

P3: Final ERD

BLUEBIKE DATABASE MANAGEMENT SYSTEM

Changes

1. The Payment Methods has two new subtypes - Cards and Bank Account.
2. The "Membership" attribute is removed from the Customer entity.
3. The "Rent Duration" attribute is added to the Transaction entity since the cost depends on the duration of rent.
4. The relationship between Transaction and Rental entities is updated to one-to-one.
5. The "Bike ID" attribute is removed from Transaction Entity.
6. A primary key "Rental ID" is added in Rental Entity.
7. The "Bike List" attribute is removed from the Bike Model Entity.
8. The "Bike ID" is added as a foreign key in Accessory Entity.
9. A new relation is established between Employee and Maintenance Entities.
10. The derived attributes such as "Slots available" and "Duration" are removed from Docks and Rental Entities respectively.
11. The "Type {Helmet, Mirror}" and "Inventory" attributes are removed from Accessory Entity.
12. The attributes of "Bike Model" entity are updated with manufacturing details.
13. The "Role" attribute is updated with "Designation" in Employee entity.

Business Rule

To rent a bike, a customer must first register in the application by providing personal information and payment information. Our application accepts the following payment methods: debit/credit cards and bank accounts. There are various types of bikes made by various companies, but there is no expense difference in terms of renting. The expense of rent is determined by the duration of the lease, for example, if a customer rents a bike for 2 hours and rent charge is \$1/hour then customer pays \$2. Some bikes include accessories such as mirrors and carriers. The bikes must be picked up and returned at docks situated throughout the city of Boston when rented. These docks have varying bike capacities and are assigned to a BlueBike employee who is in charge of dock management. Customers can use the application to identify available bikes and available slots for dropping off their cycles at any dock. After renting a bike from an account, the user can view the bike's current location in the app. Employees perform routine maintenance checks on all bikes, and any damaged parts are repaired or replaced.

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