Problem #1

Add a subtype discriminator for each of the supertypes shown in the ERD.
Solution to Problem #1

PERSON
SSN
Name
Address
Gender
Date_Of_Birth
Person_Type
(Employee?, Student?, Alumnus?)

Employee?="Y"

STUDENT
Major_Dept
Student_Type

Student?="Y"

ALUMNUS
(Degree
(Date, Year, Designation)

Alumnus?="Y"

Employee_Type=

"Faculty"

FACULTY
Rank

"Staff"

STAFF
Position

"Grad"

GRADUATE_STUDENT
Test_Score

"Undergrad"

UNDERGRAD_STUDENT
Class_Standin
Problem #2

• Construct an ERD for the following scenario:

• A nonprofit organization depends on a number of different types of persons for its successful operation. The organization is interested in the following attributes for all of these persons: SSN, Name, Address, City/State/Zip, and Telephone.

• Three types of persons are of greatest interest: employees, volunteers, and donors.

  • Employees have only a Date_hired attribute, and volunteers have only a Skill attribute (assume multi-valued). Donors have only a relationship (named Donates) with an Item entity type.

  • A donor must have donated one or more items, and an item may have no donors, or one or more donors.
ERD For Problem #2

PERSON

SSN
Name
Address
City
State
ZipCode
Telephone
Person_Type
(Employee?, Volunteer?, Donor?)

Person_Type:

Employee?="Y"
Volunteer?="Y"
Donor?="Y"

EMPLOYEE
Date_Hired

VOLUNTEER
{Skill}

DONOR

ITEM

Donates
Problem #3

Modify this ERD to incorporate the following business rules:

1. For a section of a course to be scheduled there must be a faculty member qualified to teach it.

2. For a student to register in a section of a course, that student must not be registered in a total of more than 6 courses sections.
Problem #4

Incorporate the following business rule into this ERD:

A resident patient can be assigned a bed only if that patient has been assigned a responsible physician.

What is the anchor object?

What is the corresponding object?
ERD For Problem #4

Anchor object: resident patient

Corresponding object: responsible physician
Problem #5

• Consider the following business rule: “A student may attend a concert only if that student has completed their homework assignment.”

• Draw an ERD that portrays the entities and relationships in this rule.

• Add the notation to incorporate this rule in the ERD.

• What is the anchor object?

• What is the corresponding object?
ERD For Problem #5

Anchor object: student

Corresponding object: has_completed (homework)
Scenario #6

Develop entity clusters for this ERD and redraw using the entity clusters.
ERD For Problem #6 Using Clustering