בר פסו 315175554
הדר עופר 208583781

מטלה 1

שאלה 1 - דרישות

ID	Module	Functional / Non - Functional	Description	Priority	Risk	Status
1	Deliveries	Functional	The system will allow you to enter truck data including license plate number, model, net weight and maximum weight.	MH	L	In Progress...
2	Deliveries	Functional	The system will allow you to enter site data including address, phone number and contact name.	MH	L	In Progress...
3	Deliveries	Functional	The system will allow creating a delivery that includes date, truck departure time, truck number, driver name, source, and destinations.	MH	L	In Progress...
4	Deliveries	Functional	The system will generate a numbered document for each delivery destination.	MH	L	In Progress...
5	Deliveries	Functional	The system will store the document number in the system for each destination, to enable tracking and future reference.	MH	L	In Progress...
6	Deliveries	Functional	The system will allow entering and saving the actual truck weight (measured manually before departure) in the delivery form.	MH	L	In Progress...
7	Deliveries	Functional	The system will alert the user if the weight of the truck exceeded the maximum weight.	MH	L	In Progress...
8	Deliveries	Functional	The system will allow indicating whether the supplier delivers goods independently (i.e., without requiring a delivery from the company).	MH	L	In Progress...
9	Deliveries	Functional	The system will allow removing a destination from a delivery in case of overweight.	MH	L	In Progress...
10	Deliveries	Functional	The system will allow replacing a destination in case of overweight.	MH	L	In Progress...
11	Deliveries	Functional	The system will allow changing the assigned truck in case of overweight.	MH	L	In Progress...
12	Deliveries	Functional	The system will allow removing items from the delivery in case of overweight.	MH	L	In Progress...
13	Deliveries	Functional	The system will update the delivery document if destinations are removed or changed.	MH	L	In Progress...
14	Deliveries	Functional	The system will update the delivery document if the assigned truck is changed.	MH	L	In Progress...
15	Deliveries	Functional	The system will update the delivery document if items are removed from the delivery.	MH	L	In Progress...
16	Deliveries	Functional	The system will prevent assigning a driver to a delivery if the driver's license type does not match the required license type for the selected truck.	MH	L	In Progress...
17	Deliveries	Functional	The system will allow defining different delivery zones.	MH	L	In Progress...
18	Deliveries	Functional	The system will list the items delivered for each numbered document.	MH	L	In Progress...
19	Deliveries	Functional	The system will support assigning multiple transports per driver per day.	MH	H	In Progress...
20	Deliveries	Non-Functional	The system will maintain a delivery management database that record every delivery.	MH	H	Can't be done
21	Deliveries	Non-Functional	The system will optimize the distribution of goods.	MH	H	Can't be done
22	Deliveries	Functional	The system will display a visual schedule of deliveries by day and time.	NTH	L	Can't be done
23	Deliveries	Functional	The system will allow filtering deliveries by delivery zone.	NTH	L	In Progress...
24	Deliveries	Non-Functional	The system will allow filtering track by the weight they can carry.	NTH	L	In Progress...
25	Deliveries	Non-Functional	The system will allow filtering tracks by the type of driver license needed.	NTH	L	In Progress...
26	Deliveries	Non-Functional	The system will calculate the weight of a delivery by destination.	NTH	L	In Progress...
27	Deliveries	Non-Functional	The system will allow filtering deliveries by weight.	NTH	L	In Progress...
28	Deliveries	Non-Functional	The system will allow filtering drivers by type of driver license.	NTH	L	In Progress...
29	Deliveries	Non-Functional	The system will allow filtering deliveries by destination.	NTH	L	In Progress...
30	Deliveries	Non-Functional	The system will allow filtering deliveries by status.	NTH	L	In Progress...
31	Deliveries	Non-Functional	The system will allow filtering deliveries by driver.	NTH	L	In Progress...
32	Deliveries	Non-Functional	The system will allow search for a delivery by delivery number.	NTH	L	Can't be done
33	Deliveries	Functional	The system will generate separate product reports for each destination within a transport at any time.	NTH	H	Can't be done
34	Deliveries	Non-Functional	The system will suggest an optimal delivery route based on destination locations.	NTH	H	Can't be done
35	Deliveries	Non-Functional	The user interface will be intuitive and easy to use for non-technical users.	NTH	H	Can't be done

בר פסו 315175554
הדר עופר 208583781

סיבות למה חלק מהדרישות אינן ניתנות למימוש:

Description	Reason It May Not Be Feasible
The system will maintain a delivery management database that record every delivery.	Storing all delivery records long-term requires advanced server and storage resources. The system may need to delete old data to maintain performance.
The system will optimize the distribution of goods.	True optimization requires advanced algorithms, real-time data (traffic, truck availability…), and potentially AI – which may be too complex or costly to implement initially.
The system will display a visual schedule of deliveries by day and time.	Creating a dynamic, visual schedule requires a sophisticated UI. Budget or technical limitations may prevent this feature in early versions.
The system will allow search for a delivery by delivery number.	If delivery numbers are inconsistent or not properly logged, the search feature may yield inaccurate results or require advanced logic that's not implemented.
The system will generate separate product reports for each destination within a transport at any time.	Generating dynamic reports by destination requires a well-structured data model. If such structure isn't implemented, the reports can't be created accurately.
The system will suggest an optimal delivery route based on destination locations.	Requires integration with mapping and real-time traffic APIs, which might not be available due to technical, regulatory, or financial constraints.
The user interface will be intuitive and easy to use for non-technical users.	Creating a user-friendly interface requires UX/UI design, user testing, and research. Limited time or budget may result in a more technical interface.

שאלות שעלו לנו מדרישות הלקוח ותשובות עבורן:

Topic	Issue	Answer
Data Archiving Policy	What is the retention period for old delivery data and how is it archived?	We'll keep deliveries up to 2 years back.
Delivery Delay Handling	How should the system handle unexpected delays during transport?	The deliveries manager decide what to do.
Delivery Manager	Is the deliveries manager is for all the deliveries or is it for a single delivery?	The deliveries manager is for all the deliveries.
Driver Scheduling	Can a driver perform more than one delivery per day and how is it managed?	Yes, the deliveries manager will decide and manage.
Formatting	What is the format of the phone number? (05…/+972…)	We'll inmplement as it's a +972 number
Mobile Access To System	Will the system be accessible via mobile devices for drivers or managers?	For now we'll implement it only as an app on the computer.
Real-Time Optimization	Should the system dynamically re-optimize the schedule during execution?	Only the deliveries manager can change it.
Weighing Sequence Integration	Does the system support weighting the truck before or after each site visit?	The truck is weighted after we have loaded it with goods and before it leaves for its destination(s).
Zone Definition Criteria	What logic determines which destinations belong to the same delivery zone?	The deliveries manager decide that.
Zone Deletetion	What happens when we delete zones?	The system will pop a message that will let the manager decide weather to change the zone for those areas or delete those stores.

הנחות שעשינו לגבי המערכת:

- מנהל מערכת ואחראי הובלות הם שני תפקידנים שונים, יש 1 מכל תפקיד. מנהל המערכת קובע מי הוא אחראי ההובלות.
- מנהל מערכת רשאי למנות אחראי הובלות ולצפות בכל המידע אך לא לשנות אותו.
- אחראי הובלות רשאי להוסיף/לעדכן/למחוק מידע לגבי הובלות, נהגים, משאיות, אזורי שילוח, קבלת החלטות במקרה של חריגה במשקל/מעבר ב2 אזורי שילוח באותה הובלה/אין נהג מתאים למשאית/אין משאית מתאימה למשלוח וכו'.

- אזור שילוח מיוצג ע"י שם ומספר, ביחד הם יהיו ייחודיים.
- נשקול את המשאית לאחר העמסה בלבד! בעת הגעה ליעד נניח שכל הסחורה הרלוונטית ירדה.
- הוספנו שדה "סטטוס" אל מסמך ההובלה.
- תיעוד ספקים עצמאיים – הסטטוס של הDestinationDoc יהיה SELFDELIVERY.
- נמלא מסמך הובלה עבור כל יעד בהובלה.
- ניתן לעדכן את ההובלה לאחר שיצאה כבר. נעדכן אם ההובלה התעכבה/בוטלה מכל סיבה שהיא.
- משאית ריקה אינה נחשבת להובלה.
- כשיש מוצר פגום – מראש לא נעביר אותו אל היעד ונמחק אותו מההזמנה.
- לנהגים במערכת יש סוג רשיון אחד בלבד.

שאלה 2 – תרשים מחלקות

על מנת שהדיאגרמה תהיה יותר קריאה, החיבורים בצבעים –

בצבע **כחול** – חיבורים בין Domain ל-Controller

בצבע **ירוק** – חיבורים בין Controller ל-Service

בצבע **סגול** – חיבורים בין Service ל-Presentation

בצבע **שחור** – חיבורים בין שכבה לעצמה (Domain ל-Domain וכו')

הדיאגרמה נמצאת בעמוד הבא.

UML Class Diagram

Driver
driverId: String
name: String
licenseType: String
available: boolean

Transport
transportId : int
departureDateTime: DateTime
truck: Truck
driver: Driver
originSite: Site
destinationsList: list<DestinationDoc>
departureWeight: float
status: enum

Truck
licensePlateNum: String
model: String
netWeight: float
maxWeight: float
requiredLicenseType: String
available: booleam

<<enum>> TransportStatus
PLANNED,
DISPATCHED,
COMPLETED,
CANCELLED,
SELFDELIVERY

DestinationDoc
destinationDocId: int
transportId: int
destinationId: Site
deliveryItems: list<DeliveredItem>
status: enum

Site
siteId: int
address: String
phoneNumber: String
contactName: String
zone: Zone

DeliveredItem
productId: String
quantity: int

Product
productId: String
name: String
weight: float

Zone
zoneId: int
name: String

ZoneController
zoneService: ZoneService
scanner: Scanner

TransportController
transportService: transportService
scanner: Scanner

SiteController
siteService: SiteService
scanner: Scanner

DestinationDocController
destinationServiceDoc: DestinationDocService
scanner: Scanner

DriverController
driverService: DriverService
scanner: Scanner

TruckController
truckService: TruckService
scanner: Scanner

MainMenuController
transportController: TransportController
driverController: DriverController
truckController: TruckController
siteController: SiteController
zoneController: ZoneController
destinationDocController: DestinationDocController
scanner: Scanner

ProductService
productRepository: IProductRepository

TransportService
transportRepository: ITransportRepository

TruckService
truckRepository: ITruckRepository
unavailableTruckPlates: List<String>

ZoneService
zoneRepository: IZoneRepository

DriverService
driverRepository: IDriverRepository
unavailableDriverIds: List<String>

SiteService
siteRepository: ISiteRepository

DestinatioinDocsService
destinationDocRepository: IDestinationDocRepository

DeliveredItemService
destinationDocRepository: IDestinationDocRepository

ZoneView
zoneId: int
name: String

TransportDetailsView
transportId: int
departureDateTime: DateTime
truck: TruckDetailsView
driver: DriverDetailsView
originSite: SiteDetailsView
destinationsList: List<DestinationsDetailView>
departureWeight: float
status: enum

DriverDetailsView
driverId: String
name: String
licenseType: String

DeliveredItemDetailsView
productId: String
quantity: int

TruckDetailsView
licensePlateNum: String
requiredLicenseType: String

DestinationDetailsView
destinationDocId: int
destinationSite: SiteDetailsView
deliveredItems: List<DeliveredItemDetailView>
status: String

TransportSummeryView
transportId: int
departureDateTime: DateTime
originSite: SiteDetailsView
destinationsList: List<DestinationsDetailView>
totalWeight: float
status: String

SiteDetailsView
address: String
phoneNumber: String
contactPersonName: String