Design Document
Individual Project – CS6360.5U1 Database Design
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Schema:

The schema is the same as given in the assignment description, except the primary keys for the tables address, date and phone are set as (contact_id + address_type), (contact_id+ date_type) and (contact_id + phone_type) respectively to be uniquely identify records for updating purposes.

Technologies:

The Frameworks used in the application are:
1. Frontend: React
2. Backend: node Js
3. Database: Postgres SQL

Inserting data in the Tables:

There are four tables – *contact, address, phone, date*. The csv is parsed using fast-csv in node js and then inserted into the appropriate tables using pg in node js (helper for postgres in node) after validating the rows.

Contact Table

One row is inserted for each row in the csv. Only the contact id and first name are mandatory fields for this table.

Address Table

Address information is inserted based on the data availability. Ideally, two rows for home and work address are inserted in the table for each contact. If one or both addresses are not available, 1 or zero rows are inserted respectively to the *Address* table. `address_type` is a mandatory field for this table.

Phone Table

Phone information is inserted in a similar way as address. Maximum three and minimum zero rows can be inserted for one contact. Single record can have a home phone, cell phone and work phone. `area_code` is inferred from the phone number automatically while saving any row to the Phone Table. `phone_type` is a mandatory field for this table.

Date Table

Date is also inserted in the same way as address. Maximum one and minimum zero rows can be inserted for one contact. `date_type` is a mandatory field for this table.

Functionalities

After the initial processing and insertion is done, searching, adding, updating, deleting, and viewing record follows the following logics:

Searching:

When searching for any record, a select query is performed on a left join of Contact Table, Address Table and Phone Table. Any combination of name, address and phone numbers are searchable as asked in the requirements.

Add New contact:

While adding a record, If the required columns are not present or if any unique key constraint is violated, the query is rejected. Data values for each table are validated before inserting. The contact id is mandatory and required to be provided by the user while adding a new contact.

Updating Contact:

Updating works the same way as add. However, for address type and phone type only one entry for each type is allowed for every user. For e.g. If a home address already exists for a user, it will get updated. A new entry will not be added. if the specified type of address or phone doesn't exist a new entry will be added to the corresponding table.

Deleting Contact:

For deletion all the entries corresponding to the selected 'contact_id' are deleted from the 4 tables.

View Contact:

When viewing a record all the information corresponding to the 'contact_id' from all 4 tables is displayed, like work phone, home phone, work address, home address etc.

Assumptions used

Every user can have only one address and phone number of each type. For e.g., a user can have only one home address and one work address. Similarly, the user can only have at max one work, home, and cell phone for the sake of simplicity. Also, a user may enter any kind of date like birth, anniversary etc. But only the birth date is displayed on the view contact form for simplicity purposes.