# **Metadata for Bike Sharing Dataset**

## **1. Users Table**

**Description**: Contains information about bike-sharing users, including demographics and subscription details.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **User\_ID** | INT (PK) | Unique identifier for each user. |
| **Age** | INT | Age of the user. Ranges from 18 to 65. |
| **Gender** | VARCHAR | User's gender: "Male", "Female", or "Other". |
| **Subscription\_Type** | VARCHAR | Type of subscription: "Casual", "Monthly", "Yearly". |
| **Signup\_Date** | DATE | Date when the user signed up for the service. |
| **City** | VARCHAR | City where the user primarily rides. |

**Relationships**:

* User\_ID links to **Trips Table**, **Revenue Table**.

## **2. Stations Table**

**Description**: Contains data on bike-sharing stations, including location and capacity details.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **Station\_ID** | INT (PK) | Unique identifier for each bike station. |
| **Station\_Name** | VARCHAR | Human-readable station name. |
| **Latitude** | FLOAT | Latitude coordinate of the station. |
| **Longitude** | FLOAT | Longitude coordinate of the station. |
| **City** | VARCHAR | City where the station is located. |
| **Bike\_Capacity** | INT | Maximum number of bikes the station can hold. |
| **Total\_Bikes\_Available** | INT | Current count of bikes available at the station. |

**Relationships**:

* Station\_ID links to **Trips Table** (Start\_Station\_ID, End\_Station\_ID).

## **3. Bikes Table**

**Description**: Tracks information about each bike in the system, including type and maintenance history.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **Bike\_ID** | INT (PK) | Unique identifier for each bike. |
| **Bike\_Type** | VARCHAR | Type of bike: "Standard" or "Electric". |
| **Purchase\_Date** | DATE | Date the bike was acquired. |
| **Last\_Maintenance\_Date** | DATE | Most recent maintenance date for the bike. |

**Relationships**:

* Bike\_ID links to **Trips Table**, **Maintenance Table**.

## **4. Trips Table**

**Description**: Tracks individual bike trips, including start and end locations, duration, and distance.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **Trip\_ID** | INT (PK) | Unique trip identifier. |
| **User\_ID** | INT (FK) | User who took the trip (links to Users Table). |
| **Bike\_ID** | INT (FK) | Bike used for the trip (links to Bikes Table). |
| **Start\_Station\_ID** | INT (FK) | Starting station (links to Stations Table). |
| **End\_Station\_ID** | INT (FK) | Ending station (links to Stations Table). |
| **Start\_Time** | DATETIME | Timestamp when the trip started. |
| **End\_Time** | DATETIME | Timestamp when the trip ended. |
| **Trip\_Duration\_Min** | INT | Duration of the trip in minutes. |
| **Distance\_KM** | FLOAT | Distance covered in the trip (in kilometers). |
| **Ride\_Type** | VARCHAR | Type of ride: "Casual", "Monthly", or "Yearly". |

**Relationships**:

* User\_ID links to **Users Table**.
* Bike\_ID links to **Bikes Table**.
* Start\_Station\_ID and End\_Station\_ID link to **Stations Table**.

## **5. Weather Table**

**Description**: Stores weather conditions at different times of the day in various cities.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **City** | VARCHAR | City where weather data was recorded. |
| **Date** | DATETIME | Date and hour of the weather observation. |
| **Temperature\_C** | FLOAT | Temperature in Celsius. |
| **Rainfall\_MM** | FLOAT | Rainfall amount in millimeters. |
| **Wind\_Speed\_KMH** | FLOAT | Wind speed in kilometers per hour. |
| **Humidity\_PCT** | FLOAT | Humidity percentage. |

**Relationships**:

* City links to **Trips Table** (indirectly via user city).
* Used for **seasonal trends and demand analysis**.

## **6. Maintenance Table**

**Description**: Stores records of bike maintenance, including issues reported and downtime.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **Bike\_ID** | INT (FK) | Bike that underwent maintenance (links to Bikes Table). |
| **Maintenance\_Date** | DATE | Date the bike was serviced. |
| **Issue\_Reported** | VARCHAR | Type of issue: "Flat Tire", "Chain Issue", "Brake Issue", "Battery Issue". |
| **Downtime\_Hours** | INT | Duration (in hours) the bike was unavailable due to repairs. |

**Relationships**:

* Bike\_ID links to **Bikes Table**.
* Used for **predictive maintenance analysis**.

## **7. Revenue Table**

**Description**: Contains financial transactions, including ride fares, subscription payments, and fines.

| **Column Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **User\_ID** | INT (FK) | User who made the payment (links to Users Table). |
| **Date** | DATE | Date of payment. |
| **Payment\_Type** | VARCHAR | "Subscription" or "Pay-per-ride". |
| **Total\_Fare** | FLOAT | Amount paid for the ride or subscription. |
| **Fines** | FLOAT | Fine amount for late bike returns or damages. |

**Relationships**:

* User\_ID links to **Users Table**.
* Used for **revenue segmentation and churn analysis**.