|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| |  |  | | --- | --- | | Catering Service |  | |  |  | |
| A Database Management System  By Rutuja Kaushike (RNK170000) and Radhika Kulkarni (RXK180002)  As a semester project for Database Management System (CS6360.003) |

Modeling of Requirements as ER-Diagram:

Mapping of ERD in Relational Schema:

1. CUSTOMER

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Name | Contact | Email |

* Primary Key: Id

1. STAFF

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Name | Contact | Email | Type |

* Primary Key: Id

1. EVENT

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Id | People\_Count | Staff\_Count | Exp\_Duration | Actual\_Duration | Cust\_id | Address\_id | Menu\_id | Date |

* Primary Key: Id
* Foreign Key: Foreign Key (Cust\_id) references CUSTOMER (Id), Foreign Key (Address\_id) references ADDRESS (Id), Foreign Key (Menu\_id) references MENU (Id)

1. ADDRESS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Id | Location | City | State | Zip | Street |

* Primary Key: Id

1. MENU

|  |  |  |  |
| --- | --- | --- | --- |
| Id | Name | Cost | Description |

* Primary Key: Id

1. ITEM

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Id | Name | Type | Category | Cost |

* Primary Key: Id

1. TYPE

|  |  |
| --- | --- |
| Type\_id | Description |

* Primary Key: Type\_id

1. ITEM\_TYPE

|  |  |
| --- | --- |
| Item\_id | Type\_id |

* Primary Key: Item\_id, Type\_id
* Foreign Key: Foreign Key (Item\_id) references ITEM (Id), Foreign Key (Type\_id) references TYPE (Id)

1. MENU\_ITEM

|  |  |  |
| --- | --- | --- |
| Menu\_id | Item\_id | Qty |

* Primary Key: Menu\_Id, Item\_id
* Foreign Key: Foreign Key (Menu\_id) references MENU(Id), Foreign Key (Item\_id) references ITEM (Id)

1. STAFF\_BOOKING

|  |  |  |  |
| --- | --- | --- | --- |
| Staff\_id | Event\_id | Pay\_rate | Hrs\_watched |

* Primary Key: Staff\_id, Event\_id
* Foreign Key: Foreign Key (Staff\_id) references STAFF(Id), Foreign Key (Event\_id) references EVENT(Id)

SQL Statements to create Relations in DB and Add Constraints:

CREATE TABLE CUSTOMER(

ID INT NOT NULL,

NAME VARCHAR(100) NOT NULL,

CONTACT VARCHAR(10) NOT NULL,

EMAIL VARCHAR(50),

PRIMARY KEY(ID)

);

CREATE TABLE STAFF(

ID INT NOT NULL,

NAME VARCHAR(100) NOT NULL,

CONTACT VARCHAR(10) NOT NULL,

EMAIL VARCHAR(50),

TYPE VARCHAR(20) NOT NULL,

PRIMARY KEY(ID)

);

CREATE TABLE ADDRESS(

ID INT NOT NULL,

APARTMENT VARCHAR(100),

STREET VARCHAR(100),

CITY VARCHAR(100),

ZIP INT NOT NULL,

PRIMARY KEY(ID)

);

CREATE TABLE MENU(

ID INT NOT NULL,

NAME VARCHAR(100) NOT NULL,

COST NUMBER NOT NULL,

DESCRIPTION VARCHAR(100),

PRIMARY KEY(ID)

);

CREATE TABLE ITEM(

ID INT NOT NULL,

NAME VARCHAR(100) NOT NULL,

TYPE VARCHAR(20) NOT NULL,

CATEGORY VARCHAR(20) NOT NULL,

COST NUMBER NOT NULL,

PRIMARY KEY(ID)

);

CREATE TABLE MENU\_ITEM(

MENU\_ID NOT NULL,

ITEM\_ID NOT NULL,

QUANTITY INT DEFAULT 0,

FOREIGN KEY(MENU\_ID) REFERENCES MENU(ID),

FOREIGN KEY(ITEM\_ID) REFERENCES ITEM(ID)

);

CREATE TABLE TYPE\_DATA(

ID INT NOT NULL,

DESCRIPTION VARCHAR(100),

PRIMARY KEY(ID)

);

CREATE TABLE ITEM\_TYPE(

ITEM\_ID INT NOT NULL,

TYPE\_ID INT NOT NULL,

FOREIGN KEY(ITEM\_ID) REFERENCES ITEM(ID),

FOREIGN KEY(TYPE\_ID) REFERENCES TYPE\_DATA(ID)

);

CREATE TABLE EVENT(

ID INT NOT NULL,

PEOPLE\_COUNT INT NOT NULL,

STAFF\_COUNT INT NOT NULL,

CUSTOMER\_ID INT NOT NULL,

ADDRESS\_ID INT NOT NULL,

MENU\_ID INT NOT NULL,

EXPECTED\_DURATION INT NOT NULL,

ACTUAL\_DURATION INT,

EVENT\_DATE DATE NOT NULL,

PRIMARY KEY(ID),

FOREIGN KEY(CUSTOMER\_ID) REFERENCES CUSTOMER(ID),

FOREIGN KEY(ADDRESS\_ID) REFERENCES ADDRESS(ID),

FOREIGN KEY(MENU\_ID) REFERENCES MENU(ID)

);

CREATE TABLE STAFF\_BOOKING(

STAFF\_ID INT NOT NULL,

EVENT\_ID INT NOT NULL,

PAY\_RATE NUMBER DEFAULT 10,

HOURS\_WORKED NUMBER DEFAULT 0,

FOREIGN KEY(STAFF\_ID) REFERENCES STAFF(ID),

FOREIGN KEY(EVENT\_ID) REFERENCES EVENT(ID)

);

-- DROP TABLE QUERIES IF REQUIRED

DROP TABLE CUSTOMER;

DROP TABLE STAFF;

DROP TABLE ADDRESS;

DROP TABLE MENU;

DROP TABLE ITEM;

DROP TABLE MENU\_ITEM;

DROP TABLE TYPE\_DATA;

DROP TABLE ITEM\_TYPE;

DROP TABLE EVENT;

DROP TABLE STAFF\_BOOKING;

Normalization of a Relational Schema:

The following functional dependencies exist in a relational schema -

1. CUSTOMER {Id -> Name, Contact, Email}
2. STAFF { Id -> Name, Contact, Email, Type}
3. EVENT {Id -> People\_Count, Staff\_Count, Exp\_Duration, Actual\_Duration, Cust\_id, Address\_id, Menu\_id, Date}
4. ADDRESS {Id -> Location, City, State, Zip, Street}
5. MENU {Id ->Name Cost, Description}
6. ITEM {Id -> Name, Type, Category, Cost}
7. TYPE {Type\_id -> Description}
8. MENU\_ITEM {Menu\_id, Item\_id -> Qty}
9. STAFF\_BOOKING {Staff\_id, Event\_id ->Pay\_rate, Hrs\_watched}

The above dependencies cause the database schema to be in 3NF