**Instructions for delivery module**

Introduction

This system provides an integrated solution for managing the logistics of deliveries within an organization. It enables users to register and track delivery orders, assign available drivers and trucks based on capacity and license compatibility, and optimize deliveries by grouping orders within the same shipping zone.

Starting the Program

After the system starts, a clear navigation menu is displayed, enabling users to access different features such as order management, delivery planning, and resource control.

**Main menu:**

========= Super-Li Transportation System =========

1. Delivery Management

2. Order Management

3. Truck Management

4. Driver Management

5. Shipping Zone Management

0. Exit

**The delivery *Management*** module opens a dedicated menu for handling delivery operations.Users can create a new delivery by entering the delivery date, selecting a shipping zone, and specifying preferred orders to include.

The system automatically matches the delivery with an available driver and truck that are suitable in terms of license type and weight capacity, and availability

Additionally, users can:

* **Update the status** of an existing delivery (e.g., mark it as "Completed").
* **View all deliveries** currently managed by the system, along with their details and assigned resources.

**The *Order Management*** module provides functionality for creating, viewing, and deleting delivery orders.  
The manager can add a new order by entering a unique order ID, selecting a destination site, specifying the shipping zone, and providing a list of cargo items associated with the order.

Each cargo item includes:

* A unique cargo ID
* A description
* Weight (in kilograms)
* Quantity

Orders are stored in the system and can later be assigned to deliveries based on their shipping zone and cargo weight.

Additionally, users can:

* **View all active orders** currently pending delivery
* **Delete existing orders** that are no longer needed

**The *Driver Management*** module allows the manager to manage the list of drivers in the system. From this menu, the manager can perform key actions related to driver information and availability.

Available operations include:

* **View Drivers** – Display a list of all drivers currently registered in the system, along with their details and availability status.
* **Assign Drivers licences**

**The *Truck Management*** module provides tools for managing the fleet of trucks used for deliveries. From this menu, the manager can perform essential actions related to truck registration and monitoring.

Available operations include:

* **Add Truck** – Register a new truck by entering its unique ID, license plate number, truck type (selected from predefined options), maximum weight, and tare (empty) weight.
* **Delete Truck** – Remove a truck from the system using its unique truck ID.
* **View Trucks** – Display all trucks currently stored in the system, along with their specifications and availability status.

**The *Shipping Zone Management*** module allows the manager to manage the definition and organization of shipping zones within the system. Shipping zones help group destination sites geographically, enabling more efficient delivery planning.

Available operations include:

* **Add Shipping Zone** – Create a new shipping zone by assigning it a unique ID, a name, and a list of destination sites that belong to the zone.
* **Delete Shipping Zone** – Remove an existing shipping zone using its unique identifier.
* **View Shipping Zones** – Display all currently defined shipping zones, including their names and associated sites.

### Error Handling

The system incorporates robust error handling mechanisms to ensure smooth operation and user guidance in case of issues. When invalid input is provided (such as an incorrect shipping zone ID, non-existent driver or truck ID, or mismatched cargo data), the system automatically detects the problem and displays an informative error message without crashing.

Typical error scenarios include:

* Attempting to create a delivery with a non-existent origin site.
* Selecting a shipping zone that does not exist.
* Assigning a driver or truck that is unavailable or incompatible.
* Attempting to finalize a delivery that has missing resources.
* Providing an invalid cargo weight or missing cargo details during order creation.

Whenever an error occurs, the system immediately informs the manager of the issue and requires them to retry the action. This approach allows corrective actions to be taken without any loss of data or system progress.

Db tables:

# **Sites**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **site\_id** | **address** | **contact\_person** | **phone\_number** | **site\_name** |
| 1 | 123 Main St | John Doe | 555-1234 | Main Warehouse |
| 2 | 456 something | shay | 555-5555 | school |
| 3 | 444 else | eyal | 555-6767 | super |
| 4 | 789 Elm St | Jane Smith | 555-5678 | Elm Warehouse |
| 5 | 101 Oak St | Alice Johnson | 555-6789 | Oak Warehouse |
| 6 | 202 Pine St | Bob Brown | 555-7890 | Pine Warehouse |
| 7 | 303 Cedar St | Charlie White | 555-8901 | Cedar Warehouse |
| 8 | 404 Birch St | Diana Green | 555-9012 | Birch Warehouse |
| 9 | 505 Maple St | Ethan Blue | 555-0123 | Maple Warehouse |
| 23 | 606 Spruce St | Fiona Black | 555-1234 | Spruce Warehouse |

# **ShippingZones**

|  |  |
| --- | --- |
| **shipping\_zone\_id** | **shipping\_zone\_name** |
| 1 | Zone 1 |
| 2 | Zone 2 |
| 3 | Zone 3 |
| 4 | North Zone |
| 5 | South Zone |
| 6 | East Zone |

# **ShippingZone\_Sites**

|  |  |
| --- | --- |
| **shipping\_zone\_id** | **site\_id** |
| 1 | 1 |
| 1 | 2 |
| 1 | 3 |
| 2 | 4 |
| 2 | 5 |
| 2 | 6 |
| 3 | 7 |
| 3 | 8 |
| 3 | 9 |
| 3 | 10 |

# **Trucks**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **truck\_id** | **truck\_type** | **license\_plate** | **max\_weight** | **tare\_weight** | **availability** |
| T1 | B | ABC | 1000 | 0 | 1 |
| T2 | A | CBD | 1000 | 0 | 1 |
| T3 | C | LMN-456 | 1500 | 0 | 1 |
| T4 | B | QWE-789 | 1200 | 0 | 1 |
| T5 | C | JKL-321 | 2000 | 0 | 1 |
| T6 | A | XYZ-123 | 800 | 0 | 1 |
| TRK007 | A | ABC123 | 15000 | 5000 | 1 |
| TRK008 | B | XYZ789 | 12000 | 6000 | 1 |
| TRK0044 | E | LMN456 | 20000 | 7000 | 1 |
| TRK009 | A | ABC123 | 15000 | 5000 | 1 |
| TRK0010 | B | XYZ789 | 12000 | 6000 | 1 |
| TRK0041 | E | LMN456 | 20000 | 7000 | 1 |

# **Orders**

|  |  |  |  |
| --- | --- | --- | --- |
| **order\_id** | **destination\_id** | **Is\_shipped** | **shipping\_zone\_id** |
| 2 | 2 | 0 | 2 |
| 3 | 3 | 0 | 3 |
| 1 | 1 | 1 | 1 |

# **Cargo**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **cargo\_id** | **order\_id** | **Description** | **weight** | **quantity** |
| 1 | 2 | tomatos | 0.5 | 2 |
| 2 | 3 | appels | 2 | 2 |
| 3 | 1 | chair | 200 | 1 |

# **Deliveries**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **delivery\_id** | **status** | **delivery\_date** | **truck\_id** | **driver\_id** | **origin\_id** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

# **Delivery\_Orders**

|  |  |
| --- | --- |
| **delivery\_id** | **order\_id** |
|  |  |
|  |  |
|  |  |

# **Delivery\_Destinations**

|  |  |  |
| --- | --- | --- |
| **delivery\_id** | **site\_id** | **sequence\_number** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |