ERD: MarketMosaic: Comprehensive Finance & Investment Database Solution.

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Schema, Functional Dependencies, Normalisation.

Partial keys are underlined, foreign keys are **bolded**. Unless otherwise specified, we represented all key constraints in our relationships.

If no Candidate Key is provided, that means our only key is our Primary Key.

If no normalisation was provided, that means our relationship is already in BCNF/3NF (only FDs are primary keys and candidate keys).

Entities

StockIssuedOnDate (stock_issues_wentPublicOn)

Constraints

Constraints represented:

- Issues (w/ Company): Stock's total participation and key constraint
- wentPublicOn (w/ Date): Stock's total participation and key constraint

Constraints not represented:

- listedOn (w/ Exchange): Stock's total participation is not captured.

Schema

StockIssuedOnDate (ISIN: char[12],
Symbol: char[4],
MarketCap: integer,
Type: char[30],
CompanyName: char[30],
IPO_Day*: char[2],*
IPO_Month*: char[2],*
IPO_Year*: char[4])*

Rename: stock_issues_wentPublicOn to StockIssuedOnDate (easier to understand)
PK: ISIN
FK: CompanyName (Company), NOT-NULL
FK: {IPO_Day, IPO_Month, IPO_Year} References Date(Day, Year, Month), NOT-NULL.

FD:

(1) ISIN → (Symbol, MarketCap, Type, CompanyName, IPO_Day, IPO_Month, IPO_Year)
(2) CompanyName, Symbol → IPO_Day, IPO_Month, IPO_Year
(3) Symbol → Type
(4) Symbol → MarketCap

Decomposition into BCNF:
R(ISIN, Symbol, MarketCap, Type, CompanyName, IPO_Day, IPO_Month, IPO_Year)

1. Decompose R on CompanyName, Symbol → IPO_Day, IPO_Month, IPO_Year
    a. R1(CompanyName, Symbol, IPO_Day, IPO_Month, IPO_Year)

b. R2(ISIN, Symbol, MarketCap, Type, CompanyName)

2. Decompose R2 on Symbol → Type
   a. R3(Symbol, Type)
   b. R4(ISIN, Symbol, MarketCap, CompanyName)
3. Decompose R4 on Symbol → MarketCap
   a. R5(Symbol, MarketCap)
   b. R6(ISIN, Symbol, CompanyName)

R1, R3, R5 and R6 are in BCNF. We end up with the following relations:

- R1(CompanyName, Symbol, IPO_Day, IPO_Month, IPO_Year)
- R3(Symbol, Type)
- R5(Symbol, MarketCap)
- R6(ISIN, Symbol, CompanyName)

Company_operatesIn

Constraints

Constraints represented:

- operatesIn (w/ Sector): total participation and key constraint

Schema

Company_operatesIn(Name: varchar(32),
Employees: int,
Revenue: int,
SectorName: varchar(32))

PK: Name
FK: SectorName (Sector), Non-null.

FD:

Name → Employees, Revenue, SectorName

Sector

Constraints

Not Applicable.

Schema

Sector(SectorName: varchar(32),
NumOfCcompanies: smallint,
MarketWeight: float(24))

PK: SectorName

FD:
(1) SectorName → NumOfCompanies, MarketWeight

Fund_beganTradeOn

Constraints
Constraints represented:
- beganTradeOn (w/ Date): Fund's total participation & key constraint

Schema
Fund_beganTradeOn (Name: varchar(16),
Company: varchar(16),
ExpenseRatio: float(24),
Trade_Day: char[2], **Trade_Month**: char[2], **Trade_Year**: char[4])

PK: {Name, Company}
FK: {Trade_Day, Trade_Month, Trade_Year} (Date), Non-null.

FD:
(1) Name, Company → (ExpenseRatio, Trade_Day, Trade_Month, Trade_Year)

DecisionMaker_isAlso

Constraints
Represented:
- isAlso (w/ Shareholder): key constraint

Not represented:
- hasPower(w/ Company): participation constraint, M-M (requires SQL assertions)

Note: we choose to combine DecisionMakers with isAlso relationship (1-1) and not Shareholders (the other participating entity) since we are more interested in finding out where DecisionMakers are investing money. Also, in our implementation, we will assume that each combination of FirstName, LastName and Address can only refer to a single person, meaning that this combination can determine the person's SIN.
RMB to say that SIN can be null.

Schema
DecisionMaker_isAlso(FirstName: varchar(32), LastName: varchar(32),
Address: varchar(256),
Appointment: varchar(32),

SIN: char(12))

PK: {Firstname, Lastname, Address}
FK: SIN References Shareholder, UNIQUE (1-to-1), but could be NULL.

FD:
(1) FirstName, Lastname, Address → Appointment, SIN

Shareholder

Constraints
Not represented:
- ownStock (w/ Date, Stock): cannot represent total participation (on M-M), need to use SQL Assertions.

Schema
Shareholder(SIN: char(12), Name: varchar(32),
Brokerage: varchar(32),
Address: varchar(256))

PK: SIN

FD:
SIN → Name, Brokerage, Address

Exchange

Constraints
Not represented:
- listedOn (w/ Stock): total participation on M-M relationship is not captured without SQL Assert statements.

Schema:
Exchange(ExchangeName: varchar(16),
MarketShare: integer,
Country: varchar(16))

PK: ExchangeName

FD:
ExchangeName → MarketShare, Country

Date

Constraints

Not Represented:

- $Day \in [0, 31]$, $Month \in [0, 12]$, $Year \in [1900, \text{ inf}]$

Schema:

Date(Day: char[2],
Month: char[2],
Year: char[4])

PK: {Day, Month, Year}

FD:

None. This is a reference date table that all entities/relationships use (check for explanation)

(END OF ENTITIES)

Weak Entities (Price, Nav, Options)

Price_hasPrice

Constraints

Constraints represented:

- hasPrice (w/ Stock): weak entity on Price.

Schema

Price_hasPrice(**ISIN**: char(12),
DaysSinceIPO: integer,
High: integer, Low: integer,
Open: integer, Close: integer,
Volume: integer)

PK: DaysSinceIPO, ISIN

FK: ISIN (Stock)

FD:
(1) ISIN, DaysSinceIPO → High, Low, Open, Close, Volume

Nav_hasNAV

Constraints
Constraints represented:
- hasNav (w/ Fund): weak entity on Nav.

Schema
Nav_hasNav(**Name**: varchar(16),
Company: varchar(16),
DaysSinceInception: integer,
AUM: integer,
NavPerShare: float(24))

PK: {DaysSinceInception, Name, Company}

FK: {Name, Company} References Fund

FD:
(1) DaySinceInception, Name, Company → AUM, NavPerShare

Options_derivativeOf

Constraints
Constraints represented:
- derivativeOf (w/ Stock): weak entity on Options.

Schema
Options_derivativeOf(**ISIN**: varchar(16),
ExpiryDate: Date, StrikePrice: integer, Type: varchar(16),
IsExpired: bit)
PK: {ISIN, ExpiryDate, StrikePrice, Type}
FK: ISIN References Stock

FD:
(1) ISIN, ExpiryDate, StrickPrice, Type → isExpired

(END OF WEAK ENTITIES)

ISA (Fund ISA MutualFund, IndexFund)

IndexFund

Constraints

Constraints represented:

- ISA {Disjoint, Partial} w/ Fund

Schema

IndexFund(**Name**: varchar(16),
Company: varchar(16),
TrackingIndex: varchar(16))

PK: {Name, Company}

FK: {Name, Company} References Fund

FD:

(1) Name, Company → TrackingIndex

MutualFund

Constraints

Constraints represented:

- ISA {Disjoint, Partial} w/ Fund

Schema

IndexFund(**Name**: varchar(16),
Company: varchar(16),
Manager: varchar(16))

PK: {Name, Company}

FK: {Name, Company} References Fund

FD:

(1) Name, Company → Manager

(END OF ISA)

Relations (hasPower, listedOn, ownStock, ownFund, fundOwns)

hasPower

Constraints

Not Represented

- Total Participation on Decision Makers as it is not captured without SQL Assert statements.

Schema

hasPower(**FirstName**: varchar(32), **LastName**: varchar(32), **Address**: varchar(256),
CompanyName: varchar(32),
DurationYears: integer)

PK: {FirstName, LastName, Address, CompanyName}

FK: {FirstName, LastName, Address} References DecisionMaker

FK: {CompanyName} References Company.

FD:

(1) FirstName, LastName, Address, CompanyName → DurationYears

listedOn

Constraints

Not Represented

- Total Participation on Stock and Exchange as it is not captured without SQL Assert statements.

Schema

listedOn(**ISIN**: char(12),
ExchangeName: varchar(16))

PK: {ISIN, ExchangeName}
FK: ISIN References Stock
FK: ExchangeName References Exchange

FD:

None. (M-M relationship with no attributes)

ownStock

Constraints

Not Represented

- Total Participation on Shareholders as it is not captured without SQL Assert statements.

Schema

ownStock(**SIN**: char(12),
ISIN: char(12),
Day: char(2), **Month**: char(2), **Year**: char(4))
PK: {SIN, ISIN, Day, Month, Year}
FK: SIN References Shareholder
FK: ISIN References Stock
FK: {Day, Month, Year} References Date

FD:

None. (M-M relationship with no attributes)

ownFund

Constraints

Not applicable (no key/participation constraints)

Schema

ownFund(SIN: char(12),
FundName: varchar(16), **Company**: varchar(16),
Day: char(2), **Month**: char(2), **Year**: char(4))

PK: {Sin, FundName, Company, Day, Month, Year)
FK: SIN References Shareholder
FK: {FundName, Company} References Company(Name, Company)
FK: {Day, Month, Year} References Date

FD:
None. (M-M relationship with no attributes)

fundOwns

Constraints
Not applicable (no key/participation constraints)

Schema
fundOwns(<u>**ISIN**</u>: char(12),
<u>**FundName**</u>: varchar(16), <u>**Company**</u>: varchar(16),
<u>**Day**</u>: char(2), <u>**Month**</u>: char(2), <u>**Year**</u>: char(4),
Proportion: float(24)**)**
PK: {ISIN, FundName, Company, Day, Month, Year)
FK: ISIN References Stock
FK: {FundName, Company} References Fund(Name, Company)
FK: {Day, Month, Year} References Date

FD:
ISIN, FundName, Company, Day, Month, Year → Proportion

(END OF RELATIONS)

SQL DDL

```
CREATE TABLE StockIssuedOnDate (
    ISIN CHAR(12),
    Symbol CHAR(4),
    MarketCap INTEGER,
    Type CHAR(30),
    CompanyName CHAR(30) NOT NULL,
    IPO_Day CHAR(2) NOT NULL,
    IPO_Month CHAR(2) NOT NULL,
    IPO_Year CHAR(4) NOT NULL,
    PRIMARY KEY (ISIN),
    FOREIGN KEY (CompanyName)
        REFERENCES Company(CompanyName),
    FOREIGN KEY (IPO_Day, IPO_Month, IPO_Year)
        REFERENCES Date(Day, Year, Month)
);
```

(stock table above is for non-decomposed relationship, so it is not used further; stock tables below are from relations found during BCNF decomposition)

```
CREATE TABLE Stock_Issues_IPO_Date (
    CompanyName VARCHAR(30),
    Symbol CHAR(4),
    IPO_Day CHAR(2),
    IPO_Month CHAR(2),
    IPO_Year CHAR(4),
    PRIMARY KEY (CompanyName, Symbol),
    FOREIGN KEY (CompanyName) REFERENCES Company(Name),
```

```
    FOREIGN KEY (IPO_Day, IPO_Month, IPO_Year) REFERENCES Date(Day,
Month, Year)

);

CREATE TABLE Stock_Type (

    Symbol CHAR(4) PRIMARY KEY,

    Type CHAR(30),

    FOREIGN KEY (Symbol) REFERENCES Stock_Issues_IPO_Date(Symbol)

);

CREATE TABLE Stock_MarketCap (

    Symbol CHAR(4) PRIMARY KEY,

    MarketCap INTEGER,

    FOREIGN KEY (Symbol) REFERENCES Stock_Type(Symbol)

);

CREATE TABLE Stock (

    ISIN CHAR(12),

    Symbol CHAR(4),

    CompanyName VARCHAR(30),

    PRIMARY KEY (ISIN),

    FOREIGN KEY (Symbol) REFERENCES Stock_MarketCap(Symbol),

    FOREIGN KEY (CompanyName) REFERENCES Company(Name)

);

CREATE TABLE Company_operatesIn (

    Name VARCHAR(32),

    Employees INT,

    Revenue INT,

    SectorName VARCHAR(32) NOT NULL,

    PRIMARY KEY (Name),
```

```
    FOREIGN KEY (SectorName) REFERENCES Sector(SectorName)
);

CREATE TABLE Sector (
    SectorName VARCHAR(32),
    NumOfCompanies SMALLINT,
    MarketWeight FLOAT(24),
    PRIMARY KEY (SectorName)
);

CREATE TABLE Fund_beganTradeOn (
    Name VARCHAR(16),
    Company VARCHAR(16),
    ExpenseRatio FLOAT(24),
    Trade_Day CHAR(2) NOT NULL,
    Trade_Month CHAR(2) NOT NULL,
    Trade_Year CHAR(4) NOT NULL,
    PRIMARY KEY (Name, Company),
    FOREIGN KEY (Trade_Day, Trade_Month, Trade_Year)
        REFERENCES Date(Day, Month, Year)
);

CREATE TABLE DecisionMakers_isAlso (
    FirstName VARCHAR(32),
    LastName VARCHAR(32),
    Address VARCHAR(256),
    Appointment VARCHAR(32),
```

```
    SIN CHAR(12),
    PRIMARY KEY (FirstName, LastName, Address),
    FOREIGN KEY (SIN) REFERENCES Shareholder(SIN) ON DELETE SET NULL,
    CONSTRAINT Unique_Person (FirstName, LastName, Address, SIN)
);

CREATE TABLE Shareholder (
    SIN CHAR(12) PRIMARY KEY,
    Name VARCHAR(32),
    Brokerage VARCHAR(32),
    Address VARCHAR(256),
    CONSTRAINT Unique_SIN UNIQUE (SIN)
);

CREATE TABLE Exchange (
    ExchangeName VARCHAR(16) PRIMARY KEY,
    MarketShare INTEGER,
    Country VARCHAR(16),
    CONSTRAINT Unique_ExchangeName UNIQUE (ExchangeName)
);

CREATE TABLE Date (
    Day CHAR(2),
    Month CHAR(2),
    Year CHAR(4),
    PRIMARY KEY (Day, Month, Year)
);
```

Sample SQL Insert Statements

INSERT INTO StockIssuedOnDate(ISIN, Symbol, MarketCap, Type, CompanyName, IPO_Day, IPO_Month, IPO_Year)

VALUES ('US0378331005', 'AAPL', 280000000000, 'common', 'Apple Inc', '12', '12', '1980'),

('US48128B6487', 'JPM.PR.C', 531080000000, 'preferred', 'JPMorgan Chase & Co', '06', '11', '1978'),

('US46625H1005', 'JPM', 531080000000, 'common', 'JPMorgan Chase & Co', '06', '11', '1978'),

('US7170811035', 'PFE', 152690000000, 'common', 'Pfizer Inc', '22', '06', '1942'),

('US1667641005', 'CVX', 282940000000, 'common', 'Chevron Corporation', '17', '03', '1980');

(stock table above is for non-decomposed relationship, so it is not used further; stock tables below are from relations found during BCNF decomposition)

INSERT INTO Stock_Issues_IPO_Date (CompanyName, Symbol, IPO_Day, IPO_Month, IPO_Year)

VALUES ('Apple Inc.', 'AAPL', '01', '01', '1980'),

('Amazon.com Inc.', 'AMZN', '15', '05', '1997'),

('Microsoft Corporation', 'MSFT', '13', '03', '1986'),

('Alphabet Inc.', 'GOOGL', '19', '08', '2004'),

('Facebook Inc.', 'FB', '18', '05', '2012');

INSERT INTO Stock_Type (Symbol, Type)

VALUES ('AAPL', 'Technology'),

('AMZN', 'E-commerce'),

('MSFT', 'Technology'),

('GOOGL', 'Technology'),

('FB', 'Social Media');

INSERT INTO Stock_MarketCap (Symbol, MarketCap)

```
VALUES ('AAPL', 2290000000000),
       ('AMZN', 1730000000000),
       ('MSFT', 1800000000000),
       ('GOOGL', 1600000000000),
       ('FB', 1000000000000);

INSERT INTO Stock (ISIN, Symbol, CompanyName)
VALUES ('US0378331005', 'AAPL', 'Apple Inc.'),
       ('US0231351067', 'AMZN', 'Amazon.com Inc.'),
       ('US5949181045', 'MSFT', 'Microsoft Corporation'),
       ('US02079K3059', 'GOOGL', 'Alphabet Inc.'),
       ('US30303M1027', 'FB', 'Facebook Inc.');

INSERT INTO Sector(SectorName, NumOfCompanies, MarketWeight)
VALUES  (‘technology’, 788, 29.6),
        (‘financials’, 1399, 13.0),
        (‘healthcare’, 1218, 12.8),
        (‘energy’, 253, 3.7),
        (‘industrials’, 649, 8.7);

INSERT INTO Company_operatesIn(Name, Employees, Revenue, SectorName)
VALUES  (‘Apple Inc’, 161000, 383285000000, ‘technology’),
        (‘JPMorgan Chase & Co’, 309926, 170588000000, ‘financials’),
        (‘Pfizer Inc’, 88000, 58496000000, ‘healthcare’),
        (‘Chevron Corporation’, 45600, 194799000000, ‘energy’),
        (‘General Electric Company’, 125000, 67954000000, ‘industrials’);
```

INSERT INTO Options_derivativeOf(ISIN, ExpiryDate, StrikePrice, Type, IsExpired)

VALUES ('US0378331005', DATE '2024-04-19', 18000, 'call', 0)

('US0378331005', DATE '2024-04-19', 18500, 'call', 0)

('US0378331005', DATE '2024-04-19', 18000, 'put', 0)

('US0378331005', DATE '2024-02-28', 17000, 'call', 1)

('US46625H1005', DATE '2024-04-05', 19000, 'put', 0);

INSERT INTO Price_hasPrice(ISIN, DaysSinceIPO, High, Low, Open, Close, Volume, ISIN)

VALUES ('US0378331005', 15784, 18257, 17953, 18127, 18075, 135377101),

('US48128B6487', 16700, 25.24, 25.14, 25.22, 25.15, 20000),

('US46625H1005', 16700, 186.44, 185.10, 185.70, 185.29, 6165000),

('US7170811035', 29840, 26.90, 26.51, 26.60, 26.85, 45000000),

('US1667641005', 16058, 154.35, 152.25, 153.05, 152.81, 7451000);

INSERT INTO Shareholder(SIN, Name, Brokerage, Address)

VALUES ('TIMCOOK54321', 'Tim Cook', 'UBS', '1 Apple Park Way, Cupertino, CA, USA'),

('JOHNSMITH123', 'John Smith', 'Wealthsimple', '1961 E Mall, Vancouver, BC, Canada'),

('BRICONNORS02', 'Brian Connors', 'Fidelity', '2053 Main Mall, Vancouver, BC, Canada')

('YILONGMA6543', 'Yilong Ma', 'Tesla Bank', '1 Tesla Road, Austin, TX, USA'),

('NANPELOSI123', 'Nancy Pelosi', 'Blackstone', '1600 Pennsylvania Avenue NW, Washington, DC, USA');

INSERT INTO DecisionMaker_isAlso(FirstName, LastName, Address, Appointment, SIN)

VALUES ('Tim', 'Cook', '1 Apple Park Way, Cupertino, CA, USA', 'CEO of Apple Inc', 'TIMCOOK54321'),

('Nancy', 'Pelosi', '1600 Pennsylvania Avenue NW, Washington, DC, USA', 'Speaker Emerita of the House', 'NANPELOSI123'),

('Michael', 'Regan', '1200 6th Ave #155, Seattle, WA, USA', 'EPA Administrator', NULL),

('Xavier', 'Becerra', '200 Independence Ave SW, Washington, DC, USA', 'Secretary of Health and Human Services', NULL),

('Susan', 'Wagner', '1958 Main Mall, Vancouver, BC, Canada', 'Director at Apple', NULL);

INSERT INTO hasPower(FirstName, LastName, Address, CompanyName, DurationYears)

VALUES ('Tim', 'Cook', '1 Apple Park Way, Cupertino, CA, USA', 'Apple Inc', '14'),

('Nancy', 'Pelosi', '1600 Pennsylvania Avenue NW, Washington, DC, USA', '17'),

('Michael', 'Regan', '1200 6th Ave #155, Seattle, WA, USA', 3),

('Xavier', 'Becerra', '200 Independence Ave SW, Washington, DC, USA', 3),

('Susan', 'Wagner', '1958 Main Mall, Vancouver, BC, Canada', 'Director at Apple', 5);

INSERT INTO ownStock(SIN, ISIN, Day, Month, Year)

VALUES ('TIMCOOK54321', 'US0378331005', '29', '02', '2024'),

('JOHNSMITH123', 'US46625H1005', '01', '03, '2024'),

('BRICONNORS02', 'US7170811035', '03', '03, '2024')

('YILONGMA6543', 'US7170811035', '03', '03, '2024'),

('NANPELOSI123', 'US1667641005', '04', '03, '2024')

INSERT INTO ownFund(SIN, Name, Company, Day, Month, Year)

VALUES (‘TIMCOOK54321’, ‘Vanguard S&P 500 ETF’, ‘Vanguard Group Inc.’, ‘01’, ‘03’, ‘2024’),

(‘JOHNSMITH123’, 'Fidelity Contrafund’, 'Fidelity Investments', ‘02’, ‘03’, ‘2024’),

(‘BRICONNORS02’, 'iShares Russell 2000 ETF', 'BlackRock Inc.', ‘03’, ‘03’, ‘2024’)

(‘YILONGMA6543’, 'PIMCO Total Return Fund', 'PIMCO', ‘03’, ‘03’, ‘2024’),

(‘NANPELOSI123’, 'Invesco QQQ Trust', 'Invesco Ltd.', ‘04’, ‘03’, ‘2024’);

INSERT INTO IndexFund(Name, Company, TrackingIndex)

VALUES (‘Vanguard S&P 500 ETF’, ‘Vanguard Group Inc.’, ‘S&P 500’),

('iShares Russell 2000 ETF', 'BlackRock Inc.', 'Russell 2000'),

('SPDR Dow Jones Industrial Average ETF', 'State Street Global Advisors', 'Dow Jones Industrial Average'),

('Invesco QQQ Trust', 'Invesco Ltd.', 'Nasdaq-100'),

('Fidelity Total Market Index Fund', 'Fidelity Investments', 'Total Stock Market')

INSERT INTO MutualFund(Name, Company, Manager)

VALUES ('Vanguard Total Stock Market Index Fund', 'Vanguard Group Inc.', 'Vanguard'),

('Fidelity Contrafund', 'Fidelity Investments', 'Fidelity’),

('American Funds Growth Fund of America', 'Capital Group', 'Alice Johnson’'),

('PIMCO Total Return Fund', 'PIMCO', 'PIMCO'),

('T. Rowe Price Blue Chip Growth Fund', 'T. Rowe Price', 'T. Rowe Price')

INSERT INTO FundOwns(ISIN, FundName, Company, Day, Month, Year, Proportion)

VALUES

```
        ('US9229083632', 'Vanguard Total Stock Market Index Fund',
    'Vanguard Group Inc.', '01', '01', '2024', 0.25),

        ('US3160921014', 'Fidelity Contrafund', 'Fidelity Investments', '02', '01',
'2024', 0.20),

        ('US03076C1062', 'American Funds Growth Fund of America', 'Capital
Group', '03', '01', '2024', 0.15),

        ('US72201R7800', 'PIMCO Total Return Fund', 'PIMCO', '04', '01',
'2024', 0.30),

        ('US74144T1088', 'T. Rowe Price Blue Chip Growth Fund', 'T. Rowe
Price', '05', '01', '2024', 0.10)


INSERT INTO Fund_beganTradeOn (Name, Company, ExpenseRatio, Trade_Day,
Trade_Month, Trade_Year)

VALUES

        ('Vanguard Total Stock Market Index Fund', 'Vanguard Group Inc.',
0.10, '29', '02', '2024'),

        ('Fidelity Contrafund', 'Fidelity Investments', 0.15, '02', '03', '2024'),

        ('American Funds Growth Fund of America', 'Capital Group', 0.20, '03',
'03', '2024'),

        ('PIMCO Total Return Fund', 'PIMCO', 0.12, '04', '01', '2024'),

        ('T. Rowe Price Blue Chip Growth Fund', 'T. Rowe Price', 0.18, '04', '03',
'2024');


INSERT INTO Exchange(ExchangeName, MarketShare, Country)

VALUES     (‘NYSE’, 25000000000000, ‘USA’),

        (‘Nasdaq’, 21700000000000, ‘USA’),

        (‘Euronext’, 7200000000000, ‘Netherlands’),

        (‘Shanghai Stock Exchange’, 6700000000000, ‘China’),

        (‘Japan Exchange Group’, 5900000000000, ‘Japan’);


INSERT INTO Date(Day, Month, Year)
```

```
VALUES      (‘29’, ‘02’, ‘2024’),
            (‘01’, ‘03’, ‘2024’),
            (‘02’, ‘03’, ‘2024’),
            (‘03’, ‘03’, ‘2024’),
            (‘04’, ‘03’, ‘2024’);

INSERT INTO ListedOn(ISIN, ExchangeName)
VALUES      (‘US0378331005’, ‘Nasdaq’’),
            (‘US48128B6487’, ‘NYSE’),
            (‘US46625H1005’, ‘NYSE’),
            (‘US7170811035’, ‘NYSE’),
            (‘US1667641005’, ‘NYSE’);

INSERT INTO NAV_hasNAV(Name, Company, DaysSinceInception, AUM,
NavPerShare)
VALUES
        ('Vanguard S&P 500 Index Fund', 'Vanguard Group Inc.', 365,
    100000000, 250.75),
        ('Fidelity Total Market Index Fund', 'Fidelity Investments', 180,
75000000, 150.25),
        ('BlackRock Global Allocation Fund', 'BlackRock Inc.', 730, 50000000,
125.50),
        ('PIMCO Income Fund', 'PIMCO', 1095, 30000000, 75.80),
        ('Schwab S&P 500 Index Fund', 'Charles Schwab Corporation', 730,
    85000000, 200.35)
```