

Assignment 1

Contact Manager

I have chosen the **ER Diagram** format to show the relationships among the various tables of the Contact Manager as ER Diagram is one of the most basic and effective way to illustrate the logical structure of a database.

I have used **Microsoft Visio** to create the ER Diagram.

For the Contact Manager database, I have considered 5 entities: **Contact, Email, Address, Phone, Family**. Of these, **Address** is a **weak entity**.

The entity Contact is in a **1:N** relationship with the entity Email. Each Contact can have N Emails but each email belongs to a particular contact.

Contact is in a **M:N** relationship with the weak entity Address. Each Contact can have N Addresses and each address may have M contacts associated with it. (We have more than one contact with the same address).

Contact is in a **1:N** relationship with the entity Phone. Each Contact can have N Phone numbers but each phone number corresponds to a particular contact.

Contact is in a **N:1** relationship with the entity Family. Each Contact is associated with a single Family but each Family can contain N contacts.

The **primary key** of the entity Contact is **Contact ID** (integer), which is a surrogate key. Besides this, Contact has the following attributes – **Date of Birth** (DateTime), **First Name (VarChar)**, **Last name (VarChar)**, **Middle Name (VarChar)**, **Gender (VarChar)**, **Age** (integer), **First met on (Date and time)** (DateTime) and **Contact added on (date and time)** (DateTime). Age is a **derived attribute**, derived from the key attribute Date of Birth.

Email ID (VarChar) is the primary key of the entity Email. Email has another attribute – Email type (VarChar).

Address is an entity with multiple lines which contain the following attributes – Street Number (VarChar), City (VarChar), State (VarChar), Zip Code (VarChar).

Phone has three attributes, **number** (VarChar), **call history** (VarChar), and **next call – date and time** (DateTime). Number is the primary key for this entity. Call history is a **multi-valued attribute** and is also **composite** and has **duration** and **date and time of call** as its attributes.

The entity Family has only one attribute, which is the key attribute – **family ID (family name)** (VarChar).

ER Diagram

(next page – also attached separately)

