

Firstly, thank you for taking the time to complete the developer assessment. We would like to collect some feedback from the candidates on this testing method so would appreciate if you would provide your feedback based on the questions below and return this form to us.

1. How much time did you spend on the assessment?

**32 Hours due to 0 knowledge in Angular JS.**

2. Were the requirements of the assessment clear?

**Yes.**

3. Was the information in the assessment document clear and useful?

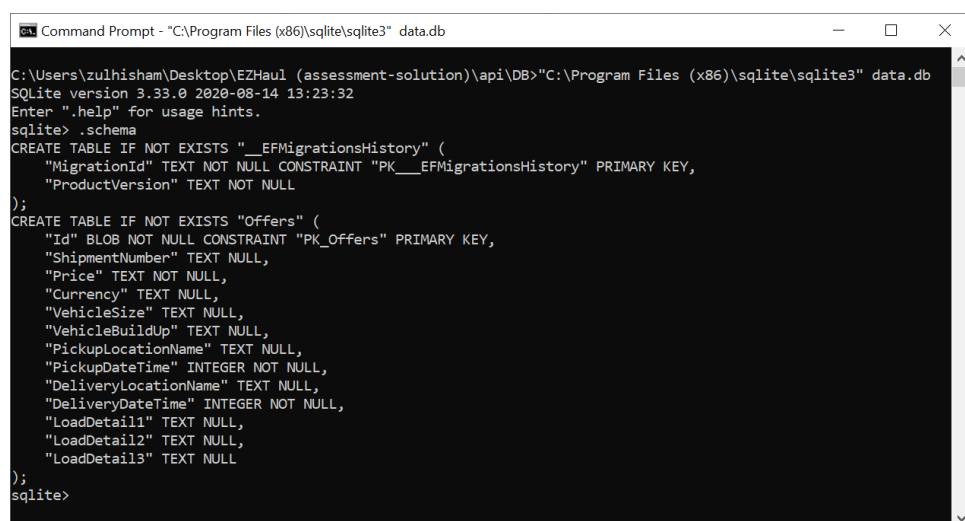
**Yes, Very useful.**

4. Was the assessment easy or difficult for you?

**No quite, just because very new to Angular, it become a bit difficult for me. And after trying many hours still not able to bring up the date-picker to the UI. Anyway, will continue learning.**

5. Any other comments.

- a. Using **Blazor** will be much more easy for me.
- b. The schema on the original **data.db** file for the **Id** field is declared as **Blob** data type which in **.Net**, it would be a Byte array – **byte[]**.



```
Command Prompt - "C:\Program Files (x86)\sqlite\sqlite3" data.db
C:\Users\zulhisham\Desktop\EZHaul (assessment-solution)\api\DB>"C:\Program Files (x86)\sqlite\sqlite3" data.db
SQLite version 3.33.0 2020-08-14 13:23:32
Enter ".help" for usage hints.
sqlite> .schema
CREATE TABLE IF NOT EXISTS "__EFMigrationsHistory" (
  "MigrationId" TEXT NOT NULL CONSTRAINT "PK__EFMigrationsHistory" PRIMARY KEY,
  "ProductVersion" TEXT NOT NULL
);
CREATE TABLE IF NOT EXISTS "Offers" (
  "Id" BLOB NOT NULL CONSTRAINT "PK_Offers" PRIMARY KEY,
  "ShipmentNumber" TEXT NULL,
  "Price" TEXT NOT NULL,
  "Currency" TEXT NULL,
  "VehicleSize" TEXT NULL,
  "VehicleBuildUp" TEXT NULL,
  "PickupLocationName" TEXT NULL,
  "PickupDateTime" INTEGER NOT NULL,
  "DeliveryLocationName" TEXT NULL,
  "DeliveryDateTime" INTEGER NOT NULL,
  "LoadDetail1" TEXT NULL,
  "LoadDetail2" TEXT NULL,
  "LoadDetail3" TEXT NULL
);
sqlite>
```

I hitting a lot of error when trying to work with `byte[]` with **Entity Framework and Linq**. Which also had spent some time to figure out the work around. However, still failed. Since the requirement is using **EF**, so...when trying to do **code-first approach**, it become **Text** data type (see screen-shot below). With Text data type, everything is works as expected.

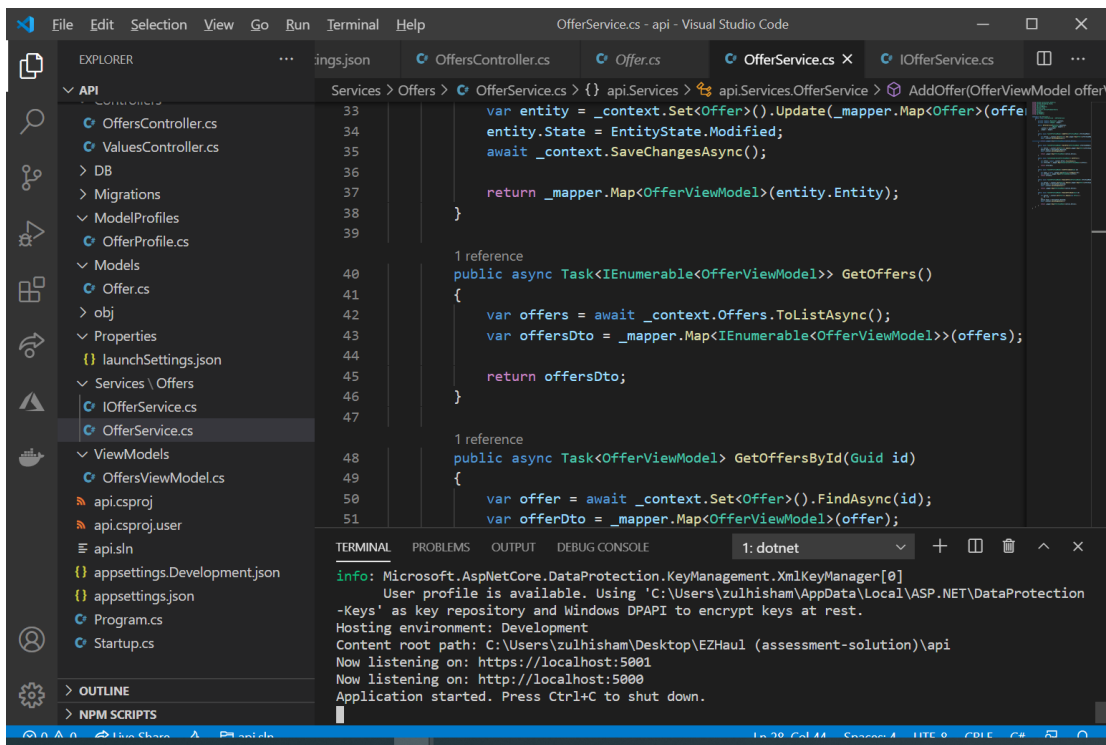
```
Command Prompt - "C:\Program Files (x86)\sqlite\sqlite3" database.db
C:\Users\zulhisham\Desktop\EZHaul (assessment-solution)\api\DB>"C:\Program Files (x86)\sqlite\sqlite3" database.db
SQLite version 3.33.0 2020-08-14 13:23:32
Enter ".help" for usage hints.
sqlite> .schema
CREATE TABLE IF NOT EXISTS "Offers" (
  "Id" TEXT NOT NULL CONSTRAINT "PK_Offers" PRIMARY KEY,
  "ShipmentNumber" TEXT NULL,
  "Price" TEXT NOT NULL,
  "Currency" TEXT NULL,
  "VehicleSize" TEXT NULL,
  "VehicleBuildUp" TEXT NULL,
  "PickupLocationName" TEXT NULL,
  "PickupDateTime" INTEGER NOT NULL,
  "DeliveryLocationName" TEXT NULL,
  "DeliveryDateTime" INTEGER NOT NULL,
  "LoadDetail1" TEXT NULL,
  "LoadDetail2" TEXT NULL,
  "LoadDetail3" TEXT NULL
);
sqlite> _
```

- c. I also try to use **Auto-Mapper** and **Dependencies Injection** in order to make the code cleaner and easy to maintain.

```
1 reference
40 public async Task<IEnumerable<OfferViewModel>> GetOffers()
41 {
42     var offers = await _context.Offers.ToListAsync();
43     var offersDto = _mapper.Map<IEnumerable<OfferViewModel>>(offers);
44
45     return offersDto;
46 }
47
```

## To Test the application...

1. Run the .Net Core Web API. You should notice it is listening to port <https://localhost:5001> and <http://localhost:5000>



The screenshot shows the Visual Studio Code editor with the `OfferService.cs` file open. The file contains the following code:

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    var entity = _context.Set<Offer>().Update(_mapper.Map<Offer>(offer));
    entity.State = EntityState.Modified;
    await _context.SaveChangesAsync();

    return _mapper.Map<OfferViewModel>(entity.Entity);
}

1 reference
public async Task<IEnumerable<OfferViewModel>> GetOffers()
{
    var offers = await _context.Offers.ToListAsync();
    var offersDto = _mapper.Map<IEnumerable<OfferViewModel>>(offers);

    return offersDto;
}

1 reference
public async Task<OfferViewModel> GetOffersById(Guid id)
{
    var offer = await _context.Set<Offer>().FindAsync(id);
    var offerDto = _mapper.Map<OfferViewModel>(offer);
}

```

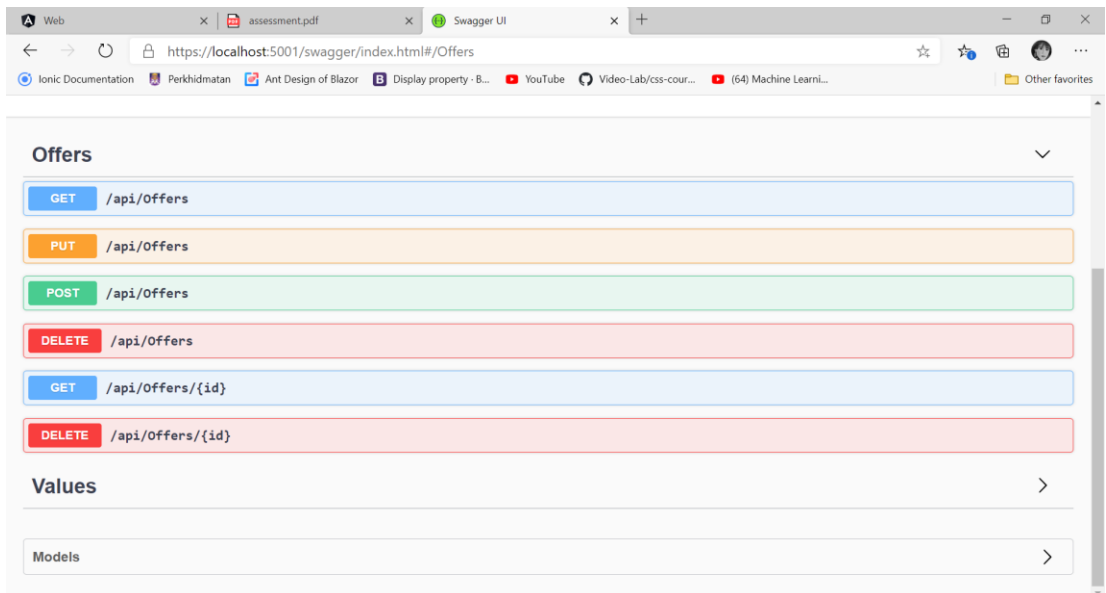
The terminal output shows the following information:

```

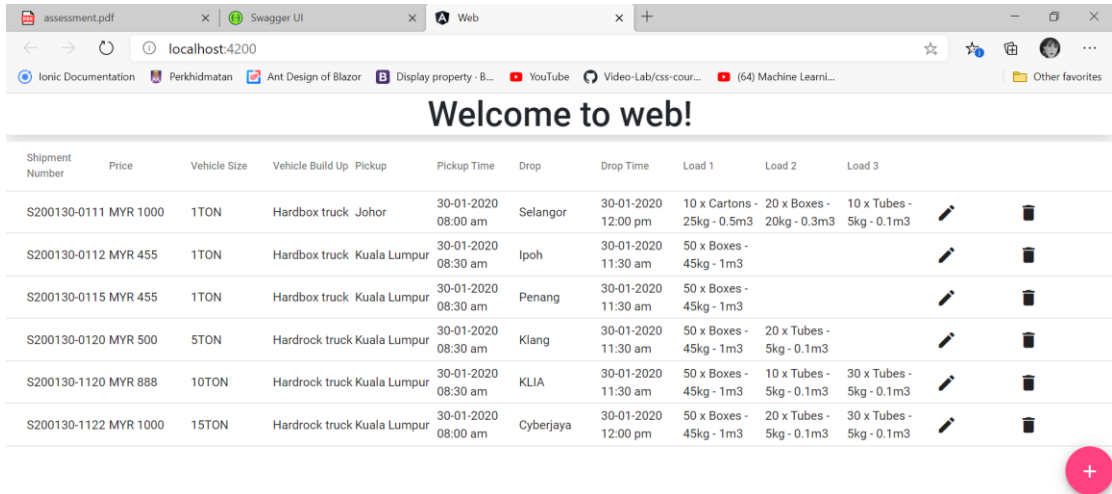
info: Microsoft.AspNetCore.DataProtection.KeyManagement.XmlKeyManager[0]
      User profile is available. Using 'C:\Users\zulhisham\AppData\Local\ASP.NET\DataProtection
      -Keys' as key repository and Windows DPAPI to encrypt keys at rest.
Hosting environment: Development
Content root path: C:\Users\zulhisham\Desktop\EZHaul (assessment-solution)\api
Now listening on: https://localhost:5001
Now listening on: http://localhost:5000
Application started. Press Ctrl+C to shut down.

```

2. If the Web API is up and run, you should be able to see the **swagger page** <https://localhost:5001/swagger>.



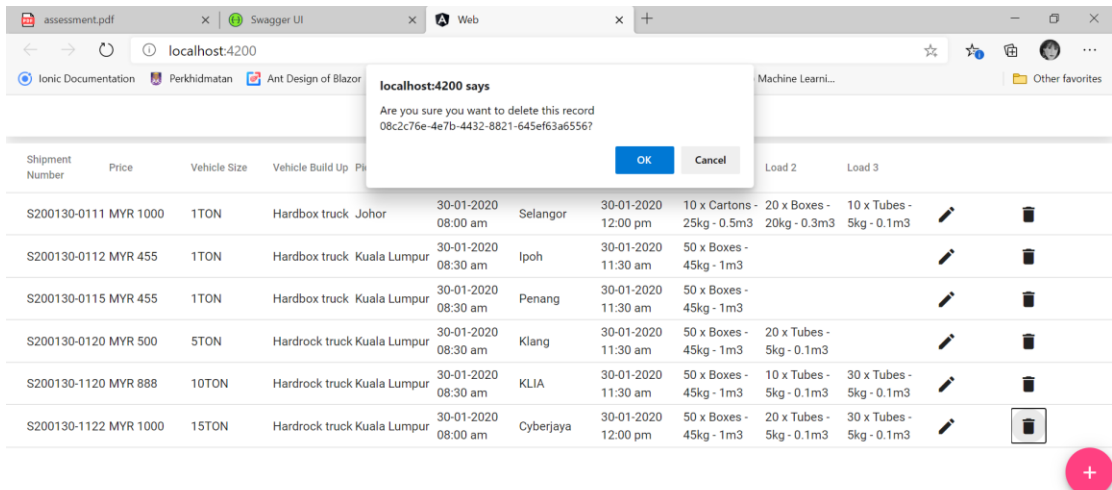
- Run the client UI – Angular project – By typing the command ‘**ng server --open**’. If the project is built successfully then it will open the browser.



The screenshot shows a web browser window with the URL `localhost:4200`. The page displays a 'Welcome to web!' message and a table of shipment data. The table has columns for Shipment Number, Price, Vehicle Size, Vehicle Build Up, Pickup, Pickup Time, Drop, Drop Time, Load 1, Load 2, and Load 3. There are also edit and delete icons for each row.

Shipment Number	Price	Vehicle Size	Vehicle Build Up	Pickup	Pickup Time	Drop	Drop Time	Load 1	Load 2	Load 3
S200130-0111	MYR 1000	1TON	Hardbox truck	Johor	30-01-2020 08:00 am	Selangor	30-01-2020 12:00 pm	10 x Cartons - 25kg - 0.5m3	20 x Boxes - 20kg - 0.3m3	10 x Tubes - 5kg - 0.1m3
S200130-0112	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Ipoh	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3		
S200130-0115	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Penang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3		
S200130-0120	MYR 500	5TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	Klang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3	
S200130-1120	MYR 888	10TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	KLIA	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	10 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3
S200130-1122	MYR 1000	15TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:00 am	Cyberjaya	30-01-2020 12:00 pm	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3

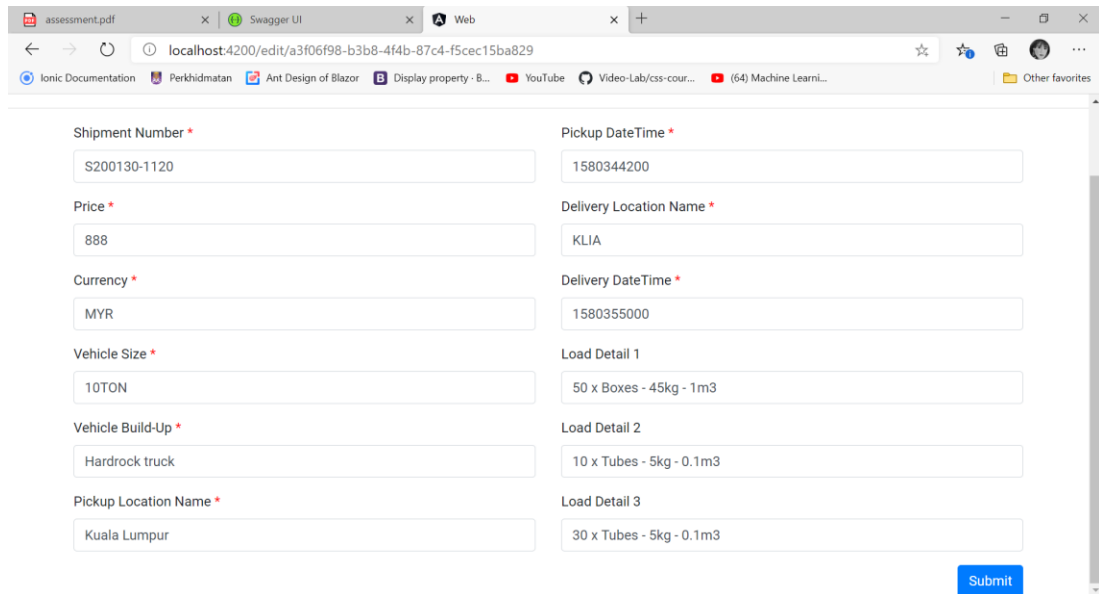
- To delete a record, press the ‘**recycle bin**’ icon. A message will pop-up for reconfirmation.



The screenshot shows the same web browser window as before, but with a confirmation dialog box open. The dialog box says 'localhost:4200 says' and 'Are you sure you want to delete this record 08c2c76e-4e7b-4432-8821-645ef63a6556?'. There are 'OK' and 'Cancel' buttons. The table below the dialog box is the same as in the previous screenshot.

Shipment Number	Price	Vehicle Size	Vehicle Build Up	Pickup	Pickup Time	Drop	Drop Time	Load 1	Load 2	Load 3
S200130-0111	MYR 1000	1TON	Hardbox truck	Johor	30-01-2020 08:00 am	Selangor	30-01-2020 12:00 pm	10 x Cartons - 25kg - 0.5m3	20 x Boxes - 20kg - 0.3m3	10 x Tubes - 5kg - 0.1m3
S200130-0112	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Ipoh	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3		
S200130-0115	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Penang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3		
S200130-0120	MYR 500	5TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	Klang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3	
S200130-1120	MYR 888	10TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	KLIA	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	10 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3
S200130-1122	MYR 1000	15TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:00 am	Cyberjaya	30-01-2020 12:00 pm	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3

- To edit a record, simply click on the **'edit-pen'** icon. The system will redirect the user to edit page.

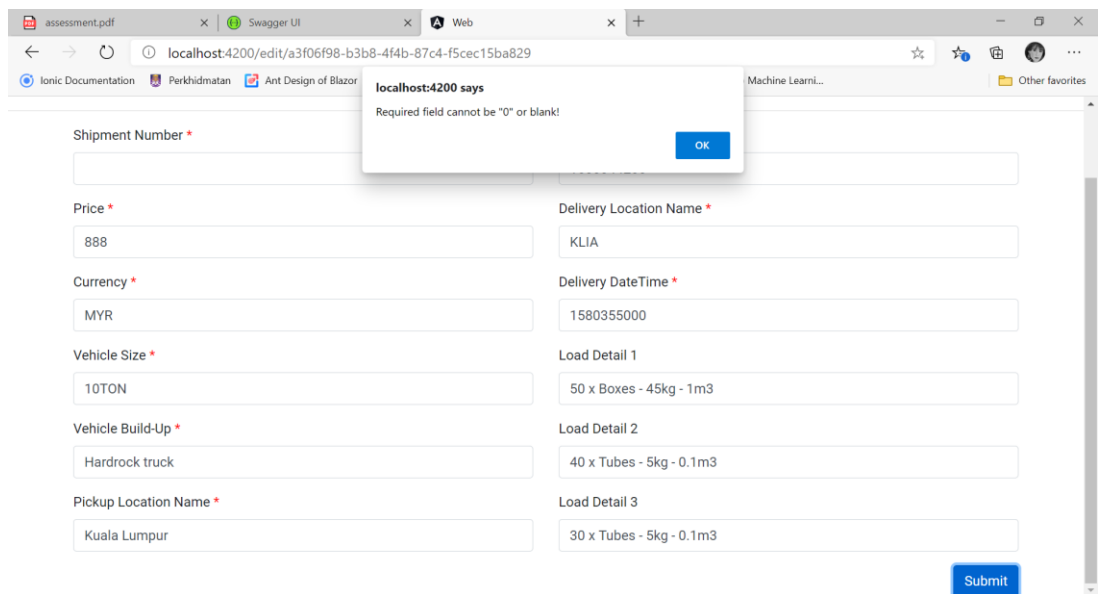


A screenshot of a web browser showing the 'edit' page for a record. The browser tabs include 'assessment.pdf', 'Swagger UI', and 'Web'. The address bar shows 'localhost:4200/edit/a3f06f98-b3b8-4f4b-87c4-f5cec15ba829'. The form contains the following fields:

Field	Value
Shipment Number *	S200130-1120
Pickup DateTime *	1580344200
Price *	888
Delivery Location Name *	KLIA
Currency *	MYR
Delivery DateTime *	1580355000
Vehicle Size *	10TON
Load Detail 1	50 x Boxes - 45kg - 1m3
Vehicle Build-Up *	Hardrock truck
Load Detail 2	10 x Tubes - 5kg - 0.1m3
Pickup Location Name *	Kuala Lumpur
Load Detail 3	30 x Tubes - 5kg - 0.1m3

A blue 'Submit' button is located at the bottom right of the form.

Click on the **'Submit'** button to save changes. Note that, required field are need to be filled, otherwise an error will pop-up.




A screenshot of the same web browser showing the 'edit' page, but with an error message displayed. The error message is a white box with a blue border, containing the text: 'localhost:4200 says Required field cannot be "0" or blank!'. The 'Shipment Number' field is empty, which is the cause of the error. The other fields remain the same as in the previous screenshot. The 'Submit' button is still visible at the bottom right.


- To create a new record, simple click on the pink color plus sign button.

assessment.pdf Swagger UI Web localhost:4200

Welcome to web!

Shipment Number	Price	Vehicle Size	Vehicle Build Up	Pickup	Pickup Time	Drop	Drop Time	Load 1	Load 2	Load 3		
S200130-0111	MYR 1000	1TON	Hardbox truck	Johor	30-01-2020 08:00 am	Selangor	30-01-2020 12:00 pm	10 x Cartons - 25kg - 0.5m3	20 x Boxes - 20kg - 0.3m3	10 x Tubes - 5kg - 0.1m3		
S200130-0112	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Ipoh	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3				
S200130-0115	MYR 455	1TON	Hardbox truck	Kuala Lumpur	30-01-2020 08:30 am	Penang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3				
S200130-0120	MYR 500	5TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	Klang	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3			
S200130-1120	MYR 888	10TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:30 am	KLIA	30-01-2020 11:30 am	50 x Boxes - 45kg - 1m3	40 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3		
S200130-1122	MYR 1000	15TON	Hardrock truck	Kuala Lumpur	30-01-2020 08:00 am	Cyberjaya	30-01-2020 12:00 pm	50 x Boxes - 45kg - 1m3	20 x Tubes - 5kg - 0.1m3	30 x Tubes - 5kg - 0.1m3		





The system will redirect the user to the 'Create New Offer' page.

assessment.pdf Swagger UI Web localhost:4200/new

Welcome to web!

### New Offer

Shipment Number *	Pickup DateTime *
<input type="text"/>	<input type="text"/>
Price *	Delivery Location Name *
<input type="text"/>	<input type="text"/>
Currency *	Delivery DateTime *
<input type="text"/>	<input type="text"/>
Vehicle Size *	Load Detail 1
<input type="text"/>	<input type="text"/>
Vehicle Build-Up *	Load Detail 2
<input type="text"/>	<input type="text"/>
Pickup Location Name *	Load Detail 3
<input type="text"/>	<input type="text"/>

Similar to edit function, all the required field are need to be filled, otherwise an error will pop-up.