剪切，按 `c` 复制，按 `v` 粘贴，按 `Shift+M` 合并，按 `z` 撤销，按 `Shift+Z` 重做，按 `Shift+L` 显示/隐藏代码行号

```
erLa
In [2]: import time
[
]
38/ In [3]: while True:
[
...:     print('hello')
...:     time.sleep(3)
...: ]
hello
hello
hello
hello
^C-----
KeyboardInterrupt                                Traceback (most recent call last)
Cell In[3], line 3
      1 while True:
      2     print('hello')
----> 3     time.sleep(3)
KeyboardInterrupt:
In [4]:
```

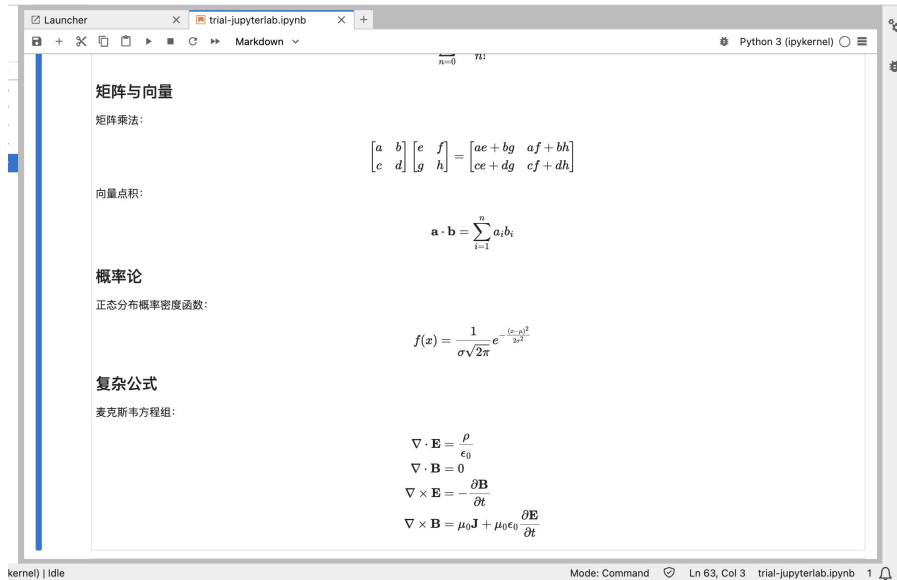
用豆包 (或 DeepSeek 等任何大模型) 生成一段示例 Markdown 代码, 复制粘  
贴进 Markdown 单元格, 运行以呈现 (Render)



用豆包 (或 DeepSeek 等任何大模型) 生成一段示例 HTML 代码, 复制粘贴进  
Markdown 单元格, 运行以呈现 (Render); 注意不支持 CSS



用豆包 (或 DeepSeek 等任何大模型) 生成一段示例 LaTeX 数学公式代码, 复制粘贴进 Markdown 单元格, 运行以呈现 (Render); 注意要用  $(行内模式) 或  $(整行模式) 包围$$



关闭前端页面, 在后端按 **Ctrl+C** 打断运行中的服务, 回到 **Bash** 提示符

```
week07 --zsh -- 94x32
b.
[I 2025-05-09 09:35:39.118 ServerApp] Restoring connection for ff6735d4-0cc6-4253-bbb1-20d952eb8fdb:1a558483-98c8-4878-8fa7-f163cd0e2440
[I 2025-05-09 14:59:17.242 ServerApp] Starting buffering for ff6735d4-0cc6-4253-bbb1-20d952eb8fdb:1a558483-98c8-4878-8fa7-f163cd0e2440
[I 2025-05-09 14:59:17.329 ServerApp] Connecting to kernel ff6735d4-0cc6-4253-bbb1-20d952eb8fdb.
[I 2025-05-09 14:59:17.330 ServerApp] Restoring connection for ff6735d4-0cc6-4253-bbb1-20d952eb8fdb:1a558483-98c8-4878-8fa7-f163cd0e2440
[I 2025-05-09 16:02:50.558 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:04:50.618 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:06:50.653 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:08:50.688 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:12:50.722 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:14:50.810 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:16:50.834 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:18:50.865 ServerApp] Saving file at /trial-jupyterlab.ipynb
[I 2025-05-09 16:21:05.773 ServerApp] Starting buffering for ff6735d4-0cc6-4253-bbb1-20d952eb8fdb:1a558483-98c8-4878-8fa7-f163cd0e2440
^C[I 2025-05-09 16:21:47.267 ServerApp] interrupted
[I 2025-05-09 16:21:47.268 ServerApp] Serving notebooks from local directory: /Users/donghengxu/repo/week07
1 active kernel
Jupyter Server 2.15.0 is running at:
http://localhost:8888/lab?token=0c25e21969f69dd68b5e28be84e5ac83fa859d3d64eca7c6
http://127.0.0.1:8888/lab?token=0c25e21969f69dd68b5e28be84e5ac83fa859d3d64eca7c6
Shut down this Jupyter server (y/[n])? y
[C 2025-05-09 16:21:49.696 ServerApp] Shutdown confirmed
[I 2025-05-09 16:21:49.701 ServerApp] Shutting down 4 extensions
[I 2025-05-09 16:21:49.702 ServerApp] Shutting down 1 kernel
[I 2025-05-09 16:21:49.703 ServerApp] Kernel shutdown: ff6735d4-0cc6-4253-bbb1-20d952eb8fdb
(week07) donghengxu@donghengxudeMacBook-Air week07 %
```

修改 `environment.yml` 文件, 添加 `pip: tushare` (注意, `conda-forge` 没有收录 `tushare`, 只能从 `PyPI` 安装, 参考) 依赖项, 运行 `conda env update` 更新

## Conda 环境

```
! environment.yml
1  name: week07
2  channels:
3    - conda-forge
4  dependencies:
5    - python=3.12
6    - wat-inspector
7    - jupyterlab
8    - pip
9    - pip:
10     - tushare
```

运行 `set_token` 函数会把 Token 字符串保存在 `~/tk.csv` 文件里, 今后每次使用 `tushare` 软件包请求数据时都会自动读取并发送 Token, 不需要反复设置。

```
Last login: Sun Apr 27 23:20:34 on ttys007
(base) donghengxu@donghengxudeMacBook-Air ~ % ls
Applications          Pictures
Applications (Parallels)  Public
Desktop               Visual Studio Code.app
Documents              Visual Studio Code的副本.app
Downloads              abc.txt
Library                brew-install
Movies                 repo
Music                  report.txt
Parallels              tk.csv
(base) donghengxu@donghengxudeMacBook-Air ~ % cat ts.csv
cat: ts.csv: No such file or directory
(base) donghengxu@donghengxudeMacBook-Air ~ % cat tk.csv
token
my fake token
(base) donghengxu@donghengxudeMacBook-Air ~ %
```

```
[In [1]: import tushare as ts
[In [2]: pro = ts.pro_api()
[In [3]: df = pro.new_share()
* [In [4]: df
Out[4]:
   ts_code sub_code name ipo_date ... pe limit_amount funds ballot
0  001390.SZ  001390 古麒绒材 20250519 ... 0.00 2.00 0.000 0.00
1  603014.SH  732014 威高血净 20250508 ... 24.82 1.10 10.902 0.03
2  301595.SZ  301595 太力科技 20250508 ... 21.55 0.65 4.615 0.02
3  688755.SH  787755 汉邦科技 20250507 ... 26.35 0.50 5.009 0.03
4  301636.SZ  301636 泽润新能 20250428 ... 17.57 0.45 5.279 0.02
... ..
1995 300776.SZ  300776 帝尔激光 20190507 ... 22.99 1.60 9.543 0.01
1996 300777.SZ  300777 中简科技 20190506 ... 22.98 1.10 2.425 0.04
1997 603267.SH  732267 鸿远电子 20190430 ... 16.50 1.60 8.367 0.03
1998 600989.SH  730989 宝丰能源 20190430 ... 22.07 22.00 81.550 0.25
1999 300778.SZ  300778 新城市 20190425 ... 22.99 2.00 5.466 0.02

[2000 rows x 12 columns]
[In [5]: df.to_parquet("new_share.parquet")
In [6]:
```

```

In [7]: df = pro.stock_basic()
In [8]: df.to_parquet("stock_basic.parquet")
In [9]: df = pro.stock_basic(fields='ts_code,symbol,name,area,industry,fullname,ename,cnspell
: ,market,exchange,curr_type,list_status,list_date,delist_date,is_hs,act_name,act_ent_ty
: pe')
In [10]: df
Out[10]:
   ts_code  symbol  name area  ... delist_date is_hs  act_name act_ent_type
0  000001.SZ  000001  平安银行  深圳  ...  None  S  无实际控制人  无
1  000002.SZ  000002  万科A  深圳  ...  None  S  深圳市人民政府国有资产监督管理委员会  地方国企
2  000004.SZ  000004  *ST国华  深圳  ...  None  N  李映彤  民营企业
3  000006.SZ  000006  深振业A  深圳  ...  None  S  深圳市人民政府国有资产监督管理委员会  地方国企
4  000007.SZ  000007  全新好  深圳  ...  None  N  王玩虹  民营企业
...  ...  ...  ...  ...  ...  ...  ...
5407  920489.BJ  920489  佳先股份  None  ...  None  N  None  None
5408  920682.BJ  920682  球冠电缆  None  ...  None  N  None  None
5409  920799.BJ  920799  艾融软件  None  ...  None  N  None  None
5410  920819.BJ  920819  顺泰生物  None  ...  None  N  None  None
5411  689009.SH  689009  九号公司-WD  北京  ...  None  None  None  None

[5412 rows x 17 columns]
In [11]: df.to_parquet("stock_basic.parquet2")
In [12]:

```

通过 `perspective-python` 软件包查看 `polars.DataFrame` 数据，实践交互式可视化

首先在 VScode 内在 `environment.yml` 文件夹中添加 `perspective-python` 和 `polars` 依赖项，运行 `conda env update` 更新 Conda 环境。

启

动 JupyterLab，新建一个 Notebook，改名为 `trial-perspective.ipynb`

```

week07 — -zsh — 80x24

Requirement already satisfied: charset_normalizer<4,>=2 in /opt/anaconda3/envs/week07/lib/python3.12/site-packages (from requests->tushare->-r /Users/donghengxu/repo/week07/condaenv.yaupc1s.requirements.txt (line 1)) (3.4.1)
Requirement already satisfied: idna<4,>=2.5 in /opt/anaconda3/envs/week07/lib/python3.12/site-packages (from requests->tushare->-r /Users/donghengxu/repo/week07/condaenv.yaupc1s.requirements.txt (line 1)) (3.10)
Requirement already satisfied: urllib3<3,>=1.21.1 in /opt/anaconda3/envs/week07/lib/python3.12/site-packages (from requests->tushare->-r /Users/donghengxu/repo/week07/condaenv.yaupc1s.requirements.txt (line 1)) (2.4.0)
Requirement already satisfied: certifi>=2017.4.17 in /opt/anaconda3/envs/week07/lib/python3.12/site-packages (from requests->tushare->-r /Users/donghengxu/repo/week07/condaenv.yaupc1s.requirements.txt (line 1)) (2025.4.26)

done
#
# To activate this environment, use
#
#     $ conda activate week07
#
# To deactivate an active environment, use
#
#     $ conda deactivate

(base) donghengxu@donghengxudeMacBook-Air week07 % jupyterlab

```

调用 `polars.read_parquet` 函数，分别读取磁盘 (disk) 中的 `new_share.parquet` 文件和 `stock_basic.parquet` 文件，得到内存 (memory) 中的 `polars.DataFrame` 对象，命名为 `d1` 和 `d2`



trial-perspe... - JupyterLab

localhost:8888/lab/tree/trial-perspective.ipynb

File Edit View Run Kernel Tabs Settings Help

Filter files by name

trial-perspective.ipynb

```
[2]: import polars as pl
[10]: d1=pl.read_parquet("new_share.parquet")
[12]: d2=pl.read_parquet("stock_basic.parquet")
[14]: d1
```

shape: (2\_000, 12)

ts_code	sub_code	name	ipo_date	issue_date	amount	market_amount	price	pe	limit_amount	fu
str	str	str	str	str	f64	f64	f64	f64	f64	f64
"001390.SZ"	"001390"	"古麒绒材"	"20250519"	null	5000.0	0.0	0.0	0.0	2.0	10
"603014.SH"	"732014"	"威高血净"	"20250508"	null	4114.0	2685.0	26.5	24.82	1.1	10
"301595.SZ"	"301595"	"太力科技"	"20250508"	null	2707.0	1178.0	17.05	21.55	0.65	4
"688755.SH"	"787755"	"汉邦科技"	"20250507"	null	2200.0	704.0	22.77	26.35	0.5	5
"301636.SZ"	"301636"	"泽润新能"	"20250428"	null	1597.0	774.0	33.06	17.57	0.45	5
...	...	...	...	...	...	...	...	...	...	...
"300776.SZ"	"300776"	"帝尔激光"	"20190507"	"20190517"	1654.0	1654.0	57.71	22.99	1.6	9
"300777.SZ"	"300777"	"中简科技"	"20190506"	"20190516"	4001.0	3601.0	6.06	22.98	1.1	2
"603267.SH"	"732267"	"鸿远	"20190430"	"20190515"	4134.0	3721.0	20.24	16.5	1.1	2

Simple 0 1 Python [conda env:week07] | idle Mode: Edit Ln 1, Col 1 trial-perspective.ipynb 1

进行适当的列变换，尤其是要把实际上是日期类型的列，从 `polars.String()` 类型转换为 `polars.Date()` 类型

trial-perspective.ipynb

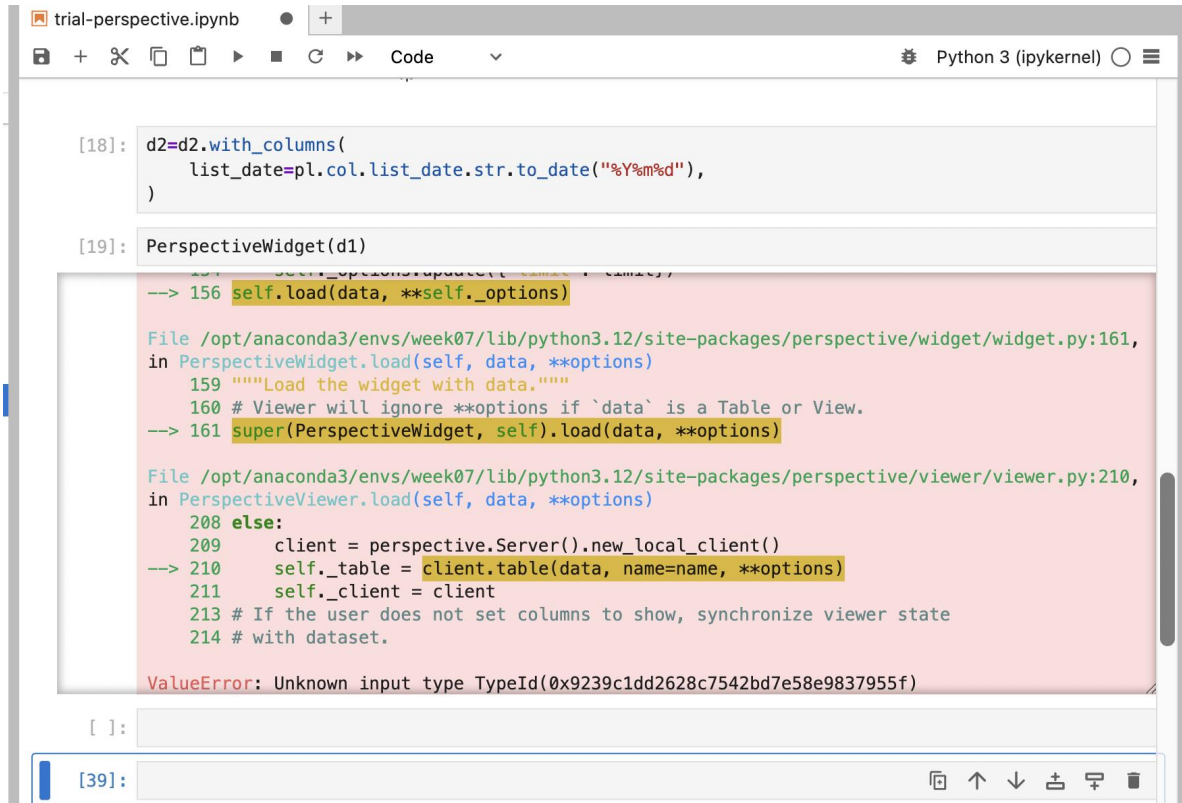
Code

```
[16]: d1.with_columns(
      ipo_date=pl.col.ipo_date.str.to_date("%Y%m%d"),
      issue_date=pl.col.issue_date.str.to_date("%Y%m%d")
    )
```

[16]: shape: (2\_000, 12)

ts_code	sub_code	name	ipo_date	issue_date	amount	market_amount	price	pe	limit_amount	fu
str	str	str	date	date	f64	f64	f64	f64	f64	f64
"001390.SZ"	"001390"	"古麒绒材"	2025-05-19	null	5000.0	0.0	0.0	0.0	2.0	10
"603014.SH"	"732014"	"威高血净"	2025-05-08	null	4114.0	2685.0	26.5	24.82	1.1	10
"301595.SZ"	"301595"	"太力科技"	2025-05-08	null	2707.0	1178.0	17.05	21.55	0.65	4
"688755.SH"	"787755"	"汉邦科技"	2025-05-07	null	2200.0	704.0	22.77	26.35	0.5	5
"301636.SZ"	"301636"	"泽润新能"	2025-04-28	null	1597.0	774.0	33.06	17.57	0.45	5
...	...	...	...	...	...	...	...	...	...	...
"300776.SZ"	"300776"	"帝尔激光"	2019-05-07	2019-05-17	1654.0	1654.0	57.71	22.99	1.6	9
"300777.SZ"	"300777"	"中简科技"	2019-05-06	2019-05-16	4001.0	3601.0	6.06	22.98	1.1	2

把 d1 或 d2 作为参数传递给 `perspective.widget.PerspectiveWidget` 类型进行初始化, 返回的对象会呈现在 Notebook 的 Output 里  
出现问题



The screenshot shows a Jupyter Notebook interface with the file name 'trial-perspective.ipynb'. The code cell [18] contains the following Python code:

```
[18]: d2=d2.with_columns(  
        list_date=pl.col.list_date.str.to_date("%Y%m%d"),  
    )
```

The code cell [19] contains the following Python code:

```
[19]: PerspectiveWidget(d1)
```

The output of cell [19] shows the execution of the `PerspectiveWidget` constructor. It displays the source code for `PerspectiveWidget.load` and `PerspectiveViewer.load`. The error message at the bottom of the output is:

```
ValueError: Unknown input type TypeId(0x9239c1dd2628c7542bd7e58e9837955f)
```

The error message is highlighted in red. The notebook interface also shows a toolbar with various icons and a status bar at the bottom indicating 'Python 3 (ipykernel)'.