Trending Strategy based on python & MySQL

PS.[1]

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1ST.Experiment Environment

1. **MySQL**
2. **Pycharm**

2ND.Tools

- CSDN
- Deepseek LLM
- (WindSurf is not available in my region.)

3RD.Data resources

- *tushare data community*(https://tushare.pro/user/token)
- 600519.GuiZhou Maotai Stock
- 2020-01-01 ~ 2024-12-31
- open/close/high/low

4TH.Steps

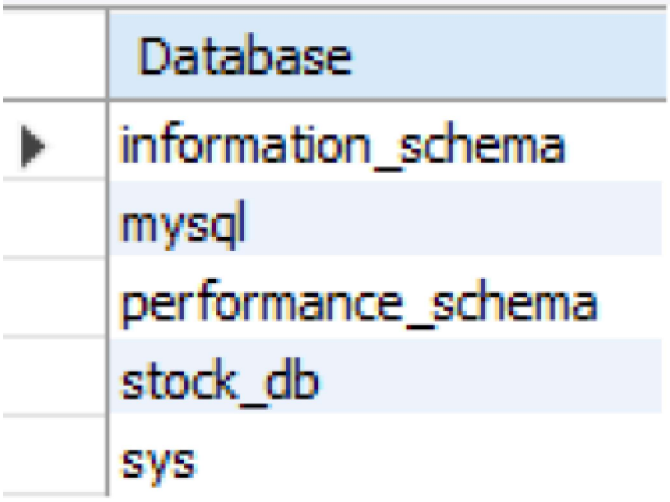
1. Find stock data resources from websites
2. Upload relevant data into MySQL
   3.Connect MySQL to Pycharm
3. Implement trend following strategy in .py
4. Visualization

STEP1 Get Data

1. Till now I only know how to webcrawl using MATLAB,haven't try python yet.
2. Many relevant websites set anti-crawl programs like 'cookies'.
3. Scheduled to use python lib - yfinance.But it doesn't work even with VPN.Searching for information and learn that it doesn't open to python services now.
4. Use open data resources in 'tushare' domestic.Sign & access to token,download relevant data into local .csv table with the assistance of python lib - tushare.

STEP2 Upload to MySQL

1. Copy .csv to file C:/MySQL/Uploads for the upload of data.
2. Construct database & table in MySQL




```
use stock_db here
```

```sql
SHOW DATABASES;
-- 查看允许导入文件的目录
SHOW VARIABLES LIKE 'secure_file_priv';
CREATE DATABASE stock_db;
USE stock_db;

-- 在MySQL中创建表（字段需与CSV列对应）
CREATE TABLE maotai_stock (
    trade_date DATE PRIMARY KEY,
    open DECIMAL(10,2),
    high DECIMAL(10,2),
    low DECIMAL(10,2),
    close DECIMAL(10,2)
);

-- 或 Windows路径
LOAD DATA INFILE 'C:/ProgramData/MySQL/MySQL Server 8.0/Uploads/maotai_2020-2024.csv'
INTO TABLE maotai_stock
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\n'
IGNORE 1 ROWS
(trade_date, open, high, low, close);

SELECT * FROM maotai_stock;
```

trade_date	open	high	low	close
2020-01-02	1145.06	1116.00	1128.00	1130.00
2020-01-03	1117.00	1076.90	1117.00	1078.56
2020-01-06	1092.90	1067.30	1070.86	1077.99
2020-01-07	1099.00	1076.40	1077.50	1094.53
2020-01-08	1095.50	1082.58	1085.05	1088.14
2020-01-09	1105.39	1090.00	1094.00	1102.70
2020-01-10	1115.99	1102.50	1109.00	1112.50
2020-01-13	1129.20	1112.00	1112.50	1124.27
2020-01-14	1124.89	1103.00	1124.20	1107.40
2020-01-15	1121.60	1105.00	1109.01	1112.13
2020-01-16	1118.87	1102.58	1118.87	1107.00
2020-01-17	1112.78	1101.01	1110.00	1107.50
2020-01-20	1111.86	1082.00	1111.86	1091.00

```
successfully upload data
```

STEP3 Connection build

```
import mysql.connector
import pandas as pd


1 usage
class StockDB:
    def __init__(self):
        self.conn = mysql.connector.connect(
            host=
            user=
            pass
            databas
        )

    1 usage
    def fetch_data(self):
        query = "SELECT trade_date, close FROM maotai_stock ORDER BY trade_date"
        df = pd.read_sql(query, self.conn)
        return df.set_index('trade_date')

    1 usage
    def close(self):
        self.conn.close()
```

STEP4 Trend following Strategy

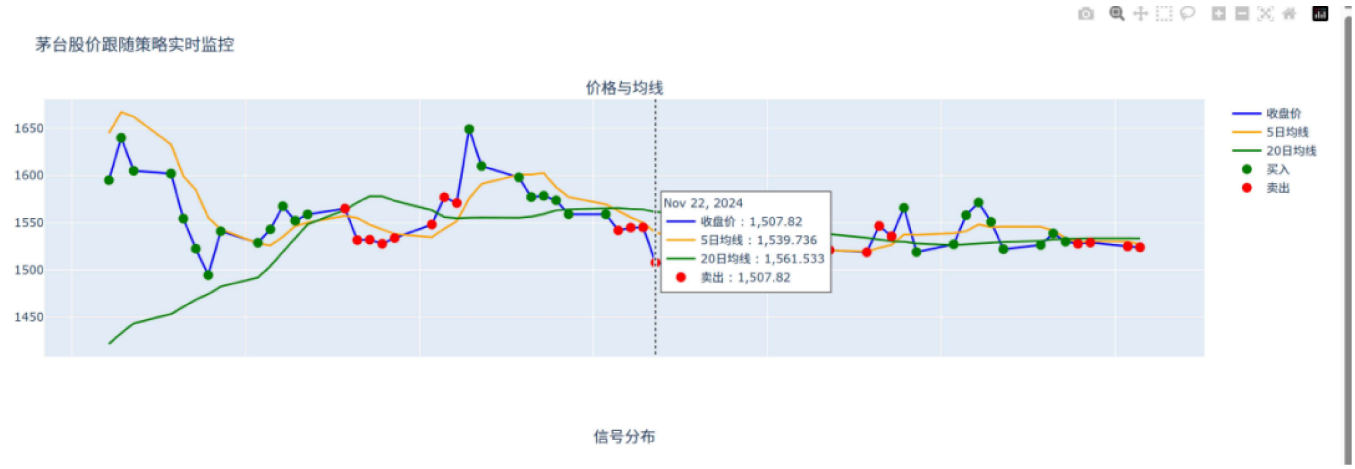
1. Choose *5day-20day mean crossing strategy*.
   i.e.

- *Buy in*: 5_ma > 20_ma
- *Sell out*: 5_ma<20_ma
- *5-day average*: reflect short period fluctuations,capture market's realtime mood
- *20-day average*: universal average for med-term trends

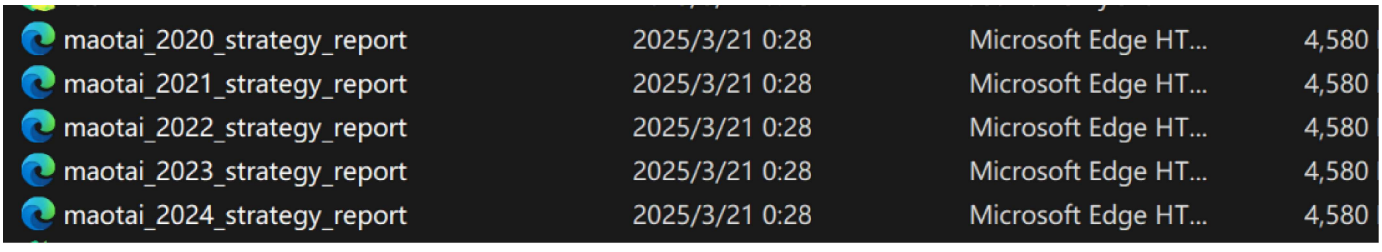
```python
def generate_signals(df):
    # 计算均线
    df['5_ma'] = df['close'].rolling(5).mean()
    df['20_ma'] = df['close'].rolling(20).mean()

    # 生成信号（1:买入，-1:卖出）
    df['signal'] = 0
    df.loc[df['5_ma'] > df['20_ma'], 'signal'] = 1
    df.loc[df['5_ma'] < df['20_ma'], 'signal'] = -1
    return df
```

STEP5 Visualization

1. Use python lib - matplotlib/plotly to visualize strategy in ports



2. Genearate 5 years visualization UI and save as .html



1. Due to limited personal capability.The python codes in this method was mainly constructed by deepseek-r1.I do the rectification work. ↩