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Sabzi Mandi Management System

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FRUIT & VEGETABLE
MANAGEMENT SYSTEM

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EXECUTIVE SUMMARY

In Abbottabad, Pakistan, the collaboration, and management of data between customers, vendors, and supervisors (AC) in the local Sabzi Mandi (vegetable market) have been a major challenge. The existing system of issuing paper-based lists by the AC to vendors often leads to discrepancies, with vendors deviating from the approved list or making unauthorized changes, resulting in unexpected price inflation. Additionally, the lack of proper data storage and analytics hinders effective decision-making by the government.

To address these issues, we propose the development of a comprehensive Sabzi Mandi database system. This system will facilitate seamless collaboration and ensure transparency among all stakeholders. The system will include an administrative interface for the AC, allowing them to upload and manage the approved daily lists. Customers will have access to view the daily list, ensuring they have up-to-date information. Vendors will be provided with the list directly from the database, preventing unauthorized changes.

By implementing this database system, we aim to eliminate data discrepancies, prevent unauthorized modifications to the list, and enhance transparency in the pricing and availability of fruits and vegetables. The centralized database will enable efficient data storage and retrieval, reducing the chances of data loss and facilitating accurate analytics for informed decision-making by the government.

In conclusion, the Sabzi Mandi database system offers a comprehensive solution to the challenges faced in Abbottabad's Sabzi Mandi. By leveraging technology, stakeholders can collaborate effectively, ensuring adherence to approved lists, combating inflation, and enabling data-driven decision-making. This system will revolutionize the Sabzi Mandi operations, benefiting customers, vendors, and the overall economy.

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1. Introduction

The Sabzi Mandi Management System is a groundbreaking project designed to address collaboration and data management challenges in Abbottabad's Sabzi Mandi. By implementing a centralized database, the project aims to ensure transparency and prevent unauthorized modifications to the daily lists issued by the supervisors (AC). This digital system will empower customers to access the approved list while providing vendors with a secure and unalterable source of information, ultimately improving efficiency and trust within the Sabzi Mandi.

1.1 Relevance to Course Modules

The project is implemented by using the different concepts of database system. It is covering all the concepts of data modeling , including ERD diagram , normalization and creating database Schema.

1.2 Project Background

In Abbottabad, Pakistan, the collaboration, and management of data between customers, vendors, and supervisors (AC) in the local Sabzi Mandi (vegetable market) have been a major challenge. The existing system of issuing paper-based lists by the AC to vendors often leads to discrepancies, with vendors deviating from the approved list or making unauthorized changes, resulting in unexpected price inflation. Additionally, the lack of proper data storage and analytics hinder effective decision-making by the government.

To address these issues, we propose the development of a comprehensive Sabzi Mandi database system. This system will facilitate seamless collaboration and ensure transparency among all stakeholders. The system will include an administrative interface for the AC, allowing them to upload and manage the approved daily lists. Customers will have access to view the daily list, ensuring they have up-to-date information. Vendors will be provided with the list directly from the database, preventing unauthorized changes.

1.3 Literature Review

There are a lot of projects on the internet working on this project. But real-life implementation is not available.

2. Problem Definition

In Abbottabad, Pakistan, the collaboration, and management of data between customers, vendors, and supervisors (AC) in the local Sabzi Mandi (vegetable market) have been a major challenge. The existing system of issuing paper-based lists by the AC to vendors often leads to discrepancies, with vendors deviating from the approved list or making unauthorized changes, resulting in unexpected price inflation. Additionally, the lack of proper data storage and analytics hinder effective decision-making by the government.

2.1 Problem Statement

To address these issues, we propose the development of a comprehensive Sabzi Mandi database system. This system will facilitate seamless collaboration and ensure transparency among all stakeholders. The system will include an administrative interface for the AC, allowing them to upload and manage the approved daily lists. Customers will have access to view the daily list, ensuring they have up-to-date information. Vendors will be provided with the list directly from the database, preventing unauthorized changes.

2.2 Proposal

The proposed project aims to develop a comprehensive fruit and vegetable management system specifically designed for Sabzi Mandi in Pakistan. The system aims to streamline operations, enhance productivity, and improve data accuracy. It will transition from manual record-keeping to a digital platform. The system will enable vendors, buyers, and administrators to access real-time information, ensuring transparency and improving decision-making. It will address corruption issues through regular backups and integrity checks. The proposed system modules include price monitoring, AC approves lists, buyers can view daily list. The software requirements for the project include Star UML, Oracle 19c and MySQL. The proposed fruit and vegetable management system for Sabzi Mandi aims to revolutionize operations, improve data accuracy, and increase productivity within the market.

3. ERD Diagram

3.1 Level 0 ERD Diagram

3.1.1   Description:

In Sabzi Mandi Management System there is a admin. He is responsible to approves the lists of fruit and vegetables daily. One Admin can approve many lists. Approved list can be viewed by customers and given to Vendors. Customers can view one list at the time. One list is given to Vendors daily. Fruit lists and vegetable lists contain many items in it.

3.1.2   Entities:

- Veg_List
- Admin
- Customers
- Vendor
- FruitList
- Items

3.1.3   Diagram:

approves   **VegeList**   given   have

viewed by

viewed by   **Cutomer**

Admin   **Vendor**

approves

FruitList   given to

Items

have
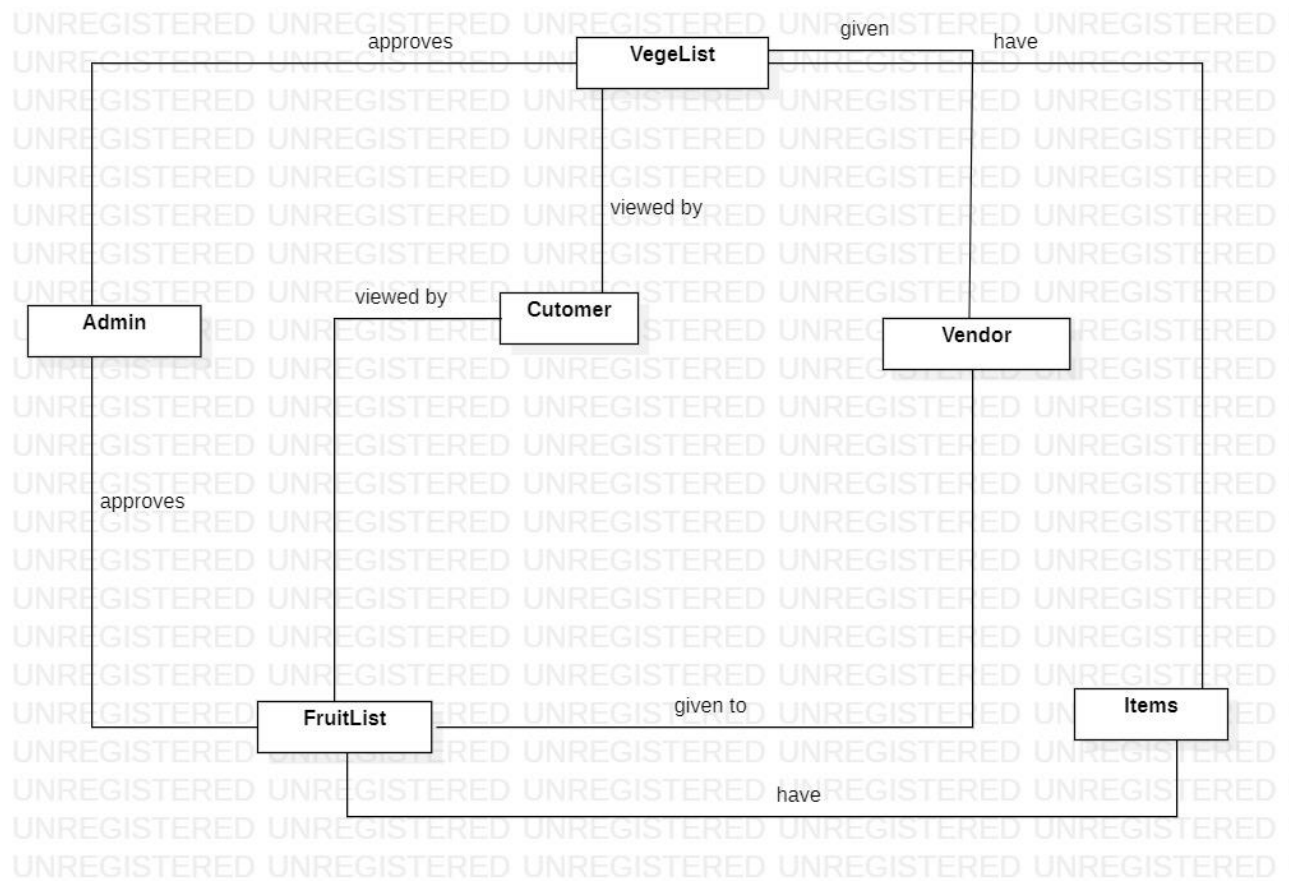
3.2 Level 1 ERD Diagram

3.2.1 Relations:

- Admin can approve one or many list of fruits and vegetables , at least one list of fruit and vegetable can be approved by admin daily.

- Fruits and Vegetables list can be viewed by many customers or may not be viewed by a single customer daily.

- Fruits and Vegetables list can be given to one or many vendors, one vendor gets only one list.

- Fruits and Vegetables lists have at least one or many items, but items can be present in many lists or may not be present in any list.

3.2.2 Diagram:
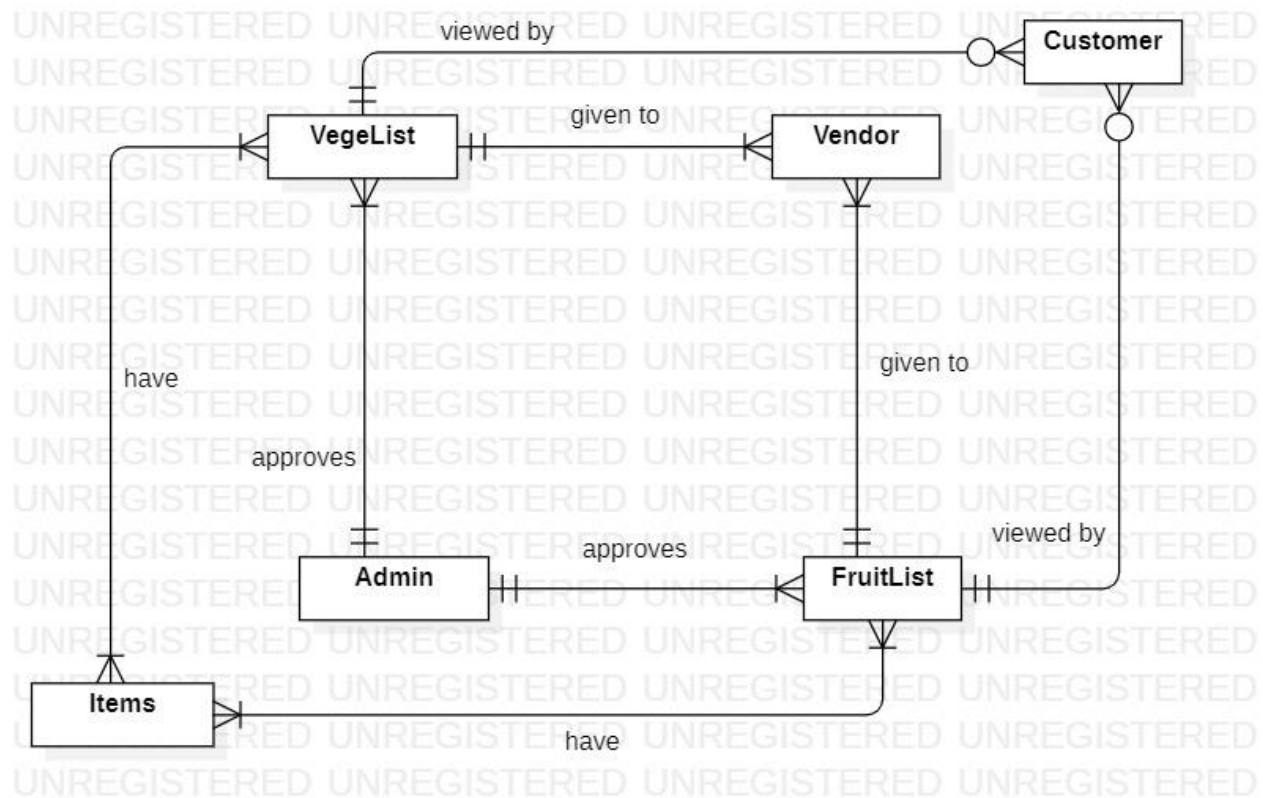
3.3 Level 2 ERD Diagram

3.3.1 Resolve Many to Many Relations Of ERD:

The above description is level 1 of the sabzi management system, It contains many
to many relations between entities so to solve those many to many relations we will
draw level 2 by entering the gerund entities between those entities which have many
to many relations. We will just insert the gerund entity between those entities which
have many to many relations and then we will put the primary keys of both the
entities into the gerund entity as foreign key .

3.3.2 Diagram
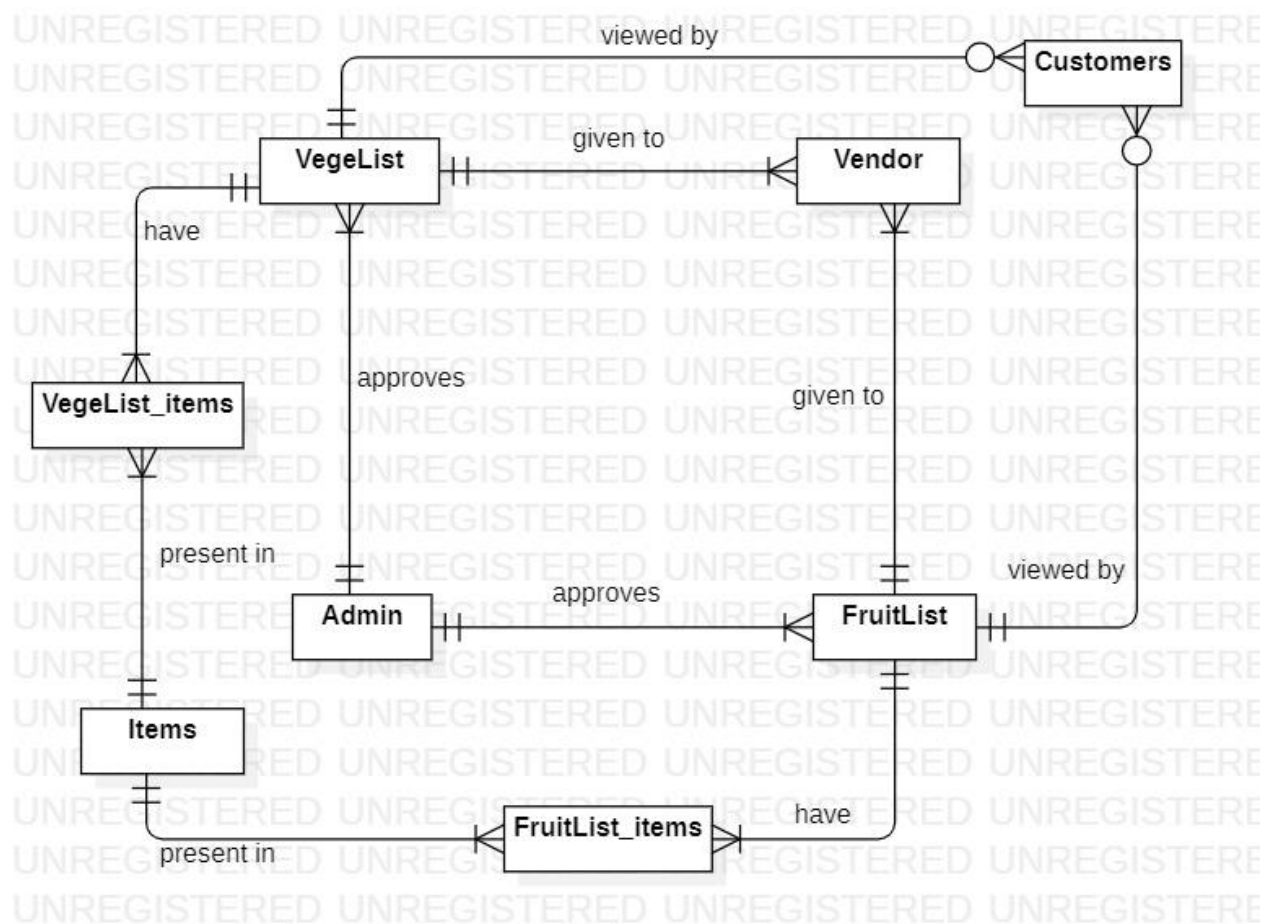
3.4 ERD Diagram After Normalization

3.4.1 Description:

   This is the final version of ER diagram that was made after normalization, the need that was felt to make it was that the number of entities increased after normalization.

3.4.1 Diagram:

4. Normalization

There are seven tables.

1. Admin(<u>AdminID</u>, name, password, phoneNo, e-mail)
2. Customer(<u>CustomerID</u>, name, password, e-mail, phoneNo, <u>vlistID</u>, <u>flistID</u>)
3. Vendor (<u>VendorID</u>, name, password, phoneNo, email, <u>vlistID</u>, <u>flistID</u>)
4. Items (<u>itemID</u>, name, price, category)
5. Fruitlsit (<u>fID</u>, date, <u>approvedby</u>)
6. Veg_list(<u>vID</u>, date, <u>approvedby</u>)
7. Fruitlist_item(<u>id</u>, <u>fID</u>, <u>itemID</u>)
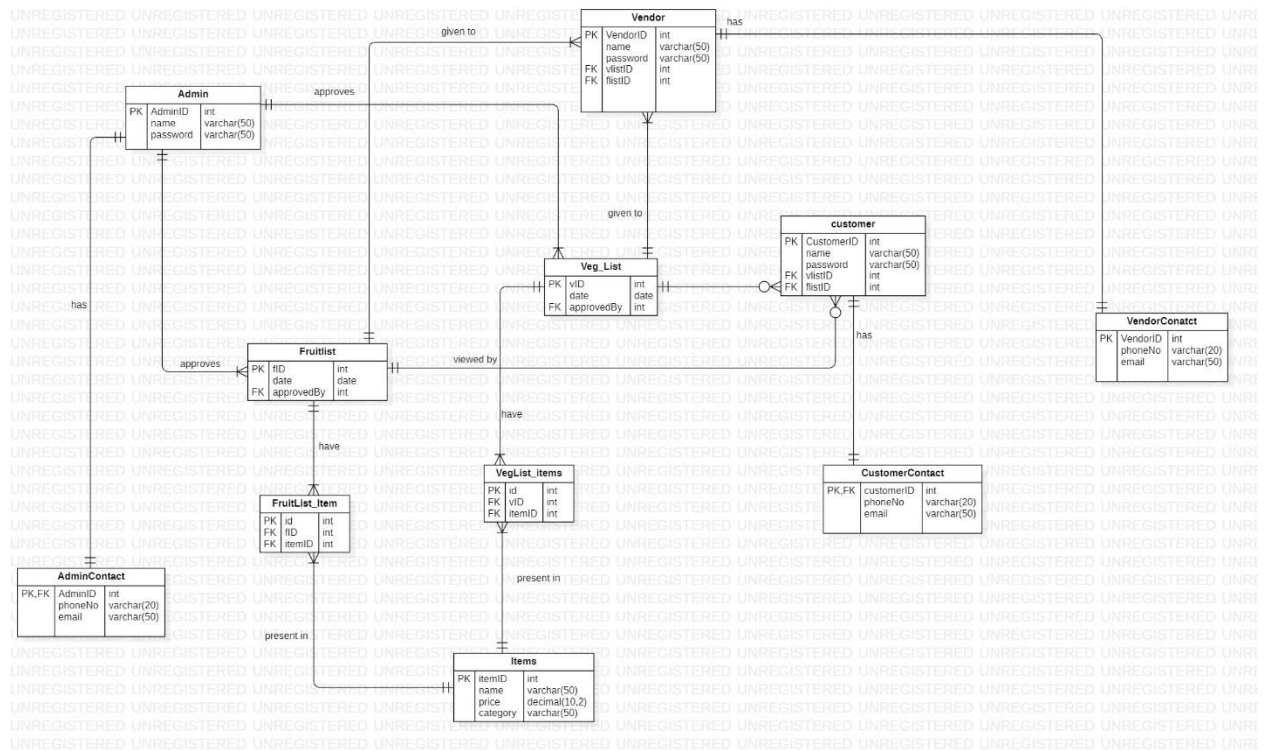8. Veglist_item(<u>id,</u> <u>vID</u>, <u>itemID</u>)

4.1. First Normal Form (1NF)

As the tables are in first normal form because there are no repeating groups in them.

4.2. Second Normal Form (2NF)

The tables which are already in 2NF are ,

1. Items (<u>itemID</u>, name, price, category)
2. Fruitlsit (<u>fID,</u> date, <u>approvedby</u>)
3. Veg_list(<u>vID</u>, date, <u>approvedby</u>)
4. Fruitlist_item(<u>id</u>, <u>fID</u>, <u>itemID</u>)
5. Veglist_item(<u> id</u>, <u>vID</u>, <u>itemID</u>)

Now tables which are not in 2NF are,

1. Admin(<u>AdminID</u>, name, password, phoneNo, e-mail)
2. Customer(<u>CustomerID</u>, name, password, e-mail, phoneNo, <u>vlistID</u>, <u>flistID</u>)
3. Vendor (<u>VendorID,</u> name, password, phoneNo, email, <u>vlistID</u>, <u>flistID</u>)

The reason behind not being 2NF is that in all three tables the attribute's phoneNo and e-mail are not dependent upon admin ID, customer ID, and vendor ID respectively.

So, after resolving the to 2NF tables would divide as,

1. Admin(<u>AdminID</u>, name, password)

2. Customer(<u>CustomerID</u>, name, password, <u>vlistID</u>, <u>flistID</u>)

3. Vendor (<u>VendorID</u>, name, password, <u>vlistID</u>, <u>flistID</u>)

4. AdminContact(<u>AdminID</u>, phoneNo, email)

5. CustomerContact(<u>CustomerID</u>, phoneNo, email)

6. VendorContact(<u>VendorID</u>, phoneNo, email)

4.3. Third Normal Form (3NF)

All the tables are in 3NF as there is only one primary key as PK in each table.

4.4. Tables after normalization

4.4.1. fruitList:

<u>fID</u>	Date	approvedBy
21	2023-07-1	1
22	2023-07-2	2
23	2023-07-3	1
24	2023-07-4	1

4.4.2. fruitList_item:

<u>ID</u>	fID	itemID
6	21	1
7	22	2
8	23	3
9	24	4

4.4.3. Items:

ItemID	name	price	category
1	Apple	1.99	Fruit
2	Banna	0.99	Fruit
3	Carrot	0.49	Vegetable
4	Orange	1.49	Fruit

4.4.4. Veg_List:

vID	date	approvedBy
11	2023-07-1	1
12	2023-07-2	2
13	2023-07-3	1
14	2023-07-4	2

4.4.5. VegList_item:

ID	vID	itemID
5	11	3
6	12	3
7	13	3
9	24	4

4.4.6. Admin:

AdminID	name	password
1	Basit Iqbal	123
2	Fatima Aftab	456

4.4.7. AdminContact:

AdminID	phoneNo	e-mail
1	03122456789	basitiqbal@yahoo.com
2	03152345789	vasi@gmail.com

4.4.8. Customers:

CustomerID	name	password	vlistID	flistID
1	Ahsan	050	4	4
2	Basit	012	5	5
3	Fatima	456	6	6

4.4.9. CustomerContact:

CustomerID	phoneNo	e-mail
1	03122456789	aliqbal@yahoo.com
2	03152345789	wasimsi@gmail.com

4.4.10. Vendor:

VendorID	name	password	vlistID	flistID
1	Aysha	050	1	1
2	Noor	012	3	3

4.4.11. VendorContact:

VendorID	phoneNo	e-mail
1	03122499789	fawad@yahoo.com
2	03152347789	ali@gmail.com

5. Translation Schema:

1-Table Name: Admin

Primary key: AdminID

Description: This table used to store the details of all Admins

Field Name	Data Type	Size	Description
AdminID	INT		Admin no
name	Varchar	50	Name of Admin
password	Varchar	50	Password of Admin

2-Table Name: AdminContact

Primary key: AdminId.

Foreign key: AdminId, References Admin (AdminId)

Description: This table contains information of Admins contacts

Field Name	Data Type	Size	Description
AdminID	INT		Admin id
phoneNo	varchar	20	Phone number of admin
email	Varchar	50	Email of admin

3-Table Name: Customer

Primary key: CustomerID

Foreign key: vlistID: References Veg_List (vID),

flistID: References fruitList (fID).

Description: This table used to store the names of all Customers

Field Name	Data Type	Size	Description
CustumerID	INT		Admin no
name	Varchar	50	Name of Customer
password	Varchar	50	Password of Customer
vlistID	INT		Veg_List id
flistID	INT		FruitList id

4-Table Name: CustomerContact

Primary key: CustomerID.

Foreign key: CustomerID, References Costumer (CustomerID)

Description: This table contains information of Customer contacts

Field Name	Data Type	Size	Description
CustomerID	INT		Admin id
phoneNo	varchar	20	Phone number of Customer
email	Varchar	50	Email of Customer

5-Table Name: Vendor

Primary key: VendorID

Foreign key: VlistID: References Veg_List (vID),

flistID: References fruit List (fID).

Description: This table used to store the names of all Vendors

Field Name	Data Type	Size	Description
VendorID	INT		Vendor no
name	Varchar	50	Name of Vendor
password	Varchar	50	Password of Vendor
vlistID	INT		Veg_List id
flistID	INT		fruitList id

6-Table Name: VendorContact

Primary key: VendorID

Foreign key: VendorID, References Vendor (VendorID)

Description: This table contains information of Vendors contacts

Field Name	Data Type	Size	Description
VendorID	INT		Vendor id
PhoneNo	varchar	20	Phone number of Vendor
email	Varchar	50	Email of Vendor

7-Table Name: veg_List

Primary key: vID.

Foreign key: approvedBy , References Admin(AdminID)

Description: This table contains information of Admins contacts

Field Name	Data Type	Size	Description
vID	INT		Veg_List id
date	date		Date of issue
approvedBy	INT		Admin id

8-Table Name: fruitList

Primary key: fID.

Foreign key: approvedBy , References Admin(AdminID)

Description: This table contains information of Admins contacts

Field Name	Data Type	Size	Description
fID	INT		fruitList id
date	date		Date of issue
approvedBy	INT		Admin id

9-Table Name: items

Primary key: itemID.

Description: This table contains information of Admins contacts

Field Name	Data Type	Size	Description
itemID	INT		item id
name	Varchar	50	Name of item
price	INT		Price of a particular item
category	varchar	50	Fruit or vegetable

10-Table Name: fruitlist_items

Primary key: ID.

Foreign key: fID, References fruitlist(fID),

itemID References item(itemID).

Description: This table is a gerund entity that is made to solve the many to many relationships.

Field Name	Data Type	Size	Description
id	INT		item id
fID	INT		Fruitlist id
itemID	INT		Item id

11-Table Name: veglist_items

Primary key: ID.

Foreign key: vID, References veg_list(vID),

        itemID References item(itemID).

Description: <u>This table is a gerund entity that is made to solve the many to many relationships.</u>

Field Name	Data Type	Size	Description
id	INT		item id
vID	INT		Veg_list id
itemID	INT		Item id

6. Conclusion

In conclusion, the proposed Sabzi Mandi database system presents a transformative solution to the longstanding challenges faced in Abbottabad's vegetable market. By leveraging advanced technology, this comprehensive system enables seamless collaboration, transparency, and accuracy among customers, vendors, and supervisors. The elimination of discrepancies and unauthorized modifications to the approved list will combat price inflation and promote fair market practices. With efficient data storage and analytics capabilities, the government can make informed decisions to drive the growth and efficiency of the Sabzi Mandi, benefiting the local economy and all stakeholders involved.