



**Department of Computer Science and Engineering**

**PROJECT PROPOSAL**

**Project Title:**

*Food Waste Reduction and Donation Management System*

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| **Supervisor:** | **Md. Warid Bin Azad**  Adjunct Lecturer,  Department of CSE, IIUC. |

**Approval of the Supervisor**

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Md. Warid Bin Azad

Adjunct Lecturer,

Department of CSE, IIUC.

***Project Description:***

The “***Food Waste Reduction and Donation Management System”*** by “***WasteToWorth”*** is a database-driven solution designed to help grocery stores, restaurants, and other food businesses minimize food waste by tracking perishable inventory, monitoring expiration dates, and facilitating the donation of excess food to local charities and food banks. This system helps businesses keep an accurate record of their stock, detect items nearing expiration, and automatically notify partner charities about available food for donation.

With detailed analytics, the system generates reports on waste reduction, donation quantities, and cost savings, supporting organizations in making data-driven decisions to improve their sustainability practices. It also tracks and records the items donated, the recipient organizations, and timestamps, helping businesses manage inventory efficiently while contributing to social causes by redistributing surplus food.

***SQL Types:***

* **INSERT Query:** To add new food items into the inventory and record donations made to charities.
* **UPDATE Query:** To update stock levels or expiration dates of items when they are added or removed from the inventory.
* **DELETE Query:** To remove items from inventory once they have been donated or discarded due to expiration.
* **SELECT Query:** To retrieve data such as items close to expiration, current stock levels, or available items for donation.
* **ORDER BY Query:** To sort items by expiration date, allowing the system to prioritize donations based on items that are closest to expiring.
* **MIN:** Identify the item with the earliest expiration date for prioritizing donations.
* **MAX:** Check the longest expiration date among certain items, such as non-perishable goods.
* **COUNT Function:** To count the number of items close to expiration, the total items donated, or the number of different food categories available for donation.
* **SUM Function:** To calculate the total amount of donated items, either by quantity or weight, for reporting purposes.
* **AVG Function:** To find the average donation frequency or average time before expiration for donated items.
* **LIKE Operator:** To search for specific items by name or category within the inventory.
* **JOIN:** To combine data from inventory and charity tables, for instance, to match available items with charities that accept specific types of food.
* **UNION:** To merge data from multiple stores or locations, providing a centralized view of all inventory across different branches.
* **DISTINCT**: To retrieve unique food categories or donor organizations, which can be useful in categorizing food waste and donations.
* **EXISTS**: To verify if a specific food item or category is already in stock or has been added to a donation list.
* **CASE Statement**: To categorize items based on their expiry status, such as “Urgent Donation” or “Safe for Consumption.”
* **HAVING Clause**: To filter results based on aggregate data, such as showing only those categories with high quantities of near-expiring items.
* **LEFT JOIN**: To list all food items in stock along with any associated charity donation (even if not all items have been donated).
* **INNER JOIN**: To retrieve items that have been both donated and received by a charity, for tracking purposes.
* **GROUP BY**: To group food items by category or charity, useful in generating reports on donations per food type or organization.
* **ORDER BY ASC/DESC**: To order donations by the date or quantity, allowing for chronological records of food donations.