Food Wastage Management System

We are aware that a lot of food is thrown away in homes and restaurants, whether it be food that is left on a diner's plate or in the kitchen itself. Most of the food that isn't used in a restaurant or household is thrown out, but only a small percentage is recycled or donated. Wasting such a large quantity of food is a major problem as the proper quantity of food is not equally distributed to the people.

To overcome this issue, we need to reduce the amount of food we waste by changing the behavior of the people in houses, as well as the chefs at these restaurants, and finding better and smarter ways to divert the food to NGOs.

Here we are describing a sample database application as Food Wastage Management System. The system keeps track of users, delivery person, orders, and NGO.

The users which are individuals and restaurants can place the order which is to be donated to the NGO in the system. A particular user can add multiple orders for the donation of food.

A delivery person will collect the food from the user who wants to donate food. This delivery person will collect only 1 order from the user who is donating the food. This delivery person will deliver this food to a food receiver i.e. NGO which is nearby. The order will be delivered to the NGO which is nearest to the user (It will be decided by the zip code found in the address of the user) and the NGO will do the payment to the admin when received the order and keep track of the date and time of payment.

The delivery person will provide rating (1 to 5) to the user donating the food based on the quality of food which is donated.

Since it is a very complex system, we would be designing a small part of it. Hence, we have applied some limitations to the system.

- We have kept only two options for Payment. They are cards or cash.
- Our system is limited to 3 cities.
- The minimum quantity of food to be donated by the user must be at least 1lb.
- If the food donated is in liquid substance, then the weight will be converted to “lb” form.
- We assume that the delivery person will be delivering one order to an NGO from a particular user at a time.
- The maximum order capacity delivered by the delivery person to the NGO will be 20 lbs.

- We assume individuals and restaurants must donate a minimum 1 food order to become a user.
- We assume that there is only 1 NGO in one area (zip) of the city.

Data Requirements:

Users:

This database would capture basic details of users such as :-

- User ID
- Name
- Email
- Age
- Gender
- Phone
- Address
- Zip code
- Type (Individual / Restaurant)

Here, the users on the system can be considered as **Food Providers** who donate the food to the NGO.

Food To Be Donated:

The database will keep track of orders that are placed by the users by storing the following data:

- Item ID
- User ID
- Order Name
- Date of Order
- Time of Order
- Quantity Of Order
- Type of Food

The food donated by the user will contain details of the food, quantity of food donated and type of food.

Order :

The order consists of multiple food items, which can be in different quantities. The delivery person will pick up the order and deliver it to the assigned NGO.

- Order ID
- User ID
- NGO ID
- Food Donated ID

Delivery Persons:

The database will store details about the delivery person by keeping track of the following data:

- Delivery Person ID
- Delivery Person Name
- Delivery Person Phone
- Delivery Person Zip (assigned Zip Code)

The delivery person will take the order from the **Food Provider** and deliver it to the assigned NGO.

Delivery:

The database will store details of the order to be delivered by keeping track of the following data:

- Delivery Person ID
- Order ID
- User ID
- NGO Zip Code

Also, each delivery person can deliver multiple orders.

Payment:

The NGO can pay the commission of the food to the owner by 2 modes. It can be by cash or Card.

- Payment ID
- Order ID
- User ID
- Date & Time of payment
- Card Number
- CVC
- Expiry Date
- Card Holder Name

Ratings:

The ratings will be stored in a database to gain information on which user is donating the best quality food based on the number of stars.

- Rating ID
- User ID
- Delivery Person ID
- No of Ratings (1 to 5)
- Comments : Approved or Disapproved (Quality of food given by the delivery person whether the quality food is good enough to be donated to an NGO.)

Food Receiver:

The Food Receiver will be the NGO to which the food will be delivered by the delivery person and which will be provided to homeless or needy people.

- Food Receiver ID
- User ID
- Name
- Phone
- Email
- Street
- City
- Zip
- State

The Zip code field in this case will assist us in tracking the closest distance between the food provider and the food recipient.

Business Goals:

1. Owner will get information regarding which area of the city has the highest and lowest number of users donating food.
2. Which age group donates the most quantity of food ?
3. Identify which time of the day people donate the most. So, we can use this information and get more delivery persons available at that time.
4. Identify which day of the week people are donating the most.
5. We can maintain records of food providers who are donating more food to NGO, so that they can be awarded.
6. Which NGO is taking the largest quantity of food within the time period of the last 3 months and providing it to needy people?
7. Which delivery person among all is doing best work in the last 1 month with most deliveries and checking food qualities properly and should be awarded employee of the month.
8. Identify the city which gets the most number of food donors donating the food in the last 1 month so we can assign more delivery persons for that area.