Phase II
Project Title: [Stocks] Database

Brief Description:

My mini world in this project is a STOCK database. In the stock database, we will manage STOCK, PORTFOLIO, and TRANSACTION as entity types and their relationships, such as OWNS and HOLDS.

Queries

1. Retrieve the current price of a stock and all portfolios with that specific stock.

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```
mysql> -- Retrieve the current price of a stock and all portfolios with that specific stock
mysql> SELECT S.StockSymbol, S.Price, H.PortfolioID
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol;
+-------------+--------+-------------+
| StockSymbol | Price  | PortfolioID |
+-------------+--------+-------------+
| ABC         | 100.00 |           1 |
| ABC         | 100.00 |           3 |
| ABC         | 100.00 |           5 |
| DEF         |  50.00 |           1 |
| JKL         |  95.00 |           2 |
| JKL         |  95.00 |           5 |
| MNO         | 110.00 |           4 |
| STU         |  85.00 |           4 |
| XYZ         |  75.00 |           2 |
| XYZ         |  75.00 |           4 |
+-------------+--------+-------------+
10 rows in set (0.99 sec)

mysql>
```

2. Find the total value of each portfolio based on the current stock prices

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```
mysql> SELECT H.PortfolioID, SUM(S.Price * H.Quantity) AS TotalValue
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol
    -> GROUP BY H.PortfolioID;
+-------------+------------+
| PortfolioID | TotalValue |
+-------------+------------+
|           1 |   20000.00 |
|           2 |    2775.00 |
|           3 |    6000.00 |
|           4 |    7850.00 |
|           5 |   22125.00 |
+-------------+------------+
5 rows in set (0.01 sec)
```

3. Find the total value of all portfolios

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```
mysql> -- Find the total value of all portfolios
mysql> SELECT SUM(S.Price * H.Quantity) AS TotalValue
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol;
+-------------+
| TotalValue  |
+-------------+
|    58750.00 |
+-------------+
1 row in set (0.02 sec)
```

4. Find the highest, lowest stocks, stocks with the highest trading volume, and highest dividend stocks

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```
mysql> SELECT S.StockSymbol, MAX(S.Price) AS HighestPrice, MIN(S.Price) AS LowestPrice, SUM(H.Quantity) AS TradingVolume, MAX(S.DividendYield) AS HighestDividend
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol
    -> GROUP BY S.StockSymbol;
+-------------+--------------+-------------+---------------+-----------------+
| StockSymbol | HighestPrice | LowestPrice | TradingVolume | HighestDividend |
+-------------+--------------+-------------+---------------+-----------------+
| ABC         |       100.00 |      100.00 |           360 |            2.50 |
| DEF         |        50.00 |       50.00 |           100 |            1.00 |
| JKL         |        95.00 |       95.00 |            45 |            1.20 |
| XYZ         |        75.00 |       75.00 |           105 |            1.80 |
| MNO         |       110.00 |      110.00 |            20 |            1.50 |
| STU         |        85.00 |       85.00 |            40 |            0.80 |
+-------------+--------------+-------------+---------------+-----------------+
6 rows in set (0.02 sec)
```

5. Find the total value of dividends received by each portfolio

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```
mysql> SELECT H.PortfolioID, SUM(S.DividendYield * H.Quantity) AS TotalDividends
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol
    -> GROUP BY H.PortfolioID;
+-------------+-----------------+
| PortfolioID | TotalDividends  |
+-------------+-----------------+
|           1 |          475.00 |
|           2 |           99.00 |
|           3 |          150.00 |
|           4 |          116.00 |
|           5 |          465.00 |
+-------------+-----------------+
5 rows in set (0.01 sec)
```

6. Retrieve the total investment value of each investor

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```
mysql> SELECT O.InvestorID, SUM(S.Price * H.Quantity) AS TotalInvestmentValue
    -> FROM Stock S
    -> JOIN Holds H ON S.StockSymbol = H.StockSymbol
    -> JOIN Owns O ON H.PortfolioID = O.PortfolioID
    -> GROUP BY O.InvestorID;
+------------+----------------------+
| InvestorID | TotalInvestmentValue |
+------------+----------------------+
|          1 |             20000.00 |
|          2 |              2775.00 |
|          3 |              6000.00 |
|          4 |              7850.00 |
|          5 |             22125.00 |
+------------+----------------------+
5 rows in set (0.01 sec)
```

7. Retrieves the total transaction value for each portfolio, filters out portfolios with total transaction value less than 10000, and orders the results by total transaction value in descending order.

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```
mysql> SELECT PortfolioID, SUM(TransactionValue) AS TotalTransactionValue
    -> FROM PortfolioTransaction
    -> GROUP BY PortfolioID
    -> HAVING TotalTransactionValue > 10000
    -> ORDER BY TotalTransactionValue DESC;

+-------------+-----------------------+
| PortfolioID | TotalTransactionValue |
+-------------+-----------------------+
|           1 |              16400.00 |
+-------------+-----------------------+
1 row in set (3.82 sec)
```