Data Dictionary for Bike-Rental Database Management Systems (DBMS)

CUSTOMER-TABLE

Field_Name	Data_Type	Required	Key	Description
Customer_ID	INT UNSIGNED	Yes	PK	Auto-incrementing primary key and a unique identifier for each customer.
National_ID Card	VARCHAR(20)	Yes	Unique	Unique national identification number.
First_Name	VARCHAR(50)	Yes		Customer's first name.
Last_Name	VARCHAR(50)	Yes		Customer's last name.
Email_Address	VARCHAR(100)	Yes	Unique	Customer's Unique accounts (Email Address) identifier.
Phone_Number	VARCHAR(20)	Yes		Customer's Phone Number
Date_Of_Birth	DATE	Yes		Customer's Date Of Birth
Registration_Date	DATETIME	Yes		The date and time the customer registered.
Password	CHAR(60)	Yes		Stores the secure hash of the customer's password

RENTAL-TABLE

Field_Name	Data_Type	Required	Key	Description
Rental_ID	INT_UNSIGNED	Yes	PK	Auto-incrementing primary key for the rental transaction & a unique identifier for each rental Transaction.
Customer_ID	INT_UNSIGNED	Yes	FK	The customer who initiated the rental and a Foreign key linking to the Customer table.
Bike_ID	INT_UNSIGNED	Yes	FK	The bike that was rented with a Foreign key linking to the Bike table.
Rental_Start	DATETIME	Yes		The date and time the rental period began.
Rental_End	DATETIME	Yes		The date and time the rental period ended.
Start_Location_ID	INT_UNSIGNED	Yes	FK	The location where the rental started.
End_Location_ID	INT_UNSIGNED	Yes	FK	The location where the rental Ended.
Total_Cost	DECIMAL(10, 2)	Yes		The total calculated cost of the rental.
Payment_Status	ENUM ("Pending", "P	Yes		Indicates whether the payment is completed, still pending or failed. (e.g., "Paid," "Pending," "Failed")
Rental_Status	ENUM ("Pending", "P	Yes		Tracks the life cycle state of a rental, separate from the payment status.

BIKE-TABLE

Field_Name	Data_Type	Required	Key	Description
Bike_ID	INT_UNSIGNED	Yes	PK	Auto-Incrementing primary key for the bike.
Bike_Serial_Number	VARCHAR(50)	Yes	Unique	The unique manufacturer-assigned serial number for each bike.
Model	VARCHAR(50)	No		The bike's model name.
Bike_Type	VARCHAR(30)	Yes		The type of bike (e.g., "Mountain", "Road", "Electric")
Current_Status	ENUM "Available", "R	Yes		The current status & Availability of the bike. ENUM is used to restrict values to a predefined list.
Last_Maintenance_Date	DATE	No		The date of the last maintenance performed on the bike.
Rental_Rate_Per_Minute	DECIMAL(5, 2)	Yes		The cost to rent the bike per minute. DECIMAL is used for precise monetary values.
Location_ID	INT_UNSIGNED	Yes	FK	The current location of the bike, referencing the location entity with a Foreign key linking to the Location table.

STAFF-TABLE

Field_Name	Data_Type	Required	Key	Description
Staff_ID	INT_UNSIGNED	Yes	PK	Auto-Incrementing primary key for staff. A unique identifier for each staff member.
National_ID	VARCHAR(20)	Yes	Unique	Staff member's unique national identification number.
First_Name	VARCHAR(50)	Yes		Staff member's first name.
Last_Name	VARCHAR(50)	Yes		Staff member's last name.
Email	VARCHAR(100)	Yes	Unique	Staff member's unique email address.
Phone_Number	VARCHAR(20)	Yes		Staff member's phone number.
Role	ENUM ("Staff", "Adm	Yes		The job role of the staff member.
Date_Hired	DATE	Yes		The date the staff member was hired.
Location_ID	FK, INT	Yes		The primary location where the staff member works.

PAYMENT-TABLE

Field_Name	Data_Type	Required	Key	Description
Payment_ID	INT_UNSIGNED	Yes	PK	Auto-Incrementing primary key for the payment, A unique identifier for each payment transaction.
Rental_ID	INT_UNSIGNED	Yes	FK	Foreign key linking to the Rental table. The rental transaction this payment corresponds to.
Payment_Date	DATETIME	Yes		The date and time the payment was made.
Amount	DECIMAL(10, 2)	Yes		The amount of the payment. DECIMAL is used for precision.
Payment_Method	VARCHAR(50)	Yes		The method of payment (e.g., "Credit Card", "Mobile Money")
Transaction_ID	VARCHAR(100)	Yes	Unique	The unique transaction ID from the payment processor.

LOCATION-TABLE

Field_Name	Data_Type	Required	Key	Description
Location_ID	INT_UNSIGNED	Yes	PK	A unique identifier for each rental station and auto-incrementing primary key for each location.
Location_Name	VARCHAR(100)	Yes		The name of the location.
Address	VARCHAR(255)	Yes		The physical address of the location.
City	VARCHAR(50)	Yes		The city where the location is.
Longitude	DECIMAL(9, 6)	Yes		The geographical longitude of the location.
Capacity	INT_UNSIGNED	No		The maximum number of bikes the location can hold.

MAINTENANCE-TABLE

Field_Name	Data_Type	Required	Key	Description
Maintenance/Log_ID	INT_UNSIGNED	Yes	PK	Auto-incrementing primary key for the maintenance record. A unique identifier for each maintenance entry.
Bike_ID	INT_UNSIGNED	Yes	FK	Foreign key linking to the Bike table, showing the bike that was serviced.
Staff_ID	INT_UNSIGNED	Yes	FK	Foreign key linking to the Staff table. The staff member who performed the maintenance.
Maintenance_Date	DATETIME	Yes		The date and time the maintenance was performed.
Description	TEXT	Yes		A detailed description of the maintenance performed.
Cost	DECIMAL (10, 2)	Yes		The cost associated with the maintenance.