Python

fin-py

Feb 18, 2022

CONTENTS

Warning: ToDo ⍰⍰⍰⍰⍰⍰⍰

CHAPTER

ONE

??????

Jupyter?????event loop??????????? `asyncio.run` ? `loop.run_until_complete` ???????event loop??????????????Python????????event loop?????????

https://bugs.python.org/issue22239

1.1 Jupyter??asyncio???

nest_asyncio ??????event loop??????Jupyter?GUI??????????????????? `asyncio.run` ? `loop.run_until_complete` ?????????

```
import asyncio

import nest_asyncio
import pandas as pd
import plotly.graph_objects as go
import pybotters
from IPython.display import HTML

nest_asyncio.apply()
```

1.2 API?????????

pandas??????????????????????????? pybotters ???????FTX?API??4?????????

```
async def get_candles(market_name, resolution, start_time, end_time):
    async with pybotters.Client(
        apis={"ftx": ["", ""]}, base_url="https://ftx.com/api"
    ) as client:
        res = await client.get(
            f"/markets/{market_name}/candles",
            params={
                "resolution": resolution,
                "start_time": start_time,
                "end_time": end_time,
            },
        )
        return await res.json()
```

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```
data = asyncio.run(get_candles("BTC-PERP", 300, 1643641200, 1643727600))
data["result"][:5]
```

```
[{'startTime': '2022-01-31T15:00:00+00:00',
  'time': 1643641200000.0,
  'open': 37534.0,
  'high': 37734.0,
  'low': 37534.0,
  'close': 37673.0,
  'volume': 38447865.9473},
 {'startTime': '2022-01-31T15:05:00+00:00',
  'time': 1643641500000.0,
  'open': 37673.0,
  'high': 37853.0,
  'low': 37615.0,
  'close': 37791.0,
  'volume': 30392886.7346},
 {'startTime': '2022-01-31T15:10:00+00:00',
  'time': 1643641800000.0,
  'open': 37791.0,
  'high': 37819.0,
  'low': 37720.0,
  'close': 37724.0,
  'volume': 23186162.9091},
 {'startTime': '2022-01-31T15:15:00+00:00',
  'time': 1643642100000.0,
  'open': 37724.0,
  'high': 37900.0,
  'low': 37720.0,
  'close': 37799.0,
  'volume': 25461367.2357},
 {'startTime': '2022-01-31T15:20:00+00:00',
  'time': 1643642400000.0,
  'open': 37799.0,
  'high': 37873.0,
  'low': 37774.0,
  'close': 37833.0,
  'volume': 17233801.3338}]
```

1.3 DataFrame

`DataFrame` DataFrame

```
df = pd.DataFrame(data["result"])
df.head()
```

```
                   startTime          time     open     high      low  \
0  2022-01-31T15:00:00+00:00  1.643641e+12  37534.0  37734.0  37534.0
1  2022-01-31T15:05:00+00:00  1.643642e+12  37673.0  37853.0  37615.0
2  2022-01-31T15:10:00+00:00  1.643642e+12  37791.0  37819.0  37720.0
3  2022-01-31T15:15:00+00:00  1.643642e+12  37724.0  37900.0  37720.0
```

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```
4  2022-01-31T15:20:00+00:00  1.643642e+12  37799.0  37873.0  37774.0

     close        volume
0  37673.0  3.844787e+07
1  37791.0  3.039289e+07
2  37724.0  2.318616e+07
3  37799.0  2.546137e+07
4  37833.0  1.723380e+07
```

1.4 ????

`dtypes` ???DataFrame??????????????????

```
df.dtypes
```

```
startTime     object
time         float64
open         float64
high         float64
low          float64
close        float64
volume       float64
dtype: object
```

`to_datetime` ??????????????datetime??????????????startTime????time???datetime??????????

```
df.loc[:, "startTime"] = pd.to_datetime(df.loc[:, "startTime"])
df.loc[:, "time"] = pd.to_datetime(df.loc[:, "time"], unit="ms")
```

```
df.head()
```

```
                  startTime                time     open     high      low  \
0 2022-01-31 15:00:00+00:00 2022-01-31 15:00:00  37534.0  37734.0  37534.0
1 2022-01-31 15:05:00+00:00 2022-01-31 15:05:00  37673.0  37853.0  37615.0
2 2022-01-31 15:10:00+00:00 2022-01-31 15:10:00  37791.0  37819.0  37720.0
3 2022-01-31 15:15:00+00:00 2022-01-31 15:15:00  37724.0  37900.0  37720.0
4 2022-01-31 15:20:00+00:00 2022-01-31 15:20:00  37799.0  37873.0  37774.0

     close        volume
0  37673.0  3.844787e+07
1  37791.0  3.039289e+07
2  37724.0  2.318616e+07
3  37799.0  2.546137e+07
4  37833.0  1.723380e+07
```

1.5 Plotly□□□□□□

Plotly□□□□□□□□□□□□□□□□□□□□□□□□□Python□□□□□□□□□pandas□DataFrame□□□□□□□□□□□□□□□□□□□