

# TAXI Booking API Design and Specification v1.0

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# Taxi Booking APIs

This document specifies the design for the API operation for the Taxi Booking System with Request and Responses.

## POST /api/book Rules

1. All cars are available **initially**, and become booked once it is assigned to a customer. It will remain booked until it reaches its destination, and immediately become available again.
2. In the event that **there are more than one car near the customer location**, your service should return the car with the smallest id.
3. Only **one** car be assigned to a customer, and only **one** customer to a car.
4. **Cars can occupy the same spot**, e.g. car 1 and 2 can be at point (1, 1) at the same time.
5. If there is no available car that can satisfy the request, your service should **return an empty response**, not an error

## Available Operations

Resource Path	HttpVerb	Purpose
/api/book	POST	To Book a taxi
/api/tick	POST	To advance the service timestamp by 1
/api/reset	PUT	To reset all cars data back to the initial state

## POST /api/book

### To Book a taxi with given Location

Returns the nearest available car to the customer location and returns the total time taken to travel

Url Path	Sample
/api/book	<a href="http://localhost:8080/api/book">http://localhost:8080/api/book</a>

### Parameters

Param Name	Param Type	Data Type	Description	Required?
request	body	<a href="#">Location</a>		Yes

### Responses

Code	Type	Description	Remark
201	N/A	Created	With following Json { "car_id": id, "total_time": t }
400	object	Bad Request	Returns business validation error message.
5XX	N/A	Server Error	Return a meaningful error message.

## Sample Request/Response

POST /api/book

```
{
  "source": {
    "x": 1,
    "y": 0
  },
  "destination": {
    "x": 1,
    "y": 1
  }
}
```

Response

```
{
  "car_id": 1,
  "total_time": 2
}
```

POST /api/tick

To Advance your service timestamp by 1 time unit

Url Path	Sample
/api/tick	<a href="https://localhost:8080/api/tick">https://localhost:8080/api/tick</a>

Responses

Code	Type	Description	Remark
200	N/A	Ok	
5XX	N/A	Server Error	Return a meaningful error message.

PUT /api/reset

To Advance your service timestamp by 1 time unit

Url Path	Sample
/api/reset	<a href="https://localhost:8080/api/reset">https://localhost:8080/api/reset</a>

#### Responses

Code	Type	Description	Remark
200	N/A	Ok	
5XX	N/A	Server Error	

## Definitions

### Location

Field Name	Json Field Type	Description	Required?
source	<a href="#">LocationCoordinates</a>	Passenger's Initial Position	Yes
destination	<a href="#">LocationCoordinates</a>	Passenger's Destination Position	Yes

### LocationCoordinates

Field Name	Json Field Type	Description	Required?
X	number	X position of the coordinates	Yes
Y	number	Y position of the coordinates	Yes

## Response (POST /api/book )

Field Name	Json Field Type	Description
car_id	number	Nearest available car to the customer location
total_time	number	Total time required for the car to reach passenger and pick the passenger up from source to destination.