

Cairo University
CHS – Team 1
Faculty of Engineering
Computer Engineering Department
CMPN202

Introduction to Database Systems

Biker's Code Database System

ER-Diagram Report

Team Number: 1

Team Members:

Amr Hesham Afifi 1162377

Kareem Abdelhameed Zaghw 1162318

Mostafa Hazem Abdelghafaaar 1162398

Seifeldin Ahmed Elsehely 1162302

Contact Info: mostafahazem1998@gmail.com

Problem definition:

Our project concerns the implementation of a database for a motorcycle company called Biker's Code. The company deals in selling biker's accessories, spare parts, and motorcycles.

Biker's Code implements a membership system where each customer receives a unique ID after their first purchase. This ID is then used to monitor their purchases in order to record their accumulated points which can later be redeemed for discounts and special offers. Each user can either purchase a spare part, accessory or motorcycle from a certain branch. Each branch has an employee that works in the supplies department and is in charge of issuing orders to suppliers once the stock of a certain item falls to zero in all available branches. The employees in the supplies department then coordinate their orders to the suppliers and request a single shipment at the end of every quarter.

List of Users and Privileges:

1. Branch workers

- Check branch accessories stock
- Check branch motorcycle stock
- Check branch spare parts stock
- Get details on incoming shipments
- Edit members' purchases
- Decrease member points to add discount
- Request new stock
- Get purchase history of members

2. Supplies department

- Order new stock from suppliers
- Manage shipments
- Distribute stock to branches
- View Stock of branches
- Add new suppliers
- Remove supplier

3. HR department

- Add employees
- Remove Employees
- View salaries of employees
- View working hours of employees
- Change salaries of employees
- Change employee departments

List of entities:

Customer: The customer purchases from three types of merchandise: accessories, motorcycles, and spare parts. The more a customer purchases from Biker's Code, the more points he gains. These points can later be redeemed for discounts.

Accessories: These are miscellaneous things a biker may need like helmets, gloves, knee pads, etc.

Motorcycle: This is the main product that Biker's Code sells. There can also be several types of motorcycles including dirt bikes, scooters, cruisers, etc.

Spare Parts: These can be purchased by customers for maintenance of their motorcycles. Spare parts can also have a varying level of quality and wear and tear depending on whether each spare part is used or new.

Branch: The branch is responsible for storing and selling the accessories, motorcycles and spare parts.

Suppliers: The suppliers send shipments of necessary items when their stock has fallen to zero in all branches.

Shipments: Each shipment contains the required items that are being sent from the suppliers to the branches.

Employee: Each employee works in a certain department within a specific branch and carries out his responsibilities within that branch.

Department: There are several types of departments such as managerial, accounting, sales, etc. Employees within a certain department have specific responsibilities. For example, employees that work in the supplies department are responsible for ordering items from suppliers.

List of Relationships:

Purchase: This is the relationship between a customer and the items he has purchased. Each purchase has a date.

Brand: This is between accessories, motorcycles, spare parts and their suppliers. The brand of each item defines which supplier it came from.

Has: This relationship defines the amount each branch has of a certain item whether it is a motorcycle, accessory, or spare part.

From: This specifies from which supplier each shipment was sent.

To: This shows which branch the shipment will be delivered to.

Contains: This specifies the items each shipment contains.

In: This is to specify the branch each department belongs to. For example, each branch has an accounting department, but each accounting department is unique in that it is in only one branch.

Belongs to: This specifies which motorcycle model each spare part belongs to.

Works for: This is the relationship that identifies which department each employee works in.

Manages: This is between a manager and the department he manages.

Assumptions:

1. No more than one branch in the same area
2. Branches must have accessories but not motorcycles or spare parts
3. The entire stock of an item is unique not each item in the stock
4. A department might or might not exist in multiple branches

