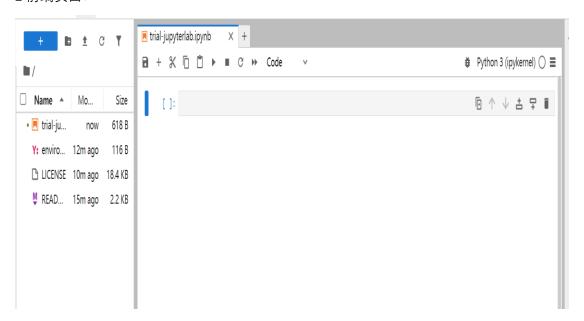
# 第7周 数据可视化与交互 (初级)

一、启动 后端 (Backend) 服务,在浏览器里粘贴地址访问 前端 (Frontend) 页面 1 后端页面:

```
Use Control-C to stop this server and shut down all kernels (twice to skip confirm
 ation).
          To access the server, open this file in a browser:
                      file:///C:/Users/86157/AppData/Roaming/jupyter/runtime/jpserver-14468-open.html
          Or copy and paste one of these URLs:
                      http://localhost:8888/lab?token=5c580fbed53aa976b63b95068c40d80c816f6b6e11518da7
                     http://127.0.0.1:8888/lab?token=5c580fbed53aa976b63b95068c40d80c816f6b6e11518da7
                                                                                                       Skipped non-installed server(s): bash-language-server, dockerfile-language-server
nodejs, javascript-typescript-langserver, jedi-language-server, julia-language-server, pyright, python-language-server, python-lsp-server, r-languageserver, sql-language-server, texlab, typescript-language-server, unified-language-server, which is a server of the serv
scode-css-languageserver-bin, vscode-html-languageserver-bin, vscode-json-languageserver-bin, yaml-language-server
                                                                                               Could not determine jupyterlab build status without nodejs
                                                                                                       delete /Untitled.ipynb
                                                                                                       Creating new notebook in
                                                                                                       Kernel started: f133c855-2488-4d29-8a31-484a0063a824
                                                                                                       Connecting to kernel f133c855-2488-4d29-8a31-484a0063a824.
                                                                                                       Connecting to kernel f133c855-2488-4d29-8a31-484a0063a824.
                                                                                                       Connecting to kernel f133c855-2488-4d29-8a31-484a0063a824.
                                                                                                       Saving file at /trial-jupyterlab.ipynb
```

#### 2 前端页面:



二、在 JupyterLab 页面里,新建一个 Notebook,改名为 trial-jupyterlab.ipynb,在里面实践掌握以下功能:

#### 1基本操作:

(1) 单元格操作

①编写代码:在单元格里编写 Python 代码,按 Shift+Enter 运行并下移

②模式切换:

ESC: 切换到命令模式 (command mode) Enter: 切换到编写模式 (edit mode)

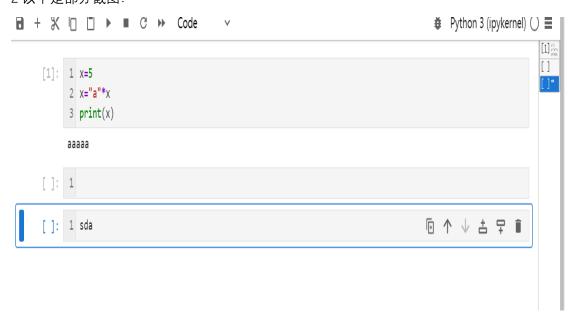
(2) 命令模式快捷键

- ①导航: j(下), k(上)
- ②单元格管理:
  - a: 上方添加单元格
  - b: 下方添加单元格
  - dd: 删除单元格 Shift+选择: 多选
  - x: 剪切
  - c: 复制
  - v: 粘贴
  - Shift+M: 合并单元格
  - z: 撤销
  - Shift+Z: 重做
  - Shift+L: 显示/隐藏行号
- (3) 编写模式快捷键
  - ①Ctrl+Shift+-: 切分单元格
- (4) 运行与输出
  - ①运行后序号单调递增
  - ②最后一行如果是表达式且返回值不是 None,则显示输出 (Out)
  - ③\_i 可引用序号为 i 的输出
  - 4\*表示代码运行中
  - ⑤ii 打断运行 (KeyboardInterrupt)
- (5) 内核管理
  - ①00: 重启 Python 解释器 (Kernel)
  - ②重启后需要重新运行所有代码
  - ③建议先清除所有输出 ("Edit / Clear Outputs of All Cells")

### 单元格类型切换

- ①m: 切换至 Markdown 模式
- ②y: 切换至 Python 模式

#### 2 以下是部分截图:



```
[1]: 1 x=5
2 x="a"*x
3 print(x)
aaaaa
```

4

aaaaa

aaaaa

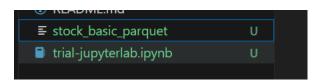
[4]: 27

```
[5]: 1 a=[4,2,9]
 [5]: [4, 2, 9]
 [6]: 1 a.pop()
 [6]: 9
 [7]:
 [7]: [4, 2]
        1 print(a)
         [4, 2]
         1 a.append(7)
[10]:
[10]: [4, 2, 7]
  [11]: 1 import time
                                                                              ◎ ↑ ↓ 占 무 🛢
        3 while True:
        4 print('hello')
             time.sleep(3)
       5
        hello
        KeyboardInterrupt
                                           Traceback (most recent call last)
        Cell In[11], line 5
         3 while True:
4 print('hello')
---> 5 time.sleep(3)
        ----> 5
        KeyboardInterrupt:
           1
   []:
           1
```

## 三、利用数据接口下载了相关数据,以下为部分截图

:

In [6	]: pro.new_	share()										
Out[6]:												
							rket_amount pr			_	unds bal 0.000	
0 00	301636.SZ	301030	泽润新能	20250428	None	1597.0	0.6	0.00	0.00	0.45	0.000	Θ.
1 01	001400.SZ	001400	江顺科技	20250415	20250424	1500.0	1500.6	37.36	15.32	1.50	5.604	Θ.
2 02	301560.SZ	301560	众捷汽车	20250415	None	3040.0	1216.6	16.50	21.30	0.70	5.016	0.
3	603202.SH	732202	天有为	20250414	20250424	4000.0	2611.0	93.50	13.50	1.25	37.400	0.0
4 02	301662.SZ	301662	宏工科技	20250408	20250417	2000.0	813.6	26.60	7.05	0.45	5.320	Θ.
1995 03	002953.SZ	002953	… 日丰股份	20190424	20190509	4302.0	3872.6	10.52	16.34	1.70	4.526	Θ.
1996 05	603697.SH	732697	有友食品	20190423	20190508	7950.0	7155.6	7.87	13.92	3.10	6.257	Θ.
1997 04	300772.SZ	300772	运达股份	20190417	20190426	7349.0	6614.6	6.52	22.97	2.80	4.792	Θ.
1998 04	603967.SH	732967	中创物流	20190417	20190429	6667.0	6000.6	15.32	22.24	2.60	10.213	Θ.
1999 4	300773.SZ	300773	拉卡拉	20190416	20190425	4001.0	3601.0	33.28	22.99	1.20	13.315	0.0
[2000 rows x 12 columns]												

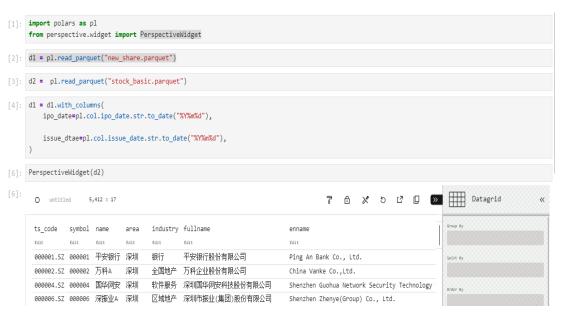


```
[2000 rows x 12 columns]
 In [6]: df.to_parquet("stock_basic_parquet")
 In [7]: pro.stock_basic()
      ts_code symbol
000001.SZ 000001
                             name area industry cnspell market list_date
                                                                                       act_name act_ent_type
                             平安银行 深圳
                                                     .
银行
                                                           payh 主板 19910403
                                                                                            无实际控制人
无
1
      000002.SZ 000002
地方国企
000004.SZ 000004
                              万科A
                                       深圳
                                                 全国地产
                                                              wka
                                                                       主板 19910129 深圳市人民政府国有资产监督管理委员会
2
企业
3
会4
企业
                             国华网安
                                         深圳
                                                   软件服务
                                                               ghwa
                                                                        主板 19910114
      000006.SZ 000006
地方国企
000007.SZ 000007
                             深振业A
                                        深圳
                                                  区域地产
                                                                       主板 19920427 深圳市人民政府国有资产监督管理委员
                                                              szya
                              全新好
                                        深圳
                                                  其他商业
                                                               qxh
                                                                       主板 19920413
                         ...
聚星科技
星图测远大
胜业电气
九号公司-WD
                                                              北交所 20241111
北交所 20250102
北交所 20240822
北交所 20241129
      920111.BJ 920111
920116.BJ 920116
                                                None jxkj
None xtck
5409
                                       None
                                                                                                  None
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5410 920116.BJ 920116
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                                       None
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                                                                                                                None
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摩托车
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5412 920128.BJ 920128
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                                                                                                   None
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5413 689009.SH 689009
                                         北京
                                                              jhgs
                                                                       科创板 20201029
                                                                                                      None
                                                                                                                     None
[5414 rows x 10 columns]
```

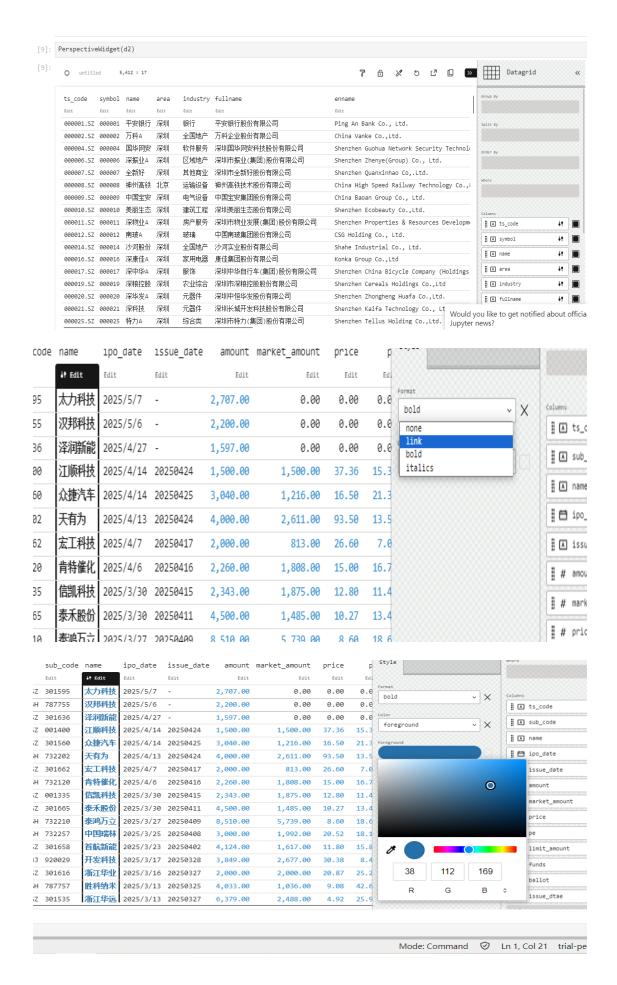
```
name area industry ... list_date delist_date is_hs
平安银行 深圳 银行 ... 19910403 Nono
    ts_code symbol
000001.SZ 000001
                                                                          act_name act_ent_type
                                                                                  无实际控制人
                                                               None
                              深圳
    000002.SZ 000002
                       万科A
                                      全国地产 ... 19910129
                                                                      S 深圳市人民政府国有资产监督管理
                                                               None
委员会
    地方国企
000004.SZ 000004
                      国华网安
                                       软件服务 ... 19910114
                                深圳
                                                                None
 民营企业
                                                                       S 深圳市人民政府国有资产监督管
    000006.SZ 000006
                      深振业A
                               深圳
                                      区域地产 ... 19920427
                                                               None
    会 地方国企
000007.SZ 000007
理委员会
                       全新好
                               深圳
                                      其他商业 ... 19920413
                                                                                     王玩虹
                                                               None
民营企业
                                     None ... 20241111
                      聚星科技星图测控
    920111.BJ 920111
                                                                  N
                                                                                           None
                                                           None
                                                                                None
5409
                              None
    920116.BJ
             920116
                              None
                                      None ... 20250102
                                                                  N
5410
                                                           None
                                                                                None
                                                                                           None
                      太湖远大
胜业电气
5411 920118.BJ
             920118
                                                                  N
                              None
                                      None ... 20240822
                                                           None
                                                                                None
                                                                                           None
                                        ne ... 20241129
摩托车 ... 20201029
5412 920128.BJ 920128
                                                                  N
                              None
                                      None
                                                           None
                                                                                None
                                                                                           None
5413
    689009.SH 689009 九号公司-WD
                               北京
                                                               None None
                                                                                    None
[5414 rows x 17 columns]
```

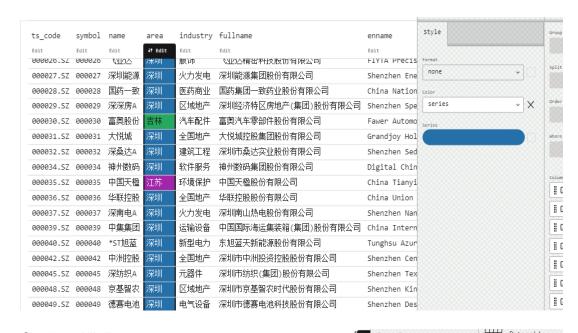
#### 四、在 PerspectiveWidget 默认的 Datagrid 视图下,尝试实践:

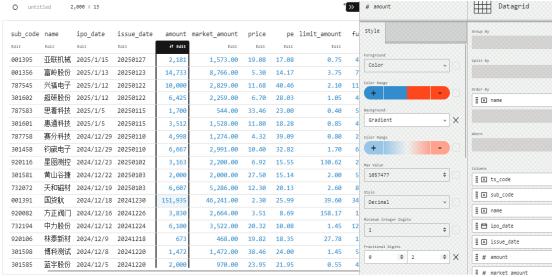
### 1表格



[3]: pl.read\_parquet("new\_share.parquet") [3]; shape: (2\_000, 12) pe limit\_amount funds ballot ts code sub code ipo\_date issue\_date amount market\_amount price name f64 f64 f64 f64 f64 f64 str str str str str f64 "301636.SZ" "301636" "泽润新能" "20250428" null 1597.0 0.0 0.0 0.0 0.45 0.0 0.0 "001400.SZ" "001400" "江顺科技" "20250415" "20250424" 1500.0 1500.0 37.36 15.32 1.5 5.604 0.01 "301560.SZ" "301560" "众捷汽车" "20250415" 3040.0 1216.0 16.5 21.3 0.7 5.016 0.02 "603202.SH" "732202" "天有为" "20250414" "20250424" 4000.0 2611.0 93.5 13.5 1.25 0.03 37.4 "301662.SZ" "301662" "宏工科技" "20250408" "20250417" 2000.0 813.0 26.6 7.05 0.45 5.32 0.02 "002953.SZ" "002953" "日丰股份" "20190424" "20190509" 4302.0 3872.0 10.52 16.34 1.7 4.526 0.03 "603697.SH" "732697" "有友食品" "20190423" "20190508" 7950.0 7155.0 7.87 13.92 3.1 6.257 0.05 "300772.SZ" "300772" "运达股份" "20190417" "20190426" 7349.0 6614.0 6.52 22.97 2.8 4.792 0.04 "603967.SH" "732967" "中创物流" "20190417" "20190429" 6667.0 6000.0 15.32 22.24 2.6 10.213 0.04 "300773.SZ" "300773" "拉卡拉" "20190416" "20190425" 4001.0 3601.0 33.28 22.99 1.2 13.315 0.04 : import polars as pl from perspective.widget import PerspectiveWidget ]: d1 = pl.read\_parquet("new\_share.parquet") ]: d2 = pl.read\_parquet("stock\_basic.parquet") ]: d1 = d1.with\_columns( ipo\_date=pl.col.ipo\_date.str.to\_date("%Y%m%d"), issue dtae=pl.col.issue date.str.to date("%Y%m%d"), ]: d2 = d2.with\_columns( list date=pl.col.list date.str.to date("%Y%m%d"). ]: PerspectiveWidget(d2) 7 6 % 5 2 0 >> Datagrid O untitled 5,412 × 17 ts code symbol name area industry fullname enname Edit Edit Edit Edit Edit Edit 000001.5Z 000001 平安银行 深圳 银行 平安银行股份有限公司 Ping An Bank Co., Ltd. Split By 000002.SZ 000002 万科A 深圳 全国地产 万科企业股份有限公司 China Vanke Co.,Ltd. 000004.SZ 000004 国华网安 深圳 软件服务 深圳国华网安科技股份有限公司 Shenzhen Guohua Network Security Technology 5]: PerspectiveWidget(d1) ₹ 6 % 5 C □ > Datagrid ○ untitled 2,000 × 13 ts\_code sub\_code name ipo\_date issue\_date amount market\_amount price pe limit\_amount funds b Edit Edit Edit Edit Edit Edit Edit Edit Edit 301658.SZ 301658 首航新能 2025/3/23 20250402 4,124.00 1,617.00 11.80 15.88 0.75 开发科技 2025/3/17 20250328 920029.BJ 920029 3,849.00 2,677.00 30.38 8.46 158.96 11.69 301616.SZ 301616 浙汀华业 2025/3/16 20250327 2.000.00 2,000.00 20.87 25.22 2.00 4.17 688757.SH 787757 胜科纳米 2025/3/13 20250325 4,033.00 1,036.00 42.64 浙江华远 2025/3/13 20250327 6,379.00 301535.SZ 301535 2,488.00 4.92 25.91 1.20 3.14 301629.57 301629 砂电股份 2025/3/10 20250324 1.043.00 1.043.00 52.28 26.23 1.00 5.45 001382.SZ 001382 新亚电缆 2025/3/10 20250321 6,200.00 4,340.00 7.40 18.71 4.59 603124.SH 732124 江南新材 2025/3/9 20250320 3,644.00 2,335.00 10.54 12.40 1.15 3.84 A ts\_code Į۴ 2,550.00 301501.SZ 301501 恒鑫生活 2025/3/6 20250319 1,237.00 39.92 19.24 0.70 10.18 301479.SZ 301479 弘景光电 2025/3/3 20250318 1,589.00 705.00 41.90 23.30 0.40 6.66 A sub\_code 10 603271.SH 732271 永杰新材 2025/2/27 20250311 4,920.00 3,149.00 1.55 A name Į+ 301275.SZ 301275 汉朔科技 2025/2/27 20250311 4,224.00 1,352.00 27.50 16.75 0.65 11.62 ∄ 🗎 ipo\_date 10 7.6 603409 SH 732409 汇诵控股 2025/2/20 20250304 3 151 00 2 521 00 24 18 20 72 1 25 Would you like to get notified about 20250303 2,196.00 毓恬冠佳 2025/2/19 882.00 28.33 0.50 6.2 301557.SZ 301557 常友科技 2025/2/17 20250304 1,108.00 1,108.00 28.88 15.70 1.10 3.20 Open privacy policy 920108.BJ 920108 宏海科技 2025/1/16 20250206 2,300,00 1,600.00 5.57 15.37 95.00 1.2 Mode: Edit ⊘ Ln 1, Col 1 trial-perspective.ip



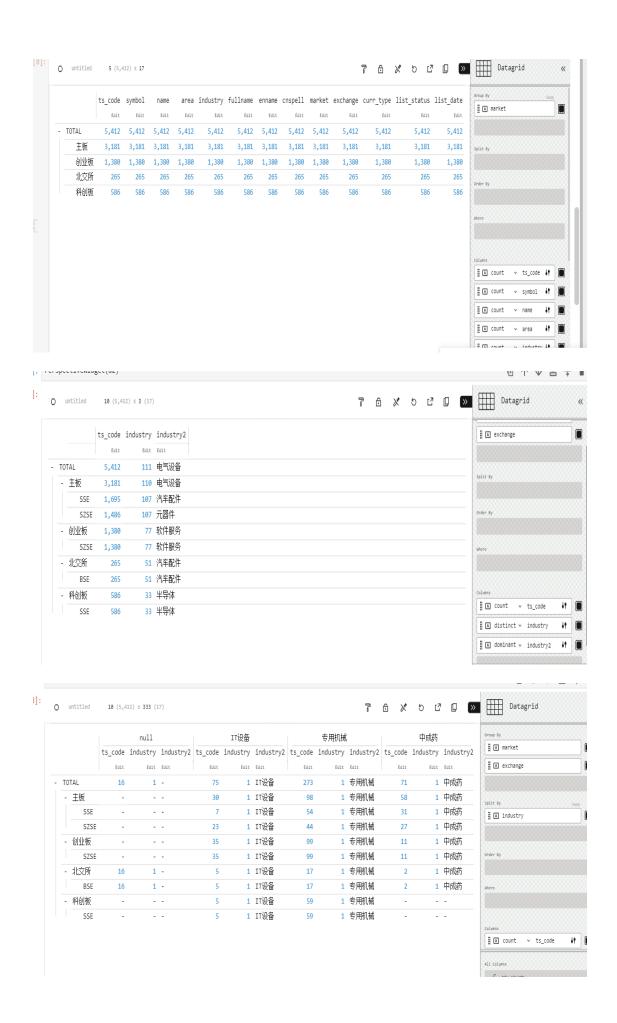


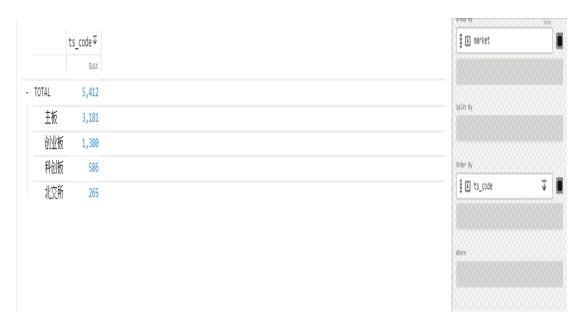


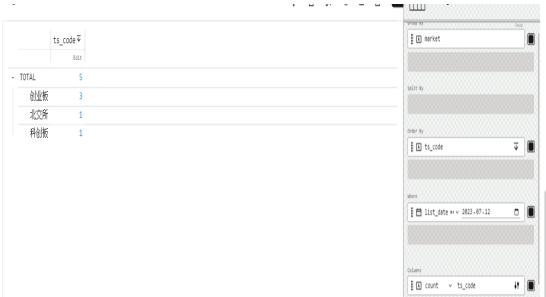
0, L L . \_ O ... COM

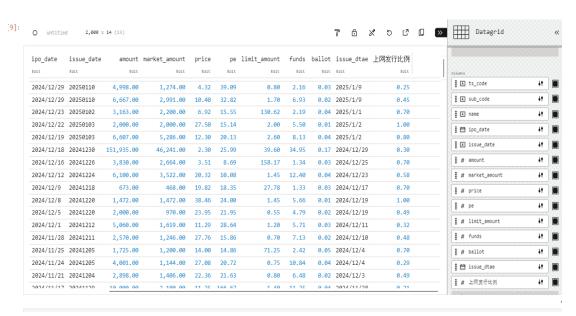
D .. III . / I2\

ub_code	name	ipo_date	issue_date	amount	market_amount	price	pe	limit_amount	fu	Style		Group
dit	Edit	Edit	Edit	Edit	4º Edit	Edit	Edit	Edit		Significant Digits		
01629	妙电胶沥	2025/3/10	20250324	1,043	+1,043	52.28	26.23	1.00	5	1 \$ 21 \$	76	Split
01382	新亚电缆	2025/3/10	20250321	6,200	+4,340	7.40	18.71	1.85	4	1 7 21		
32124	江南新材	2025/3/9	20250320	3,644	+2,335	10.54	12.40	1.15	3	Rounding Increment		
01501	恒鑫生活	2025/3/6	20250319	2,550	+1,237	39.92	19.24	0.70	10	Auto		Order
01479	弘景光电	2025/3/3	20250318	1,589	+705	41.90	23.30	0.40	6	Rounding Priority		ii 🖪
32271	永杰新材	2025/2/27	20250311	4,920	+3,149	20.60	16.43	1.55	10	Auto		
01275	汉朔科技	2025/2/27	20250311	4,224	+1,352	27.50	16.75	0.65	11	Rounding Mode		Where
32409	汇通控股	2025/2/20	20250304	3,151	+2,521	24.18	20.72	1.25	7	HalfExpand .		
01173	毓恬冠佳	2025/2/19	20250303	2,196	+882	28.33	16.07	0.50	6	Trailing Zero Display		
01557	常友科技	2025/2/17	20250304	1,108	+1,108	28.88	15.70	1.10	3	Auto		Column
20108	宏海科技	2025/1/16	20250206	2,300	+1,600	5.57	15.37	95.00	1	Notation		H A
87411	海博思创	2025/1/15	20250127	4,443	+1,513	19.38	6.14	1.10	8	Standard		i A
01395	亚联机械	2025/1/15	20250127	2,181	+1,573	19.08	17.08	0.75	4			# G
01356	富岭股份	2025/1/13	20250123	14,733	+8,766	5.30	14.17	3.75	7	Use Grouping Auto		16
87545	兴福电子	2025/1/12	20250122	10,000	+2,829	11.68	40.46	2.10	11	Nuco		
01602	超研股份	2025/1/12	20250122	6,425	+2,259	6.70	28.03	1.05	4	Sign Display		# Œ
87583	思看科技	2025/1/5	20250115	1,700	+544	33.46	23.00	0.40	5	Always	X	i #









12]: /b\_code", "name", "ipo\_date", "issue\_date", "amount", "market\_amount", "price", "pe", "limit\_amount", "funds", "ballot", "issue\_dtae", "上网发行比例"], "aggregates":{}}

[3]: print(config)

{"version":"3.5.1", "plugin": "Datagrid", "plugin\_config":{{"columns":{}}, "edit\_mode": "READ\_ONLY", "scroll\_lock":false}, "columns\_config":{{}}, "settings":true, "the me": "Pro Light", "title":null, "group\_by":[], "split\_by":[], "sort":[], "filter":[], "expressions":{"上网发行比例": "market\_amount"/"amount"/"amount"/"amount"/", "columns":["ts\_co de", "sub\_code", "name", "ipo\_date", "issue\_date", "amount", "market\_amount", "price", "pe", "limit\_amount", "funds", "ballot", "issue\_date", "上网发行比例"], "aggregat es":{}}

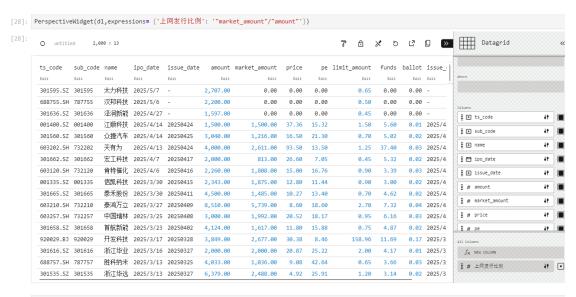
[6]: from pathlib import Path

[7]: Path("D:/桌面/untitled.config.json").read\_text(encoding="utf8")

|7]: '{"version":"3.5.1","plugin":"Datagrid","plugin\_config":{"columns":{},"edit\_mode":"READ\_ONLY","scroll\_lock":false},"columns\_config":{},"settings":true,"th
eme":"Pro Light","title":null,"group\_by":[],"split\_by":[],"sort":[],"filter":[],"expressions":{"上网发行比例":"\\"market\_amount\\"/\\"amount\\""},"column
s":["ts\_code","sub\_code","name","ipo\_date","issue\_date","amount","market\_amount","price","pe","limit\_amount","funds","ballot","issue\_dtae","上网发行比例"],"aggregates":{}}'

## (可以利用 Json beautify 翻译这个 josn 编码)

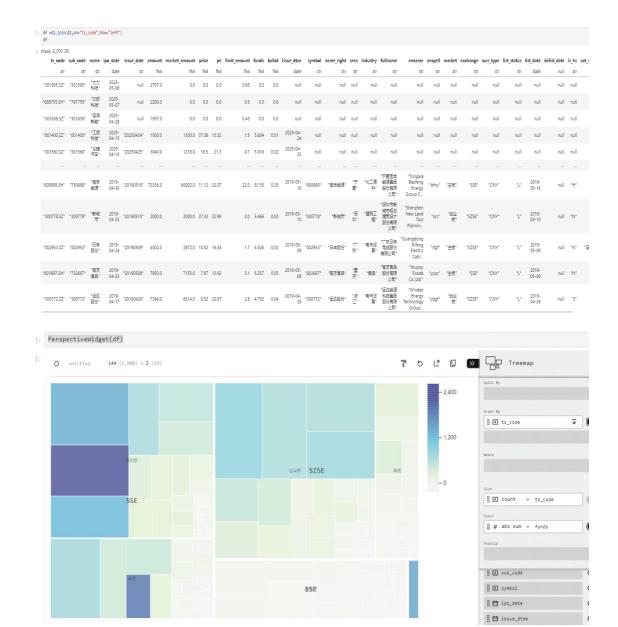
```
### process of the content of the c
```



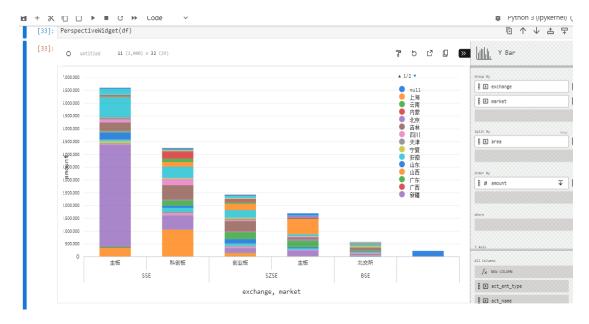
[8]: PerspectiveWidget(d2)

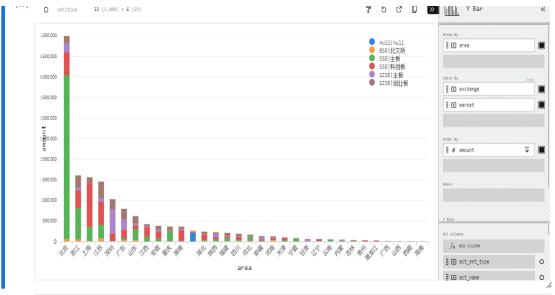
#### 2 树形图:

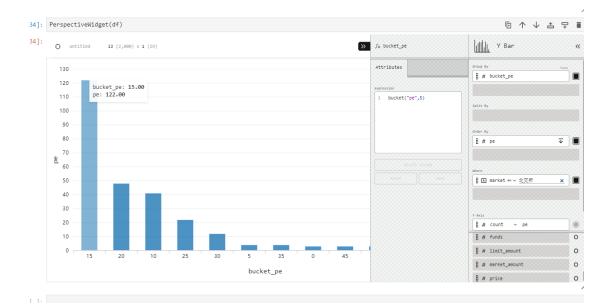




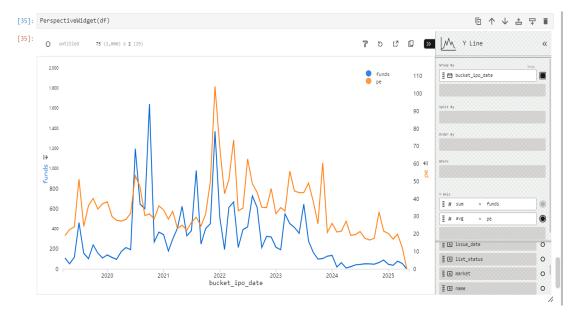
#### 3 柱状图:

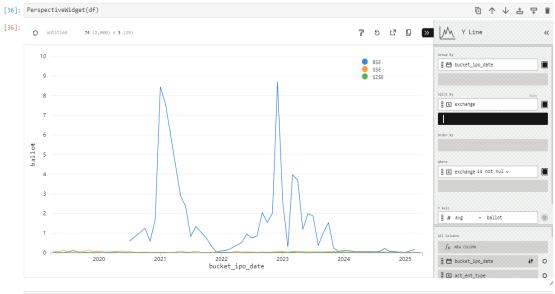






#### 4 折线图:





#### 5 散点图:

