Chillout System Analysis

Idea:

Inputs:
- **Sales** (Daily)
- **Transferred Products** (Daily)
- **Existing in Tanks** (Daily)
- **Trips** (Daily)

Outputs:
- **Sales** (Daily & Monthly)
- **Transferred Products** (Daily & Monthly)
- **Transfers** (Daily & Monthly)
- **Trips** (Daily & Monthly)
- **Supply plan** (Daily)

Tables & relations:

Tables:
- **Agents** (AgentID, AgentName, IsHidden)
- **Companies** (CompanyID, CompanyName, IsHidden)
- **Distances** (DistanceID, WarehouseID, StationID, Distance, IsHidden)
- **Drivers** (DriverID, DriverFirstName, DriverMiddleName, DriverLastName, DriverPhoneNumber, IsHidden)
- **Existing** (ExistingID, StationID, ProductID, ExistingAmount, Day, Month, Year, IsHidden)*
- **Transfers** (TransferID, CompanyID, WarehouseID, StationID, ProductID, TripID, TransferredAmount, Day, Month, Year, IsHidden)*
- **Products** (ProductID, ProductName, IsHidden)
- **Quota** (QuotaID, CompanyID, WarehouseID, ProductID, QuotaAmount , Month, IsHidden)
- **Sales** (SaleID, StationID, ProductID, SalesAmount, Day, Month, Year, IsHidden)*
- **Sectors** (SectorID, SectorName, IsHidden)
- **Stations** (StationID, StationName, AgentID, SectorID, IsHidden)
- **Tanks** (TankID, ProductID, TankVolume, IsHidden)
- **Trips** (TripID, DriverID, VehicleID, outboundDistanceID, inboundDistanceID, Day, Month, Year, IsHidden)*
- **Users** (UserID, UserFirstName, UserMiddleName, UserLastName, PhoneNumber, Password, IsHidden)
- **Vehicles** (VehicleID, VehicleCode, VehiclePlate, VehicleCard, VehiclePhone, TrailerPlate, IsHidden)
- **Warehouses** (WarehouseID, WarehouseName, SectorID, IsHidden)

Relations:
Many-to-One:
- **Distances – Stations**
- **Distances – Warehouses**
- **Existing – Products**
- **Existing – Stations**
- **Quota – Companies**
- **Quota – Products**
- **Quota – Warehouses**
- **Sales – Products**

- **Sales – Stations**
- **Stations – Agents**
- **Stations – Sectors**
- **Tanks – Products**
- **Transfers – Companies**
- **Transfers – Products**
- **Transfers – Stations**
- **Transfers – Trips**
- **Transfers – Warehouses**
- **Trips – Distances**
- **Trips – Drivers**
- **Trips – Vehicles**
- **Warehouses – Sectors**

Many-to-Many:
- **Companies – Warehouses:** (Company_WarehouseID, CompanyID, WarehouseID)
- **Stations – Products:** (Station_ProductID, StationID, ProductID)
- **Stations – Tanks:** (Station_TankID, StationID, TankID)
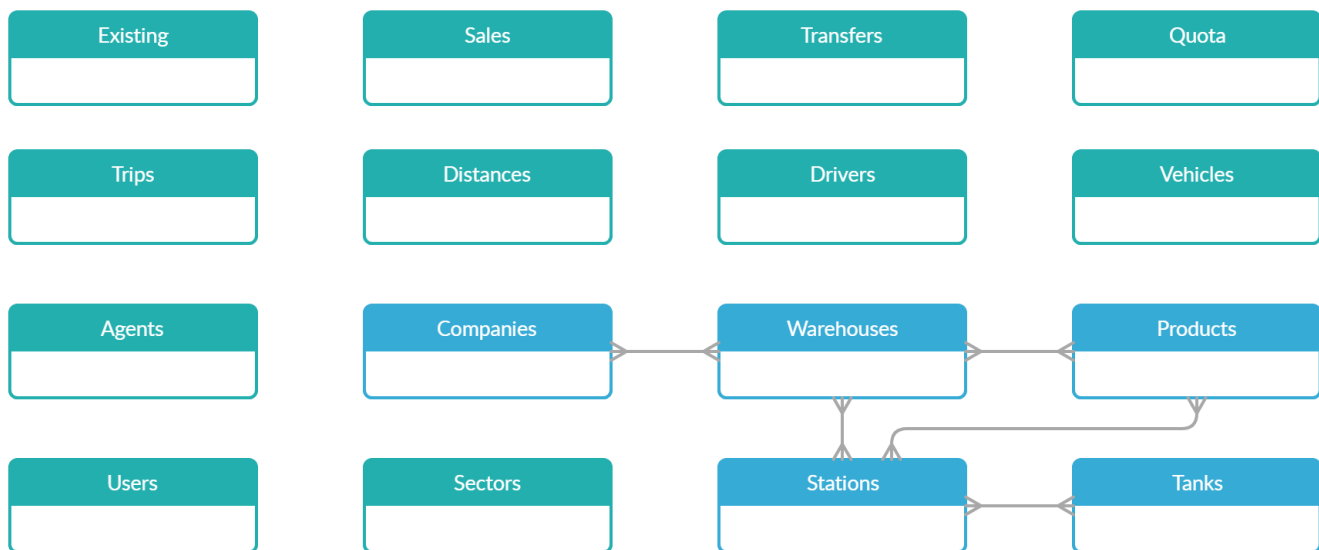- **Warehouses – Products:** (Warehouse_ProductID, WarehouseID, ProductID)

Illustrations:
- (*****) refer to tables using date picker / calendar to view / modify their data at any chosen date
- Actual date and time are not important; neither the local machine date time nor the global one
- Daily acknowledge (التمام اليومي) uses the date picker, then access the sales, existing or Transfers tables separately

Reports / Statistics:

- Daily reports:
  - **Transfers**:
    Represents the amount of transfer of each product from each Warehouse
  - **Sales**:
    Represents the amount of sales of each product of each station
  - **Transferred products:**
    Represents the total amount of transferred product to each station from each Warehouse
  - **Supply plan**:
    Represents the needs of each product according to the average consumption of a specific station and the tank volume of the same product

- Monthly reports:
  - **Total transfers from Warehouses**:
    Represents the total amount of transfer of each product from each Warehouse
  - **Total stations' sales**:
    Represents the total amount of sales of each product at each station
  - **Total Transferred products in stations**:
    Represents the total amount of transferred product to each station from each Warehouse

- Special reports:
  - **Average Transferred product**:
    Represents the average of each transferred product to each station
  - **EoM (End of Month) Stations' needs**:
    Represents each station's needs for each product by multiplying the average of a station's needs and the remaining days in the current month
  - **Warehouses Remaining**:
    Represents the difference between the quota specified and the current transfers from each Warehouse

Schema:

Existing	Sales	Transfers	Quota

Trips	Distances	Drivers	Vehicles

Agents	Companies	Warehouses	Products

Users	Sectors	Stations	Tanks

Pages:

١. **Login page (Authentication -> Login)**
٢. **Home page (Unspecified)**
٣. **Sectors list page (Academy)**
٤. **Stations list page (Table)**
٥. **Agents list page (Academy)**
٦. **Tanks list page (Academy)**
٧. **Companies list page (Academy)**
٨. **Warehouses list page (Academy)**
٩. **Products list page (Academy)**
١٠. **Vehicles list page (Table)**
١١. **Drivers list page (Academy)**
١٢. **Distances list page (Table)**
١٣. **Trips list page (Unspecified)**
١٤. **Users list page (Unspecified)**
١٥. **Sectors management page (Form)**
١٦. **Station management page (Form)**
١٧. **Agents management page (Academy)**
١٨. **Tanks management page (Form)**
١٩. **Company management page (Form)**
٢٠. **Warehouse management page (Form)**
٢١. **Product management page (Form)**
٢٢. **Vehicle management page (Form)**
٢٣. **Driver management page (Form)**
٢٤. **Distance management page (Form)**
٢٥. **Trips management page (Unspecified)**
٢٦. **User management page (Unspecified)**
٢٧. **Transfers report page (Daily / Monthly) (Table)**

٢٨. **Sales report page (Daily / Monthly) (Table)**

٢٩. **Transferred products report page (Daily / Monthly) (Table)**

٣٠. **Supply plan report page (Table)**

٣١. **Average Transferred product report page (Table)**

٣٢. **EoM (End of Month) Stations' needs report page (Table)**

٣٣. **Warehouses Remaining report page (Table)**

Software & Hardware requirements:

Software:

- Languages
  - **HTML**
  - **CSS**
  - **Typescript**
  - **Java**
  - **JPQL**

- Tools:
  - **VScode editor**
  - **IntelliJ IDE**
  - **SQL server / Mongo database**
  - **Postman**

- Others:
  - **Node.js**
  - **Angular**
  - **Apache Maven package manager**
  - **Java EE**

Hardware:
  - **Server**
  - **PC**
  - **Internet**