

SU_Stock

Group size = 1
Bartu Sisman 28038

Entities:

Company:

In SU_Stock, people can put their money into different companies. Each company has a "Name" and a unique abbreviation known as the "symbol"(PK). They also have a certain number of shares that people can buy, called "Outstanding Shares".

Stock (weak entity):

For each trading day, every company's (FK:"symbol") stock is tracked for its "highest" and "lowest" price points. Additionally, the "opening" and "closing" prices for the day are recorded. The platform also provides information on the total "volume" of shares traded during that day. This data is accessible for any specific "date", allowing users to analyze the performance of any stock over time.

User:

Users are the people that uses SU_Stock, they are defined with "U_ID" which is a Primary key, they also have "Name" and "email" attributes.

Portfolio:

Each user owns a unique portfolio, this portfolio stores how much "value" the user has in SU_Stock, Portfolio is place where all claimed ownerships are store, and it has a unique P_ID(PK) value.

Ownership (weak entity):

it shows which company (FK:"symbol") and what "quantity" of stock is owned by the user (FK:"U_ID").

Order:

Every user (FK:"U-ID") can perform any amount("quantity") of order, order is an attempt to buy/sell("type") a certain company's (FK:"symbol") specific amount of stock at a specific "price". Each order is unique (PK:"O_ID") and stored with its "date".

Relationships:

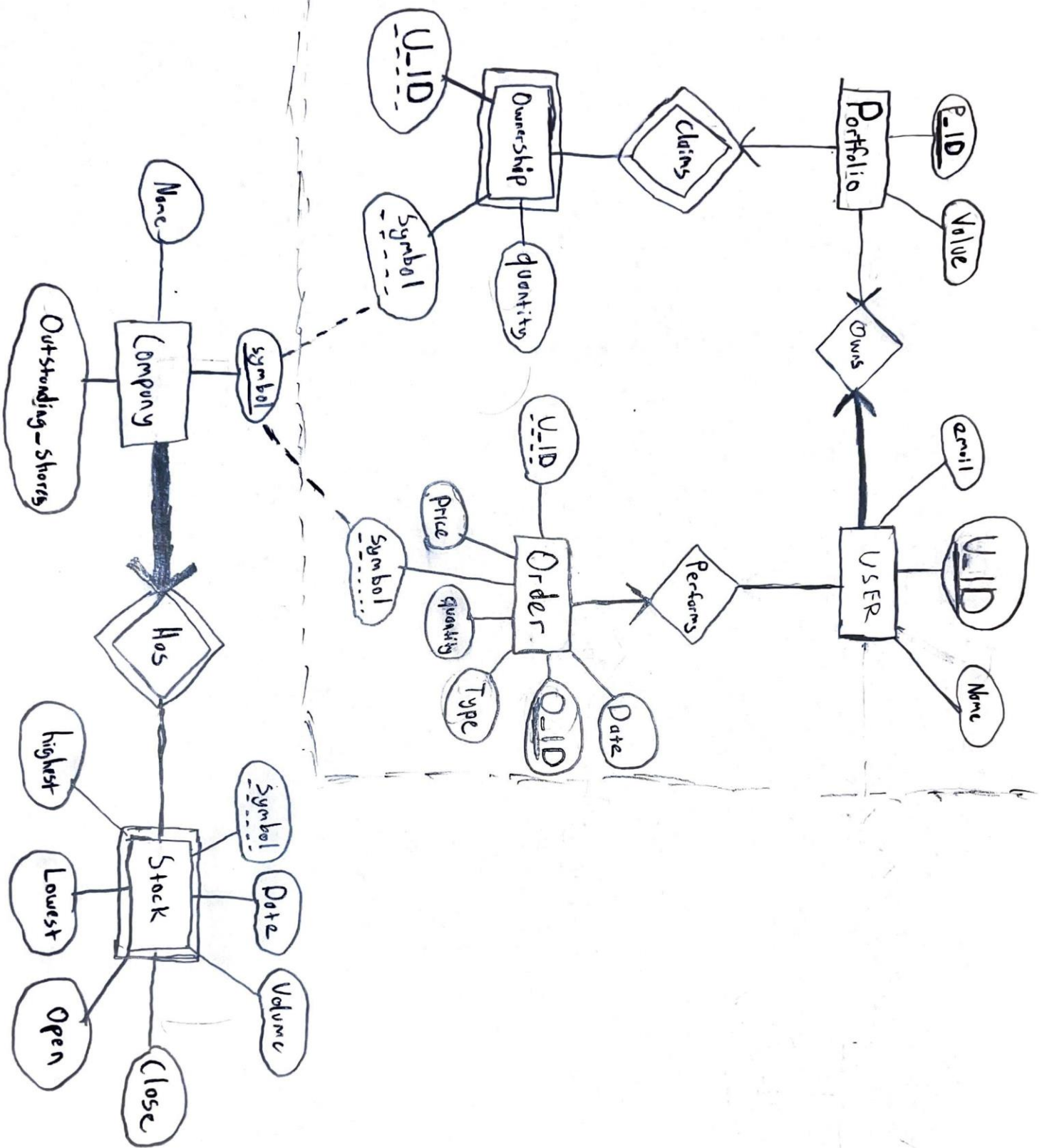
User-Order(many-to-1): Stores all buy/sell stock orders at any date.

User-Portfolio(1-to-1): Shows what is the value of user's portfolio. Total relationship between them (User must own a Portfolio)

Portfolio-Ownership(1-to-many): Shows what stocks and what quantity are owned by the portfolio. Ownership can't exist without portfolio.

Company-Stock(1-to-many): Shows the company's value for statistics. Stock is a weak entity so it can't exist without company. They are in a total relationship so company must have a stock.

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```
CREATE TABLE Company (  
    symbol VARCHAR(10) PRIMARY KEY,  
    Name VARCHAR(100) NOT NULL,  
    Outstanding_Shares INT NOT NULL  
);
```

```
CREATE TABLE Stock (  
    symbol VARCHAR(10),  
    date DATE,  
    highest FLOAT,  
    lowest FLOAT,  
    opening FLOAT,  
    closing FLOAT,  
    volume BIGINT,  
    PRIMARY KEY (symbol, date),  
    FOREIGN KEY (symbol) REFERENCES Company(symbol)  
);
```

```
CREATE TABLE User (  
    U_ID INT PRIMARY KEY,  
    Name VARCHAR(100) NOT NULL,  
    email VARCHAR(100) NOT NULL  
);
```

```
CREATE TABLE Portfolio (  
    P_ID INT PRIMARY KEY,  
    value FLOAT NOT NULL,  
    U_ID INT,  
    FOREIGN KEY (U_ID) REFERENCES User(U_ID)  
);
```

```
CREATE TABLE Ownership (  
    P_ID INT,  
    symbol VARCHAR(10),  
    quantity INT NOT NULL,  
    PRIMARY KEY (P_ID, symbol),  
    FOREIGN KEY (P_ID) REFERENCES Portfolio(P_ID),  
    FOREIGN KEY (symbol) REFERENCES Company(symbol)  
);
```

```
CREATE TABLE Order (  
    O_ID INT PRIMARY KEY,  
    U_ID INT,  
    symbol VARCHAR(10),  
    quantity INT NOT NULL,  
    type VARCHAR(10) CHECK (type IN ('buy', 'sell')),  
    price FLOAT NOT NULL,  
    date DATE NOT NULL,  
    FOREIGN KEY (U_ID) REFERENCES User(U_ID),  
    FOREIGN KEY (symbol) REFERENCES Company(symbol)  
);
```

INSERT INTO Company (symbol, Name, Outstanding_Shares) VALUES

('AAPL', 'Apple Inc.', 5000000),
('MSFT', 'Microsoft Corp.', 7800000),
('GOOGL', 'Alphabet Inc.', 6900000),
('AMZN', 'Amazon.com Inc.', 5100000),
('FB', 'Facebook, Inc.', 4400000),
('BRK.A', 'Berkshire Hathaway Inc.', 3500000),
('JNJ', 'Johnson & Johnson', 2600000),
('V', 'Visa Inc.', 3300000),
('WMT', 'Walmart Inc.', 2900000),
('PG', 'Procter & Gamble Co.', 5500000);

INSERT INTO Stock (symbol, date, highest, lowest, opening, closing, volume) VALUES

('AAPL', '2024-03-01', 145.00, 140.00, 143.00, 144.50, 750000),
('MSFT', '2024-03-01', 250.00, 245.00, 248.00, 249.50, 560000),
('GOOGL', '2024-03-01', 2800.00, 2750.00, 2775.00, 2780.00, 300000),
('AMZN', '2024-03-01', 3200.00, 3150.00, 3175.00, 3185.00, 410000),
('FB', '2024-03-01', 270.00, 265.00, 268.00, 269.00, 620000),
('BRK.A', '2024-03-01', 350000.00, 345000.00, 347500.00, 348000.00, 100),
('JNJ', '2024-03-01', 160.00, 155.00, 158.00, 159.00, 480000),
('V', '2024-03-01', 220.00, 215.00, 217.00, 218.50, 400000),
('WMT', '2024-03-01', 140.00, 135.00, 138.00, 139.50, 500000),
('PG', '2024-03-01', 130.00, 125.00, 128.00, 129.00, 450000);

```
INSERT INTO User (U_ID, Name, email) VALUES
```

```
(1, 'John Smith', 'john.smith@example.com'),  
(2, 'Jane Doe', 'jane.doe@example.com'),  
(3, 'Michael Johnson', 'michael.johnson@example.com'),  
(4, 'Emily Davis', 'emily.davis@example.com'),  
(5, 'David Wilson', 'david.wilson@example.com'),  
(6, 'Emma Taylor', 'emma.taylor@example.com'),  
(7, 'Chris Brown', 'chris.brown@example.com'),  
(8, 'Sophia Martinez', 'sophia.martinez@example.com'),  
(9, 'James Anderson', 'james.anderson@example.com'),  
(10, 'Olivia Thomas', 'olivia.thomas@example.com');
```

```
INSERT INTO Portfolio (P_ID, value, U_ID) VALUES
```

```
(1, 15000.00, 1),  
(2, 20000.00, 2),  
(3, 18000.00, 3),  
(4, 22000.00, 4),  
(5, 25000.00, 5),  
(6, 16000.00, 6),  
(7, 23000.00, 7),  
(8, 24000.00, 8),  
(9, 19000.00, 9),  
(10, 21000.00, 10);
```

```
INSERT INTO Ownership (P_ID, symbol, quantity) VALUES
```

```
(1, 'AAPL', 10),  
(2, 'MSFT', 15),  
(3, 'GOOGL', 8),  
(4, 'AMZN', 5),  
(5, 'FB', 20),  
(6, 'BRK.A', 1),  
(7, 'JNJ', 12),  
(8, 'V', 18),  
(9, 'WMT', 11),  
(10, 'PG', 14);
```

```
INSERT INTO Order (O_ID, U_ID, symbol, quantity, type, price, date) VALUES
```

```
(1, 1, 'AAPL', 5, 'buy', 145.00, '2024-03-02'),  
(2, 2, 'MSFT', 10, 'sell', 250.00, '2024-03-02'),  
(3, 3, 'GOOGL', 3, 'buy', 2800.00, '2024-03-02'),  
(4, 4, 'AMZN', 2, 'sell', 3200.00, '2024-03-02'),  
(5, 5, 'FB', 15, 'buy', 265.00, '2024-03-02'),  
(6, 6, 'BRK.A', 1, 'sell', 345000.00, '2024-03-02'),  
(7, 7, 'JNJ', 7, 'buy', 155.00, '2024-03-02'),  
(8, 8, 'V', 9, 'sell', 215.00, '2024-03-02'),  
(9, 9, 'WMT', 10, 'buy', 135.00, '2024-03-02'),  
(10, 10, 'PG', 8, 'sell', 125.00, '2024-03-02');
```