

CSE 5330 – PHASE 1

BIKE AND SCOOTER RENTAL SYSTEM

System Description:

Travel is an inevitable part of a student's life. But the means of transport available like Uber, Lyft, and other cab services are costly. To make travel easier for students, we have chosen to introduce a "Bike and Scooter rental service" on the UTA campus. So, our goal is to build and manage a database where students can rent out scooters and bikes economically. This system will have bikes and scooters available in 4 locations on-campus, namely the University Center, the Maverick Activity Center, the Central Library, and the Meadow Run apartments. The Students can rent out bikes and scooters from any of the bike spots in the above-mentioned locations on an hourly, daily, or weekly basis.

System Details:

- Check Student Id and year of graduation to verify if our customers are students.
- Set up flags to identify duplicate records.
- Limit only 1 bike or 1 scooter per user. But not more than one of each during the same period.
- Users can choose a pick-up and drop-off location, but the selected pickup location must also be the drop-off location.
- Set a time duration as to how long the customer wishes to rent out their bike. (Ex: Hourly, Daily, weekly).
- Penalty charges for late returns.
- Penalty charges for damaged vehicles.
- List out the various models of Scooters and Bikes that are available to rent.
- Bike/Scooter spots on the campus.
- Refund the amount accordingly with a penalty for early return (E.g.: If the booking was made for a week and the person wants to return it in 2 days).
- The vehicle picked up must be the same as the vehicle dropped.

Goals:

- Admin can retrieve revenue in a day/month/year period.
- Admin can keep track of which vehicle is currently rented or missed.
- Admin can see which student is having a bike over the due date.
- Generate penalty reports for late returns and damaged vehicles.
- Admin can see how many or what types of bikes/scooters are available.
- Generate a report on which day of the week has the most rentals, and which day has the least.
- Demand analysis of different models of Bikes and Scooters.
- Admin can view the new users created each week.
- Admin can generate a report on the most preferred location for pick-up and drop-off vehicles.

Data Description:

Registration - Student Details

- The students have to register to use the bike and scooter services. All the essential details of the students are collected during this process.

- Every student must have a unique student id, phone number, and email address.

Data Captured:

- Student ID
- Student name
- Starting and ending year of the degree
- Undergraduate / Graduate
- Major
- Phone number
- Address
- Email
- Date of Birth
- Gender

Bike / Scooter Bookings

- Each booking will have a unique booking ID.
- The students can choose the desired model of the bikes and scooters based on their availability.
- Students can choose the pickup location and mention the duration for which they wish to rent the vehicle.
- Based on the duration chosen, the amount to be paid will be calculated.

Data captured:

- Booking ID
- Student ID
- Student name
- Pick-up Date and time
- Return Date and time
- Location ID
- Vehicle ID
- Vehicle model
- Vehicle type
- Availability
- Amount

Penalty

- When a student returns the vehicle late, charges will be added to his account based on the number of delayed days.
- When a student returns a vehicle in a damaged condition, a penalty will be added based on the severity of the damage.
 1. Scratches are considered minor damage.
 2. Missing parts or broken parts are considered major damage.

Data captured:

- Student ID
- Vehicle ID
- Booking ID
- Damages (minor, major)
- Pick-up date and time
- Return date and time
- Number of days overdue
- Penalty charges

Group 3

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