**Creating ER Diagrams - Beta University Annual Fund**

**Step 3.1- Make a list of all entities and their associated attributes.**

|  |  |
| --- | --- |
| Entities | Attributes |
| Donor | donorName, donorAddress, donorCategory, donorID, IsPotentialDonor, donorCircle, donorEmailAddress, donorPhoneNumber, donorGraduationYear, donorPaymentMethod, donorPledgedAmount |
| Events | eventID, eventOrganizedDate, eventType |
| Volunteer | volunteerID, volunteerName, volunteerPhoneNumber, volunteerEmailAddress, volunteerAddress |
| Class Representative | classRepID, classRepName, classRepPhoneNumber, classRepAddress, classRepDonationAmount |
| Gift | giftID, giftReceivedDate, donorID |
| Phonothon | phonothonID, phonothonDonorID, classRepID |
| Payment | paymentID, paymentReceivedDate, installmentPaymentID, installmentPaymentDonorID, missedPaymentDonorID, paymentDueDate |
| Pledge | pledgeAmount, pledgeID, pledgeReceivedDate, lastYearPledgeAmount |

**Step 3.2 - Make a list of relationships to be represented and any descriptive attributes for them.**

Below given table describes the relationships and its types for a *Beta University Annual Fund* project.

|  |  |
| --- | --- |
| Relation Between | Type of Relationship |
| Donor has relation with Beta University Annual Fund Director. | **Many to One Relationship** |
| Donor has relation with Volunteer. | **Many to Many Relationship** |
| Donor has relation with Class Representative. | **Many to Many Relationship** |
| Fund Director has relation with Class Representative. | **One to Many Relationship** |
| Fund Director has relation with Volunteer. | **One to Many Relationship** |
| Donor has relation with Event. | **Many to Many Relationship** |
| Donor has relation with Gift. | **Many to Many Relationship** |
| Phonothon has relation with Donor. | **Many to Many Relationship** |

**Donor:**

The Donor entity has the following attributes:

* donorName
* donorAddress (Composite attribute)
* donorCategory (Multivalued attribute)
* donorID (Primary key)
* isPotentialDonor
* donorCircle
* donorEmailAddress (Multivalued attribute)
* donorPhoneNumber
* donorGraduationYear (Multivalued attribute)
* donorPaymentMethod (Multivalued attribute)
* donorPledgedAmount

Among these attributes**, donorCategory, donorEmailAddress, donorPaymentMethod, and donorGraduationYear** are **multivalued attributes**, while **donorAddress** is a **composite attribute**.

**Events:**

The Events entity has the following attributes:

* eventID (Primary Key)
* eventOrganizedDate
* eventType

Among these attributes**, eventID** is a **Primary Key.**

**Volunteer:**

The Volunteer entity has the following attributes:

* volunteerID (Primary Key)
* volunteerPhoneNumber
* volunteerEmailAddress (Multivalued attribute)
* volunteerAddress (Composite Attribute)
* volunteerName

Among these attributes**, volunteerEmailAddress** is a **multivalued attribute**, while **volunteerAddress** is a **composite attribute** and **volunteerID** is a **primary key**.

**Class Representative:**

The Class Representative entity has the following attributes:

* classRepID (Primary Key)
* classRepName
* classRepPhoneNumber
* classRepAddress (Composite Attribute)
* classRepDonationAmount

Among these attributes**, classRepAddress** is a **composite attribute** and **classRepID** is a **primary key**.

**Gift:**

The Gift entity has the following attributes:

* giftID (Primary Key)
* giftReceivedDate
* donorID (Foreign Key)

Among these attributes**, donorID** is a **foreign** **key** and **giftID** is a **primary key**.

**Phonothon:**

The Phonothon entity has the following attributes:

* phonothonID (Primary Key)
* phonothonDonorID
* classRepID (Foreign Key)

Among these attributes**, classRepID** is a **foreign** **key** and **phonothonID** is a **primary key**.

**Payment:**

The Payment entity has the following attributes:

* paymentID (Primary Key)
* paymentDueDate
* paymentReceivedDate
* installmentPaymentID
* installmentPaymentDonorID
* missedPaymentDonorID

Among these attributes**, paymentID** is a **primary key**.

**Pledge:**

The Pledge entity has the following attributes:

* pledgeID (Primary Key)
* pledgeAmount
* pledgeReceivedDate
* lastYearPledgeAmount

Among these attributes**, pledgeID** is a **primary key**.

**Step 3.3 – Using Microsoft Visio, draw an E-R diagram to represent the enterprise.**

Using MS Visio, draw an E-R Diagram to represent the enterprise. Hand-written assignments are not acceptable submissions. Your E-R diagram should include entities (and any weak entity sets and role names if needed), relationships, cardinality constraints, and participation constraints. Use Figure S.3.1 in the sample project as a model for your diagram. You may omit attributes.

Note: For cardinality symbols, use Method 1 symbols presented in Figure 3.7 (Showing Cardinalities on an E-R Diagram) of the textbook.

**Below given figure is an ER diagram for Beta University Annual Fund.**



**Step 3.4 – Review and update the data dictionary (as needed).**

Review the data dictionary that was created in the Chapter 2 Assignment. Update the data dictionary (as needed). If there are no updates, then relist your Chapter 2 data dictionary.

|  |  |
| --- | --- |
| classRepAddress | The mailing address of class representative. |
| classRepDonationAmount | The total donation amount collected from the class representative. |
| classRepID | The unique ID for class representative. |
| classRepLastYearDonationAmount | The total donation amount collected by the class representative in the previous year. |
| classRepName | The name of class representative. |
| classRepPhoneNumber | The phone number of class representative. |
| corporationCity | The city of mailing address of a corporation. |
| corporationCountry | The country of mailing address of a corporation |
| corporationID | The unique ID of a corporation. |
| corporationName | The name of a corporation. |
| corporationState | The state of mailing address of a corporation. |
| corporationStreet | The street and building number of mailing address of a corporation. |
| corporationZipCode | The postal zip code of a corporation |
| currentYearPledgeAmount | The total amount pledged by the donor for the current year. |
| donationAmount | The total amount of money contributed as a donation. |
| donationAmountByPhonothon | The total amount of donation collected through phonathon fundraising efforts. |
| donorAddressFromMultipleCategories | The mailing address of a donor who belongs to multiple donor categories. |
| donorAddressWithMultipleGradYears | The mailing address of a donor who has graduated in multiple years. (A donor may have more than one degree from the university, so he or she may have more than one graduation year) |
| donorCardCVV | The Card Verification Value (CVV) of the donor's credit or debit card, used for security purposes during transactions. |
| donorCardExpirationDate | The card expiration date of donor’s credit or debit card. |
| donorCategory | The category of a donor. |
| donorCity | The city of mailing address of a donor. |
| donorCircle | The classification of donor based on the size of their contributions. |
| donorCountry | The country of mailing address of a donor. |
| donorCreditCardNumber | The credit card number of a donor. |
| donorEmailAddress | The email address of a donor. |
| donorEnclosedAmount | The total amount of money included with a donation sent by the donor. |
| donorFirstName | The first name of a donor. |
| donorGraduationYear | The year in which the donor graduated. |
| donorIDFromMultipleCategories | The unique ID assigned to a donor who belongs to multiple donor categories. |
| donorIDWithMultipleGradYears | The unique ID assigned to a donor who has graduated in multiple years. |
| donorLastName | The last name of a donor. |
| donorNameFromMultipleCategories | The name of a donor who belongs to multiple donor categories. |
| donorNameWithMultipleGradYears | The name of a donor who has graduated in multiple years. |
| donorNumberOfPayments | The total number of payments made by the donor towards their pledged amount or donation. |
| donorPaymentMethod | The method used by the donor to make a payment. |
| donorPhoneNumber | The phone number of a donor. |
| donorPhoneFromMultipleCategories | The phone number of a donor who belongs to multiple donor categories. |
| donorPhoneWithMultipleGradYears | The phone number of donor who has graduated in multiple years. |
| donorPledgeGiftDate | The date on which the donor made their pledge or commitment to contribute a gift. |
| donorPledgedAmount | The total amount that the donor has committed to contribute. |
| donorPreviousPaymentDate | The previous payment date of a donor. |
| donorState | The state of mailing address of a donor. |
| donorStreet | The street of mailing address of a donor. |
| donorZipCode | The postal zip code of mailing address of a donor. |
| donorID | The unique ID assigned to a donor. |
| eventID | The unique ID assigned to an event. |
| eventOrganizedDate | The date on which the event was organized. |
| eventType | The type of event. |
| giftID | The unique ID assigned to a gift. |
| giftReceivedDate | The date on which the gift was received. |
| installmentPaymentDonorID | The unique ID assigned to the donor associated with an installment payment. |
| installmentPaymentID | The unique ID of a payment that has been received in installments. |
| lastYearPledgeAmount | The total amount pledged by the donor in the previous year. |
| missedPaymentDonorID | The unique ID assigned to the donor who has missed a scheduled payment. |
| paymentDueDate | The due date of a payment. |
| paymentID | The unique ID assigned to a payment. |
| paymentReceivedDate | The date on which a payment was received. |
| pledgeAmount | The total amount that a donor has promised to contribute. |
| pledgeReceivedDate | The date on which the donor's pledge was recorded. |
| pledgingDate | The date on which the donor made their pledge to contribute. |
| potentialDonorAddress | The mailing address of a potential donor. |
| potentialDonorID | The unique ID assigned to a potential donor. |
| potentialDonorName | The name of a potential donor. |
| potentialDonorPhoneNumber | The phone number of a potential donor. |
| spouseCorporationAddress | The mailing address of the corporation of donor's spouse. |
| spouseCorporationName | The name of a corporation of a donor’s spouse. |
| spouseName | The name of a donor’s spouse. |
| volunteerAddress | The mailing address of a volunteer. |
| volunteerEmailAddress | The email address of a volunteer. |
| volunteerID | The unique ID assigned to a volunteer. |
| volunteerName | The name of a volunteer. |
| volunteerPhoneNumber | The phone number of a volunteer. |

**Step 3.5 – Review and update the list of assumptions (as needed).**

Review the list of assumptions that was created in the Chapter 2 Assignment. Update the list of assumptions (as needed). If there are no updates, then relist your Chapter 2 list of assumptions.

* Names of donors are not unique, but names of volunteers and matching corporations are unique.
* A person may belong to more than one category. For example, a parent may also be an alumni.
* A person may have more than one degree from the university, so he or she may have more than one graduation year. That person’s gift is counted in the totals and percentages for all his or her graduation years.
* There is exactly one class representative for each graduation year.
* A potential donor receives a call from at most one class representative or volunteer each fund year.
* A donor may give more than one pledge during a fund year.
* A person may attend several fundraising events within a year.
* It is desirable to know which pledges are due to a fundraiser, but not necessary to know which are due to a class coordinator or volunteer’s call.
* All pledges for a given fund year are collected within that year.
* Matching gifts are paid by corporations in a single payment within the same fund year as the donor’s gift.
* At the end of each fund year, the entire database is archived, and a new database for the new fund year is created. The database name identifies the year.
* All addresses consist of street, city, state, zip code or postal code, and country.
* All telephone numbers consist of country code, area code, and number.