CS206 Database Design

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1. **Background**
    - **Customers**
      We are writing a database for Contoso Donation Centers, a non-profit organization that restores bicycles.

    - **Products**
      This will be the back end database for Contoso Donation Centers. It will store relevant information pertaining to many of its working operations. Employees will be expected to use this software when entering information. This will typically include things like contacts, number of volunteers and bikes restored.

    - **Technology**
      Contoso Donation Centers will need a centralized server to house Microsoft Access. Employees will login to the server then use forms for entering data.

    - **Participants/employees**
      Contoso Donation Centers will have employees who will setup events and have volunteers who will staff them. Both employees/volunteers will have training in bike repair and maintenance.

2. **Requirements**
    - **Activities/processes**
      We are storing information about employees/volunteers, events, contacts and bikes. Previously, this was done through an Excel spreadsheet and much of this data will need to be transferred over to the relational database.

    - **Information**
      There are currently two Contoso Donation Centers, and they keep information on employees and volunteers. The CDC also take donations of bicycles that are donated with the work and parts that need to be done. The CDC also keeps track of Events and Trainings of volunteers with employees as the instructors. Emergency contacts are also stored in the database for volunteers in case of an emergency.

3. **Conceptual and Logical Designs**
    - **Entities**
        - Emergency Contacts – Stores information on who to contact for volunteers in case of an emergency. A volunteer as one emergency contact, but an emergency contact can be many volunteers' emergency contact.

        - Volunteers – Holds the data of the volunteers of the CDC, such as name, contact info, medical concerns, DOB, etc. Volunteers attend one to many trainins, and they can attend one to many events.

- Volunteer Training – Acts as a bridge between the Volunteer entity and the Training entity.

- Trainings – Stores information on the type of training being taught to volunteers and when it was taught. Trainings is only taught by one employee, and it has many volunteer participants.

- Event Volunteers – Acts as a bridge between the Event entity and the Volunteers entity.

- Donation Centers – Stores information on the name and location of the CDC. A CDC has many employees. It can also host many events.

- Employees – Stores information of the employees name, contact info, and address. An employee only works at one CDC at a time. An employee can also participate in one to many events.

- Event Employees – Acts as a bridge between the Events entity and the Employees entity.

- Events – Stores information of the date, location, start time, and end time of an event. At events, volunteers and employees work on repairing bikes that were donated. An event can have many volunteers, employees, and bikes. One event can only be held at one location.

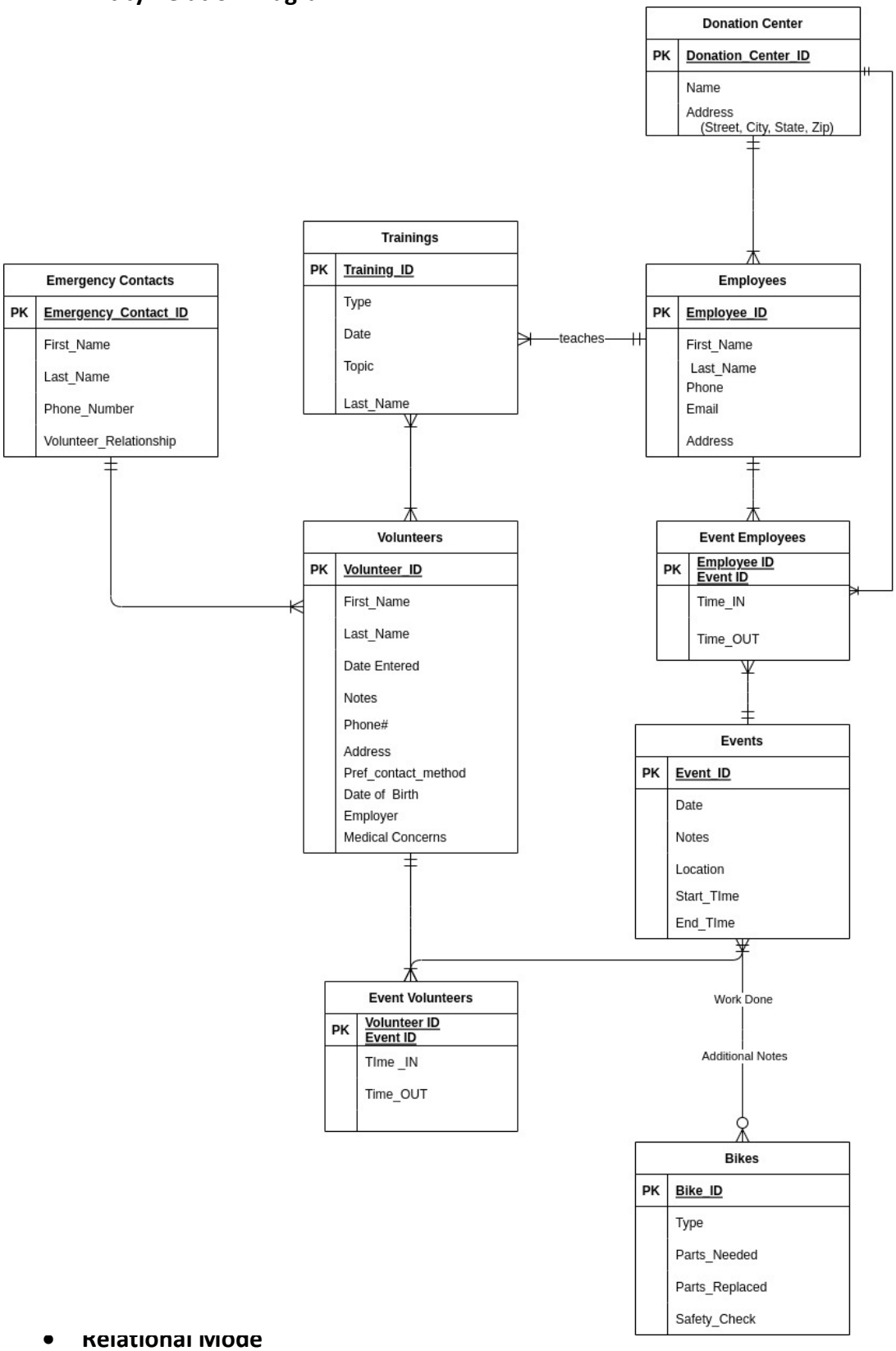
- Event Bikes – Acts as a bridge between the the Events entity and the Bikes entity.

- Bikes – Stores information on the bikes that are worked on at events. It contains the type of bike, parts needed, parts replaced, additional notes, and if it passes a safety check. A bike must be worked on at least one or many events.

- **Queries/reports**

- **Assumptions**
  We assumed that all employees and volunteers would have to be trained in at least one type of training. All volunteers would need to sign the liability form to be considered a volunteer.

- **Entity Relation Diagram**



- **Relational Mode**

4. **Physical Design**
    - **Tables**
        - tblDonation_Centers
        - tblEmergency_Contcts
        - tblEmployees
        - tblEvent_Bikes
        - tblBikes
        - tblEvent_Employees
        - tblEvent_Volunteers
        - tblEvents
        - tblTrainings
        - tblVolunteer_Training
        - tblVolunteers
    - **Queries**
        - qryBike_Events
        - qryEmployee_at_Event
        - qryEmployee_Teachers
        - qryVolunteer_Trained_by_Employee
        - qryVolunteer_Completed_Training
        - qryVolunteer_Contact
    - **Reports**
        - rptCheck_ins
        - rptEvent_Information
        - rptRestoration
    - **Forms**
        - frmBikes
        - frmBikes_Subform
        - frmDonation_Centers

- frmDonation_Centers_Subform
- frmEmergency_Contacts
- frmEmployees
- frmEmployees_Event_Subform
- frmEmployees_Training_Subform
- frmEvents
- frmEvents_Subform
- frmQueries
- frmVolunteers
- frmVolunteers_Subform
- frmNavigation_Form

5. **Implementation Notes**
   - **Database security and access issues**
     Field size issues with phone numbers. Syntax errors query form SQL statement. Anytime query wizard was used a security issue popped up.