# Database Design

The database shall store text message and phone call records. It will also store the timestamps of the last phone call and text message backup(s).

Below is the schema for the tables.

**Contacts**(id, phone\_number, person\_name)

**Phone\_calls**(id, duration, call\_timestamp, contact\_id)

**Text\_messages**(id, msg\_text, msg\_timestamp, sender\_id)

**Text\_message\_recipients**(contact\_id, text\_message\_id)

**Last\_backup\_date\_time**(backup\_type, backup\_timestamp)

The text\_message\_recipients table will be the multiway relationship between text\_messages and contacts. This table is needed to store the recipient(s) of a text message. (If all texts had only one recipient, then the recipient id/name could simply be stored in the text\_messages table. However, you must also account for group texts. That is why I created the text\_message\_recipients table.)

The contacts table has the following constraint: all (phone\_number, person\_name) pairs must be unique. This table is in 2NF and 3NF, because a phone\_number does not determine the person\_name (the name of the contact), and person\_name does not determine phone\_number. It is possible that two people share the same phone number. Furthermore, it is possible that there are two contacts named “John”. These two columns combined represent a distinct contact.

(The columns person\_name, backup\_timestamp, backup\_type, msg\_text, and msg\_timestamp were so named to avoid using a SQL keyword.)

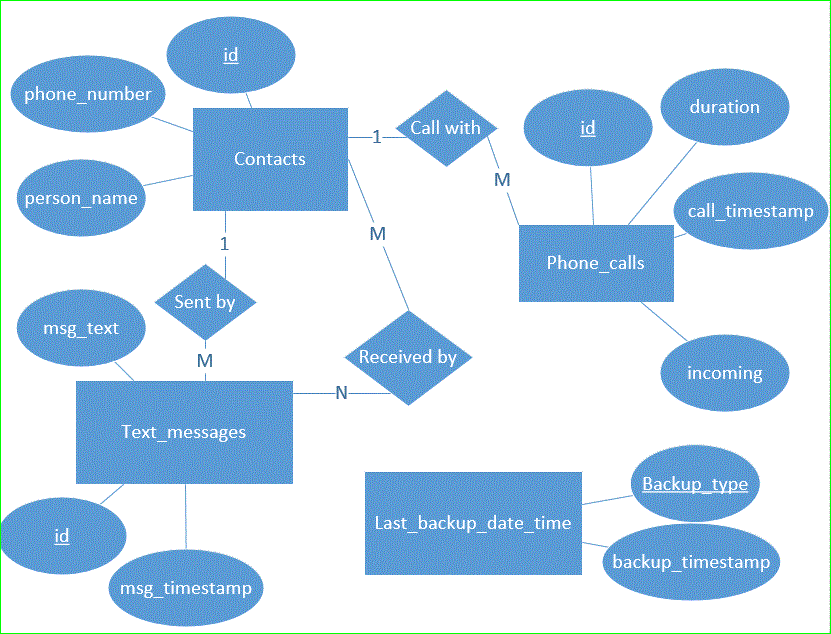


Figure Database Diagram