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Relational Database Project Proposal

-Title: Security System

-Team #: 3

-Team Members:

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-Miniworld/High Level Description:

A security system's relational database that shows and expands on the relationships between the security company, security user, security features available, home security, one's personal security network, and the overall security network. This application/ DB aims to show the various connections and interrelationships needed for a security company.

-Purpose of Application/Database and Intended Users:

The primary users for this system will be people who want to secure their homes further to mitigate risk to their property and monitor their homes through a security company. The security company will allow for surveillance using a security camera for one's home and other additional security features that can be added to a user's personal security network. The company also allows for expanded security through connecting your personal camera security feed with neighbors in the same area, which expands a user's personal security knowledge of the surrounding area.

-Objects/Actors/Roles:

Actors:

- Security Company
 - Role: Houses the security networks and security users
- Security User

- Role: Commands a house and may or may not have a personal security network or security network with other security users. They will own a house that has a variety of cameras.

Objects:

- Camera
 - Role: Components of the security systems. It must be owned by a security user for the security user to have a personal security network or security network.
- House
 - Role: Contains the cameras and is the link between the cameras and the security networks.
- Security Network
 - Role: Will have multiple houses operating together to provide a wider network for security coverage.
- User's Personal Network
 - Role: Will utilize cameras to provide a personal interior security network for a house.

-Planned Functionality and Operations:

We are planning to map out the fundamental database design of a security company that manages a network of homes and its devices for safety monitoring in a certain area. A security company must have numerous employees that work for it, each with a first name, last name and an identifier employee ID. The company has a name and an identifier business ID, and must manage a number of security networks, each with a network ID and city location. Each security network is always comprised of numerous homes, each with a name, street address and contact information. Each home is always managed by a homeowner with a name. In addition, each home must have a set of general security devices and an interconnected set of outdoor security cameras used for safety monitoring. A max of 10 general security devices in the home may have a device type, an identifier device IP and a partial identifier serial number. There can be many outdoor cameras, each with a location, name, an identifier device IP, and a partial identifier number. These outdoor cameras are part of a bigger camera network with a network server IP and an identifier network ID. The company can utilize a security network to map out a set of homes to ensure the safety of numerous houses in a certain area.

-Scenarios:

Scenario 1: David goes on vacation with his wife and kids leaving his home vulnerable. David logs into the security system database to check on the house while away. David is happy to see his house is safe and secure while thousands of miles away.

Scenario 2: David checks his phone to find an automated alert from the security system that has been triggered by a burglar. The police have also already been notified and sent to the house immediately. Police arrive to find no burglar but go through video database and see if he could be matched and apprehended.

Scenario 3: David's neighbor comes over and tells him his house was just robbed and he wished he had the security system that David has. David then logs into the database to see if his front door camera caught any suspicious vehicles in the area. He then requests access from footage of other neighbors front cameras. With the access needed from a neighbor on the corner house, the plates of the thief was found and later apprehended.

-Entities:

Employee

- Has a unique ID
- Has a first name and a last name
- Each employee works for 1 security company

Security Network

- Has a unique network ID number
- Has a network city location
- Each security network is comprised of many homes

Homeowner

- Has a name
- Has a unique homeowner ID
- Each homeowner manages 1 home

Incident

- Has a unique ID
- Has a date
- Has a time
- Has a type
- Has items lost
- Has money lost
- Each incident occurred at 1 or more houses
- Each incident may have occurred in 1 or more camera networks

Home

- Unique street address
- Has a name
- Has contact information
- Each home is a part of 1 security network
- Each home has 1 homeowner

- Each home includes up to 10 security devices
- Each home incorporates many outdoor cameras

Security Devices

- Has a unique device IP
- Has a unique serial number
- Has a device type
- Each security devices is a part of 1 home

Outdoor Camera

- Has a unique name
- Has a unique IP
- Has a location
- Has a unique number
- May be involved with a single camera network
- Each outdoor camera is part of 1 house

Camera Network

- Has a unique ID
- Has a server IP
- Each camera network may contain 0 or more outdoor cameras
- Each camera network is involved with 2 or more houses