

Data Modelling Documentation

Link to schema: <https://app.quickdatabasediagrams.com/#/d/fWEwXP>

DB schema diagram for Moby Bikes - MySQL

Rentals

| Field | Description | Type | Default | Other |
|--------------|---|----------|---------|----------|
| Date | | datetime | | PK, FK |
| BikeID | Unique bike ID used for rent bike | int | | PK, FK |
| BatteryStart | int signed Battery status when rental started | int | | NULLABLE |
| BatteryEnd | Battery status when rental finished | int | | NULLABLE |
| Duration | Rental Duration = LastGPSTime - LastRentalStart | bigint | | NULLABLE |

Rentals_Coordinates

Rentals coordinates

| Field | Description | Type | Default | Other |
|-----------|---|---------------|---------|----------|
| _id | | int | | IDENTITY |
| Date | | datetime | | PK |
| BikeID | Unique bike ID used for rent bike | int | | PK |
| Latitude | Bike coordinates if bike is locked out of station | decimal(11,7) | | NULLABLE |
| Longitude | Bike coordinates if bike is locked out of station | decimal(11,7) | | NULLABLE |

Weather

| Field | Description | Type | Default | Other |
|-------------|--|--|---------|-------|
| Date | | datetime | | |
| TimeOfDay | Morning (from 7am to noon) Afternoon (from midday to 6pm) Evening (from 6pm to 10pm) Night (from 10pm to 5am) | ENUM(Morning, Afternoon, Evening, Night) | | |
| Temperature | in Celsius | double | | |
| WindSpeed | in Knots (kt) | double | | |
| Humidity | Relative humidity (%) | int | | |
| Rain | in millimetres (mm) | double | | |

| Field | Description | Type | Default | Other |
|-----------|--|---|---------|-------|
| RainLevel | no rain = 0 drizzle - 0.1~0.3 light rain - 0.3~0.5 moderate rain - 0.5~4 heavy rain - >4 | ENUM(no rain,drizzle,light rain,moderate rain,heavy rain) | | |

Day_Info

Date and time features

| Field | Description | Type | Default | Other |
|------------|--|-----------------------------------|---------|-------|
| Date | | DATE | | |
| DayOfWeek | Monday = 0 ~ Sunday = 6 | ENUM(0,1,2,3, | | |
| Holiday | Irish National Bank Holidays | boolean | | |
| WorkingDay | Monday to Friday AND not Bank Holiday | boolean | | |
| Season | Spring Summer Autumn Winter | ENUM(Spring,Summer,Autumn,Winter) | | |

rawRentals

Table with all rentals before processing

| Field | Description | Type | Default | Other |
|-----------------|--|---------------|---------|----------|
| LastRentalStart | Last time bike was rented | datetime | | PK |
| BikeID | Use for rent bike | int | | PK |
| Battery | Bike max distance in km | int | | NULLABLE |
| LastGPSTime | Last time bike connected with GPS | datetime | | |
| Latitude | Bike coordinates if bike is locked out of station | decimal(11,7) | | NULLABLE |
| Longitude | Bike coordinates if bike is locked out of station | decimal(11,7) | | NULLABLE |

Log_Events

Table Log events to track processing errors

| Field | Description | Type | Default | Other |
|-------------------|---|----------|---------|-----------------|
| _id | | int | | PK, IDENTITY |
| Date | | datetime | | |
| Rentals_ToProcess | Number of Rentals to be processed | int | | NULLABLE |
| Rentals_Processed | Total Rentals which were already processed | int | | NULLABLE |
| Errors | Number of Rentals failed to be processed | int | | NULLABLE |

