# Documentation - Solita Dev Academy Assessment

## Data Import

> ℹ️ Prerequisites: Python3, MYSQL
>
> - Copy trip details CSV files into `solita-assignment/solita-assignment-backend/data` folder.
> - Copy stations detail CSV files into `solita-assignment/solita-assignment-backend/station_data` folder.
> - Both the load_data.py and load_station_data.py has database configs that needs to be updated with database credentials. The developer must replace root/root with relevant credentials.

Data import comes under 2 major steps.

1. Importing trip details CSV files. For this, find the `load_data.py` file inside `solita-assignment/solita-assignment-backend` and execute the python file.

```
1  python3 load_data.py
```

2. Importing station details CSV file. For this, find the `load_station_data.py` file inside `solita-assignment/solita-assignment-backend` and execute the python file.

```
1  python3 load_station_data.py
```

> ⚠️ Risks
>
> If the system python buffer length and packet size is not enough it will throw following error. This is due to reading very large CSV files.

> ❌ mysql.connector.errors.OperationalError: 1153 (08S01): Got a packet bigger than 'max_allowed_packet' bytes

> 🗐 Solution:
>
> Increase the buffer size and packet size below with following commands in the terminal.
>
> 1. `mysql -u root -p`
> 2. `set global net_buffer_length=1000000;`
> 3. `set global max_allowed_packet=1000000000;`
>
> The above commands will increase both the buffer size and allowed packet size. Then re-try running 2 python files.

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## Back End

> ℹ️ Prerequisites: Node installation (Preferred version: v18.16.1), npm instllation (Preferred version: 9.5.1)
>
> - The developer must replace username/password of database user in index.js file with relevant credentials of database user.

Navigate to `solita-assignment/solita-assignment-backend` and open up a terminal.

run `npm install`

The above command will install all the node dependancies required to run the project.

Then execute the following command in the terminal

```
1
```

This will start up the node express server in localhost under port 4000.

## Front End

> ℹ Prerequisites: Node installation (Preferred version: v18.16.1), npm instllation (Preferred version: 9.5.1)

Navigate to `solita-assignment/solita-assignment-frontend` and open up a terminal.

run `npm install`

The above command will install all the node dependancies required to run the project.

Then execute the following command in the terminal

```
1  npm start
```

This will startup the React server in localhost under port 3000.

Visit http://localhost:3000 to view the web application.

## Product Review and Functional requirements

### Data Import

> ℹ Python3 was used for the data imports to support high volume of data with efficient transmission speeds.
>
> - pandas library was used to read csv files.
> - mysql connector was used to connect to mysql database.

| Requirement | Implementation | Status |
|---|---|---|
| Import data from the CSV files to a database or in-memory storage | The data is imported to `helsinki_city_bike_db`<br><br>• trips table - Data relevant to trips are imported to trips table.<br>• stations table - Data relevant to stations are imported to stations table. | Done |
| Validate data before importing | If the fields are empty, they are replaced with default values (distance and duration with 0). | Done |
| Don't import journeys that lasted for less than ten seconds | The trips which lasted lower than 10s are neglected when inserting records to the database. | Done |
| Don't import journeys that covered distances shorter than 10 meters | The trips which covered distance lower than 10m are neglected when inserting records to the database. | Done |

### Front End

#### Journey list view

- Journey list page was implemented with a table which includes **pagination** and allows the user to select **number of records which the table display at a time**.
- The table shows departure station, return station, distance (in Kms) and duration (in minutes).
- The pagination will allow the users to navigate through the records from page to page depend on the record count user selected to view at a time (25: default, 50, 100).

## Trips

| ID | Departure Station | Return Station | Distance (km) | Duration (min) |
|----|------------------|----------------|---------------|----------------|
| 1 | Tenholantie | Esterinportti | 1.85 | 6.78 |
| 2 | Erottajan aukio | Hakaniemi (M) | 1.60 | 6.75 |
| 3 | Pasilan asema | Tenholantie | 2.28 | 8.37 |
| 4 | Ympyrätalo | Unioninkatu | 4.01 | 22.77 |
| 5 | Petter Wetterin tie | Gunillantie | 3.56 | 14.62 |
| 6 | Tollinpolku | Kauppakeskus Kaari | 4.34 | 25.43 |
| 7 | Diakoniapuisto | Perämiehenkatu | 4.26 | 16.80 |
| 8 | Puotilan ostoskeskus | Puotilantie | 0.86 | 5.03 |
| 9 | Eteläinen Hesperiankatu | Vilhonvuorenkatu | 4.63 | 23.08 |
| 10 | Tollinpolku | Tollinpolku | 1.64 | 12.37 |
| 11 | Cygnaeuksenkatu | Leppäsuonaukio | 0.72 | 2.92 |
| 12 | Mankkaanaukio | Tontunmäentie | 3.18 | 15.15 |
| 13 | Malminkartanon asema | Tollinpolku | 0.35 | 1.50 |
| 14 | Heikkilänaukio | Itälahdenkatu | 0.47 | 3.92 |
| 15 | Westendinasema | Koivusaari (M) | 2.97 | 12.67 |
| 16 | Agronominkatu | Agronominkatu | 8.47 | 48.53 |
| 17 | Agronominkatu | Agronominkatu | 8.77 | 48.85 |

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List Trips View

**Single Journey view**

Clicking on one of the above records will take you to the single journey view. This shows details of a single trip.

&#9925; Helsinki City Bike App                                    TRIPS     STATIONS

## Trip Details
**Start Date:** 2021-06-30T23:59:07          **End Date:** 2021-07-01T00:16:00
**Start Place:** Diakoniapuisto               **Destination:** Perämiehenkatu
**Distance Travelled:** 4.26 km               **Spent Time:** 16.80 minutes

Single Trip View

**Station list**

This screen uses the same re-usable table component. This allows users to see the list of stations.

The same pagination is available here with the ability to choose number of records visible at a time.



| ID | Station Name | Address |
|----|--------------|---------|
| 501 | Hanasaari | Hanaholmsstranden 1 |
| 503 | Keilalahti | Kägelviksvägen 2 |
| 505 | Westendinasema | Westendvägen 1 |
| 507 | Golfpolku | Golfstigen 3 |
| 509 | Revontulentie | Norrskensvägen 10 |
| 511 | Sateentie | Regnvägen 2 |
| 513 | Hakalehto | Havsvindsvägen 18 |
| 515 | Oravannahkatori | Gråskinnstorget 1 |
| 517 | Länsituuli | Västanvindsgränden 3 |
| 518 | Tuulimäki | Östanvindsgränden 11 |
| 519 | Tapionaukio | Tapioplatsen 9 |
| 521 | Kulttuuriaukio | Kulturplatsen 2 |
| 523 | Ahertajantie | Flitargränden 1 |
| 525 | Mäntyviita | Tallbysket 2 |
| 527 | Otsolahti | Björnviksvägen 18 |
| 529 | Keilaniemi (M) | Kägeluddsvägen 4 |
| 531 | Keilaranta | Kägelstranden 13 |

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Stations List View

**Single Station View**

Once the user click on one of the above records, the user is navigated into Station Single View. This view consists of details of a single station including Station name, address, ID, Number of departures, Number of Returns for the station.

## Station Details

**Station ID:** 513

**Station Address:** Havsvindsvägen 18

**Number of Returns:** 4648

**Station Name:** Hakalehto

**Number of Departures:** 4716