

The background of the slide is a photograph of a tropical beach. In the foreground, a small wooden boat with a red and blue hull is beached on the sand. Behind it, another boat is visible. The beach is lined with numerous palm trees, and the ocean with gentle waves is in the distance. The entire image is overlaid with a semi-transparent dark grey filter.

GOZEM

Africa's Super App

BACK-END DEVELOPER - BUSINESS CASE

Package Tracker

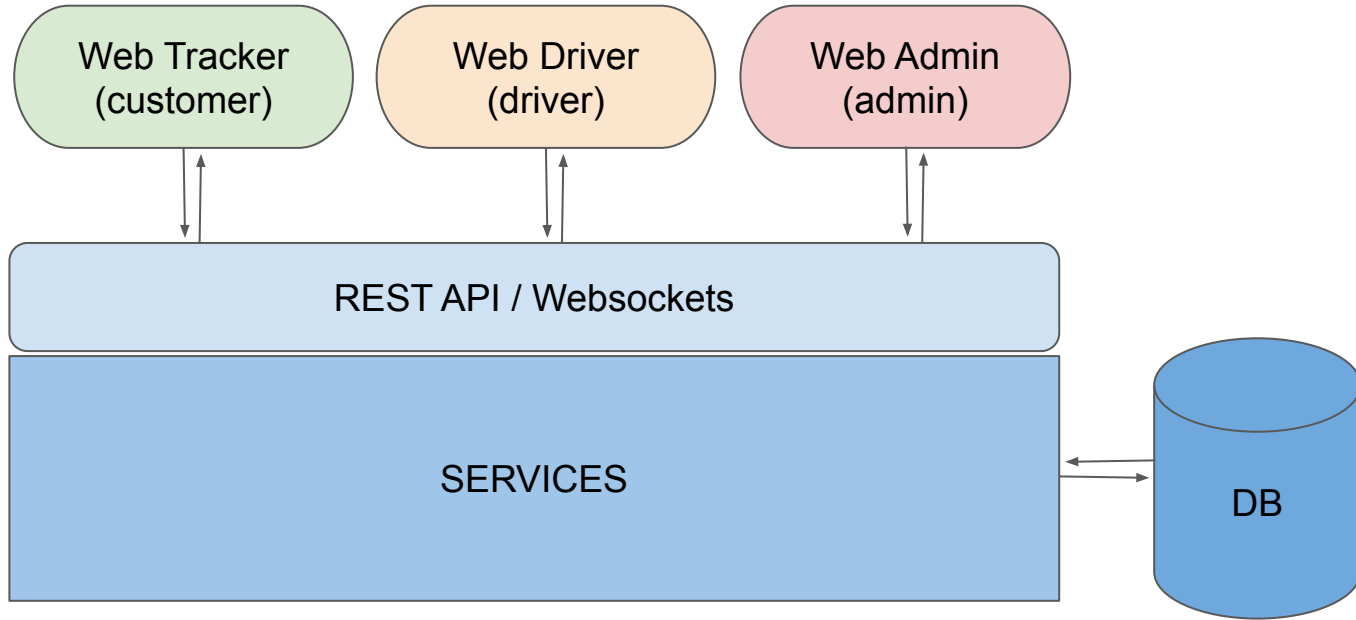
Create a package tracking web application suite consisting of the following:

- 1) Web Tracker - customer client web application (SPA)
- 2) Web Driver - driver client web application (SPA)
- 3) Web Admin - admin back-office client web application (SPA)
- 4) REST API - business process back-end services
- 5) Websocket Events - for real time updates and communication

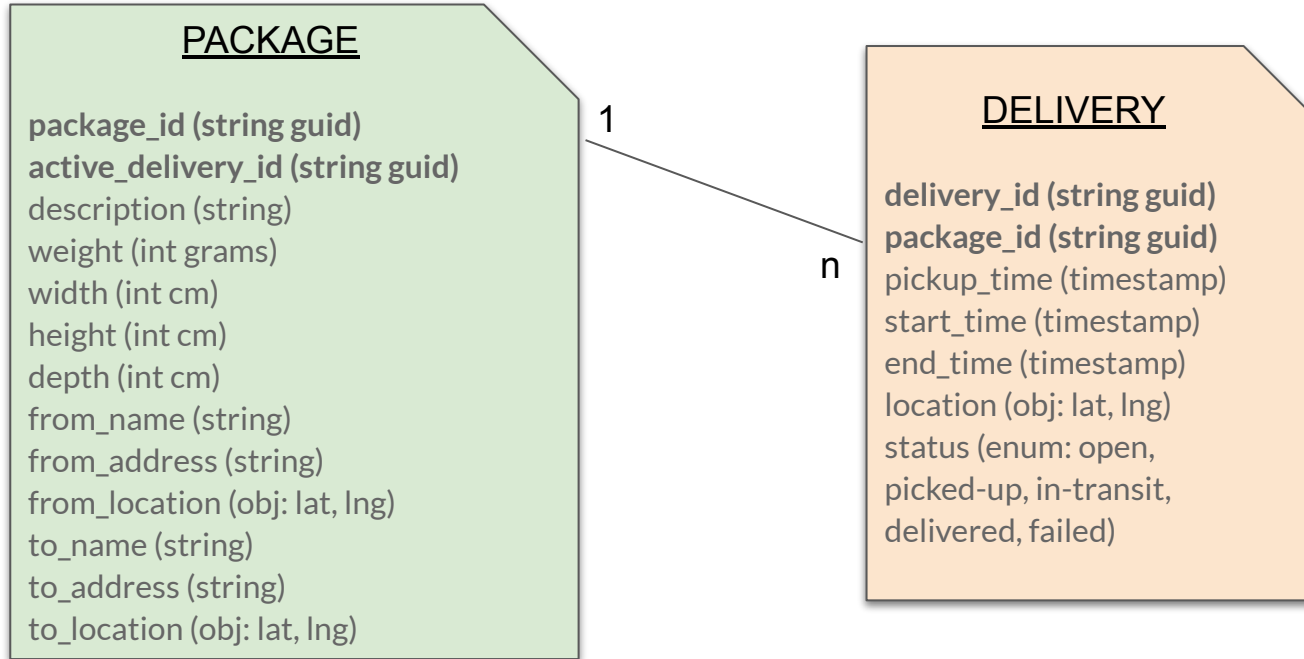
Use the MEAN stack:

- 1) MongoDB
- 2) Express
- 3) Angular
- 4) Node.js

Overview



Database Entities



REST APIs

Package API (Data Format: JSON)

Method	URL	Description
GET	/api/package	Get all packages
GET	/api/package/{id}	Get package by id
POST	/api/package/{id}	Create new package
PUT	/api/package/{id}	Update package
DELETE	/api/package/{id}	Delete package

REST APIs

Delivery API (Data Format: JSON)

Method	URL	Description
GET	/api/delivery	Get all deliveries
GET	/api/delivery/{id}	Get delivery by id
POST	/api/delivery/{id}	Create new delivery
PUT	/api/delivery/{id}	Update delivery
DELETE	/api/delivery/{id}	Delete delivery

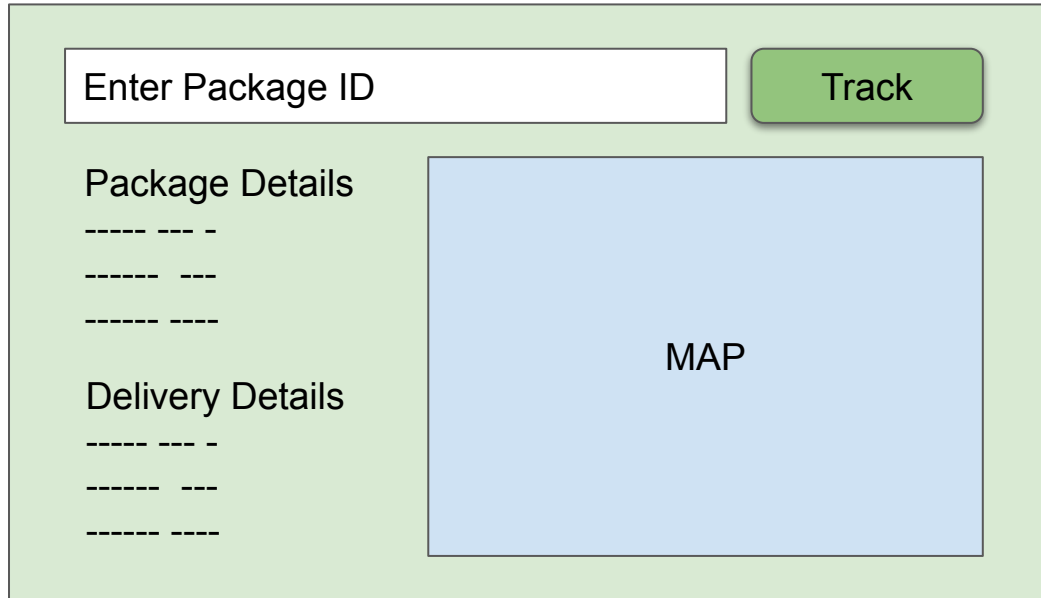
Websocket Events

Events (Data Format: Serialized JSON String)

Event	Type	Payload	Description
location_changed	incoming	{event, delivery_id, location}	Update the location of a delivery
status_changed	incoming	{event, delivery_id, status}	<p>Update the status of a delivery</p> <p>When the status changes from open to picked-up, set the pickup_time to current time</p> <p>When the status changes from picked-up to in-transit, set the start_time to current time</p> <p>When the status changes from in-transit to delivered or failed, set the end_time to current time</p>
delivery_updated	broadcast	{event, delivery_object}	Broadcast when a delivery is updated

Web Tracker

A customer can enter a package ID to track their package. Use the rest API's to fetch the package. If the package has an active delivery, then fetch the delivery and create a websocket connection to listen for delivery update events. Display the package and delivery details and update the map with package source, destination and current location of the delivery.



The image shows a UI mockup for a 'Web Tracker' application. It features a light green background. At the top, there is a white input field labeled 'Enter Package ID' and a green 'Track' button. Below the input field, the text 'Package Details' is followed by three dashed lines. Further down, the text 'Delivery Details' is followed by three dashed lines. To the right of these details sections is a large light blue rectangular area labeled 'MAP'.

Web Driver

A driver can enter a delivery ID to load their delivery. Use the rest API's to fetch the delivery and package and display the details. Use the browser location API to fetch the current location and display it on the map along with package source and destination location. Fetch the current browser location every 20 seconds and send a delivery location update websocket event.

Submit

Package Details

Delivery Details

MAP

Picked Up

In-Transit

Delivered

Failed

Status Buttons
Send a status change websocket event when button is clicked.

Picked Up - change status to "picked-up", button is enabled if status is "open"

In Transit - change status to "in-transit", button is enabled if status is "picked-up"

Delivered - change status to "delivered", button enabled if status is "in-transit"

Failed - change status to "failed", button enabled if status is "in-transit"

Web Admin - Home

Package List

Create Package

Delivery List

Create Delivery

Web Admin - Create Package

Package Form

Submit

Web Admin - Create Delivery

Delivery Form

Submit

The form should have an auto-suggest dropdown to select the package to link to the delivery