Asset Management System

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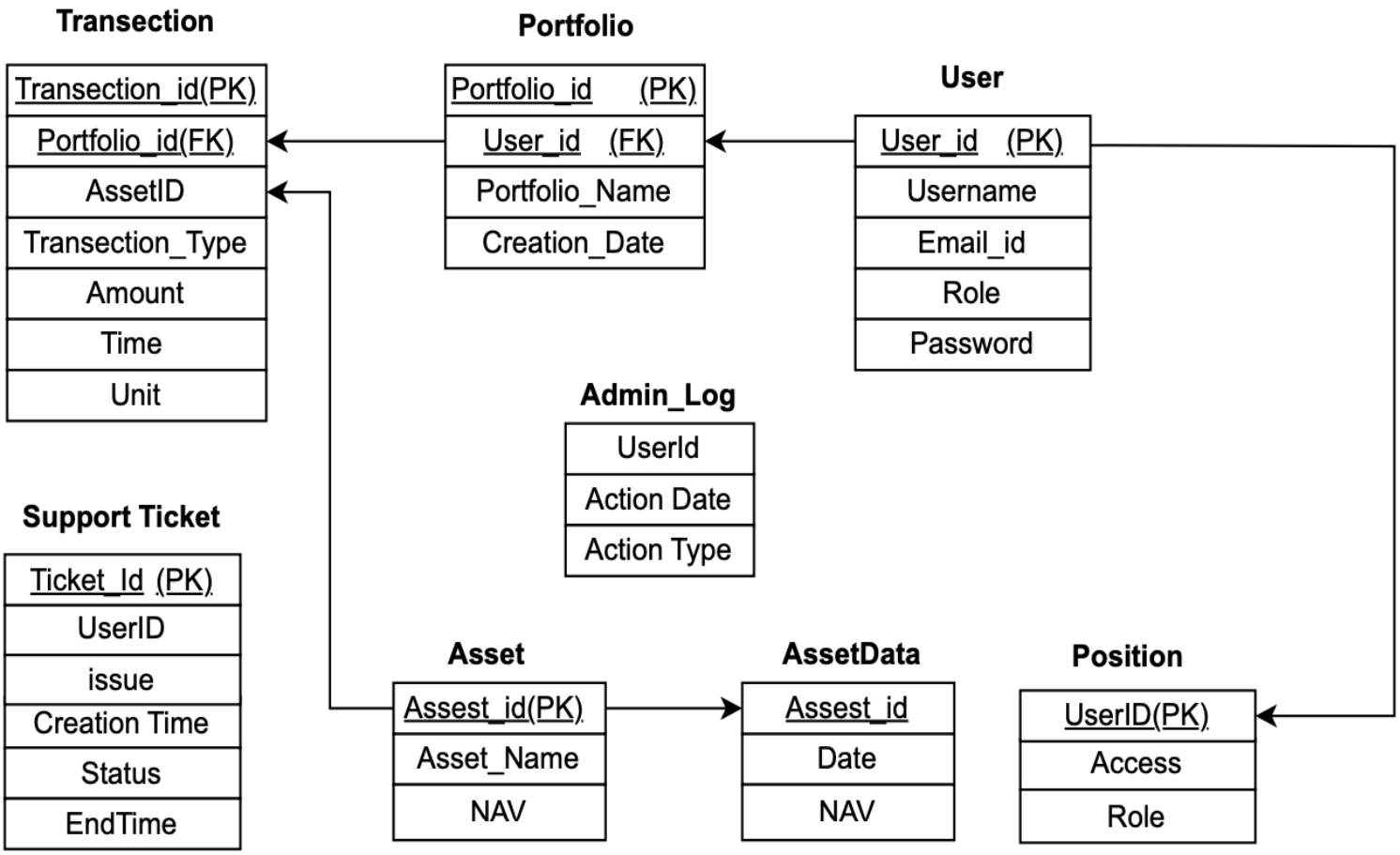

SQL DDL MODEL

```
CREATE DATABASE Hedge_Fund;
CREATE SCHEMA IF NOT EXISTS Hedge_Funds;
SET SEARCH_Path to Hedge_Funds;
CREATE TABLE Hedge_Funds.User (
        UserId VARCHAR(80) PRIMARY KEY NOT NULL,
        UserName Varchar(50) Not
    null, Email Varchar(50) not
    null, PassWord Varchar(8) not
    null
);

CREATE TABLE Hedge_Funds.Portfolio (
        PortfolioID DECIMAL(9,0) PRIMARY KEY Not
    null, PortfolioName VARCHAR(50) NOT NULL,
    CreationDate DATE NOT NULL,
        UserId VARCHAR(80) ,
        FOREIGN KEY (UserId) REFERENCES
    Hedge_Funds.User(UserId) ON UPDATE CASCADE ON DELETE SET
    NULL
);

    CREATE TABLE
    Hedge_Funds.AdminLog ( UserID
    VARCHAR(80) Not null, ActionType
    VARCHAR(50) NOT NULL,
        ActionDate TIMESTAMP NOT NULL
);

   CREATE TABLE
   Hedge_Funds.Position ( UserID
   VARCHAR(80) NOT NULL, ActionType
   VARCHAR(80) NOT NULL,
      ActionDate TIMESTAMP NOT NULL
);

    CREATE TABLE Hedge_Funds.Asset (
    AssetID INT PRIMARY KEY,
    AssetName VARCHAR(100) NOT NULL,
        NAV numeric(10,4) not null
);
```

```
);
    CREATE TABLE Hedge_Funds.Transection (
    TransactionID INT PRIMARY KEY Not null,
    Amount INT ,
        PortfolioID INT FOREIGN KEY,
    AssetID INT,
        TransactionType VARCHAR(50) NOT
    NULL, Time TIMESTAMP ,
        unit numeric(10,4) ,
        FOREIGN KEY (PortfolioID) REFERENCES
    Hedge_Funds.Portfolio(PortfolioID) ON UPDATE CASCADE ON DELETE CASCADE
);
    CREATE TABLE Hedge_Funds.SupportTicket (
    TicketID INT PRIMARY KEY,
        Status VARCHAR(50) NOT NULL,
    UserId VARCHAR(80),
        CreationTime TIMESTAMP NOT
    NULL, Issue TEXT NOT NULL,
        Endtime TIMESTAMP NOT NULL,
        FOREIGN KEY (UserId) REFERENCES
    Hedge_Funds.User(UserId) ON UPDATE CASCADE ON DELETE
    CASCADE
```

Functional Dependencies

User Table (UserID, UserName, Email, Password)

- UserID → UserName
- UserID → Email
- UserID → Password

Conclusion: UserID is the Primary Key or Super Key, and the table satis- fies BCNF.

Portfolio Table (PortfolioID, UserID, Portfolio name, CreationDate)

- PortfolioID → UserID (BCNF)
- PortfolioID → Portfolio name (BCNF)
- PortfolioID → CreationDate (BCNF)
- UserID → PortfolioID (3NF)

Conclusion: PortfolioID is the Primary Key, and UserID is a Foreign Key. Updates or deletions can cause anomalies.

Position Table (UserID, Role, Access)

- UserID → Role
- UserID → Access
- Role → Access (2NF)

Conclusion: UserID is the Primary Key, and the table meets BCNF.

Asset Table (Asset id, Asset name, NAV)

- Asset id → Asset name (BCNF)
- Asset id → NAV
- Asset name → Asset id (3NF)

Conclusion: Asset id is the Primary Key. The table is in BCNF.

AssetData Table (Asset id, Date, NAV)

- (Asset id,Date) → NAV

Conclusion: Asset id,Date is the composite Key.

Support Ticket Table (Ticket id, UserID, Issue, Creation Date, Status,End Time)

- Ticket id → UserID
- Ticket id → Creation Date
- Ticket id → Status
- Ticket id → Issue
- Ticket id → End Time

Conclusion: Ticket id is the Primary Key, and the table is in BCNF.

Transaction Table (Transaction ID, Amount, PortfolioID, Asset id, Transaction Type, Time, Unit)

- Transaction ID → Amount (BCNF)

- Transaction ID → PortfolioID
- Transaction ID → Asset id
- Transaction ID → Transaction Type
- Transaction ID → Time
- Transaction ID → Unit
- {Asset id, Transaction Type, Time} → Transaction ID (3NF)

Conclusion: Transaction ID is the Primary Key, with BCNF.

Admin Log Table (UserID, Action-Date, Action-Type)

- UserID → Action-Type (BCNF)
- UserID → Action-Date

Conclusion: UserID is the Primary Key. The table meets BCNF.