NGEE ANN
SCHOOL OF INFOCOMM TECHNOLOGY

Databases	Day 3
	2 hours
Tutorial 5 **Enhanced ER Modelling – Part 2**	

Learning Objectives

(i) Learn to model Supertype/Subtype Relationship
(ii) Learn to review and modify ER model to accommodate new requirements
(iii) Learn to develop more complex ER model based on a given case scenario
(iv) To work on DB Assignment Checkpoint

ACTIVITIES

Task 1 – Draw an ER model to capture requirements

Recommended Time allotted: 45 mins

Excel Polytechnic is planning to organise an Excel Cup Soccer Competition next year. The competition is opened to staff and students from the local tertiary institutions. To ensure that the information required during the competition is easily available and up-to-date, the plan is to set up a database system to manage the data during the competition

Each institution can send a maximum of two teams. Information regarding the team includes team's name (may not be unique) and jersey colour.

Each team comprises many members and each member can be a staff or student. Information regarding each staff includes staff's identification number, staff's name, date the staff joined the institution and the skill level. Information regarding the student includes student's identification number (if any), student's name, year of study, and skill level.

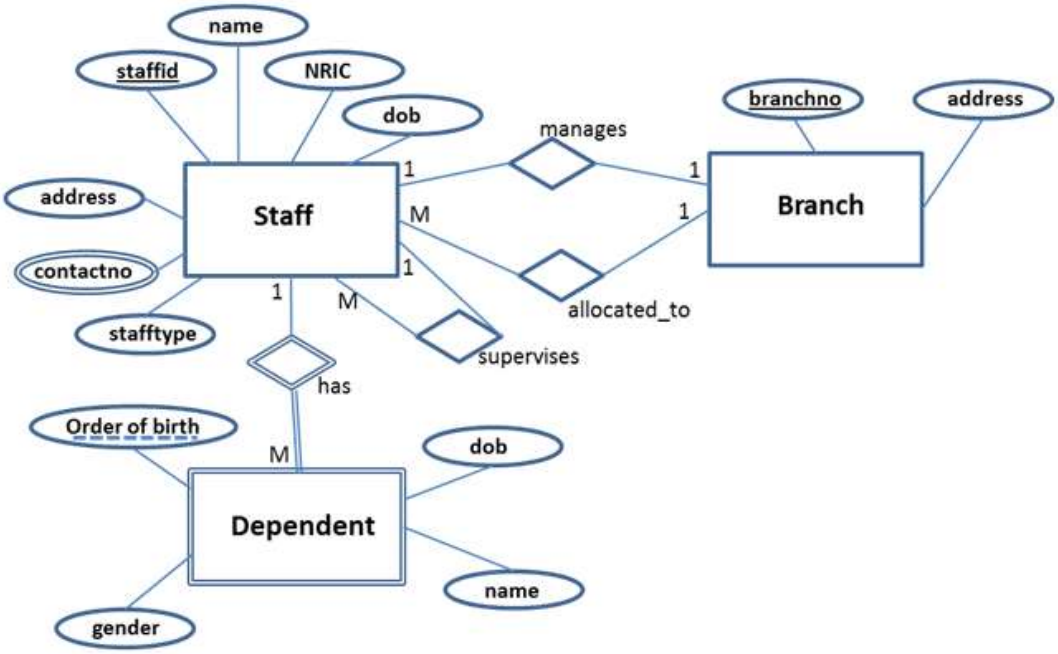
Draw an Entity-Relationship model showing the entities (Team and Member), their corresponding attributes and their relationships.

Task 2 – Review ER model to accommodate new requirements

Recommended Time allotted: 45 mins

ER model, like a building foundation, goes through an iterative process that takes in new business requirements. In this activity, you need to review existing ER models and determine if new requirements can be accommodated; if not, what are the changes that may need to be made to the ER models.

The ER model for Forever Young (last week) may be modelled in the following manner: Note that there is no need for gender in the model as the company has an "ALL-FEMALE" staff.



2.1 Examine the above ER model. Explain whether this requirement may be addressed:

i) The company wants to keep a record of staff being transferred from one branch to another, the period of allocation and the role she plays during this allocation. Is this possible? Draw the new relationship to reflect this change.

2.2 **New requirements affecting the business operations are made**. How will the following requirements affect the ER model?

a. A new saleswoman has been employed as staff of the company.
b. An administrative clerk has resigned.
c. An employee celebrates a new addition to her family and this new addition has to be reflected in the database.
d. The new saleswoman is required to report to an existing supervisor.

2.3 **A well designed database should support typical business queries**. Explain how the model supports the following queries: *(If it does not support the query, what must be done?)*

a. Which saleswoman reports directly to a particular manager?

b. Which administrative clerks belong to a given branch?

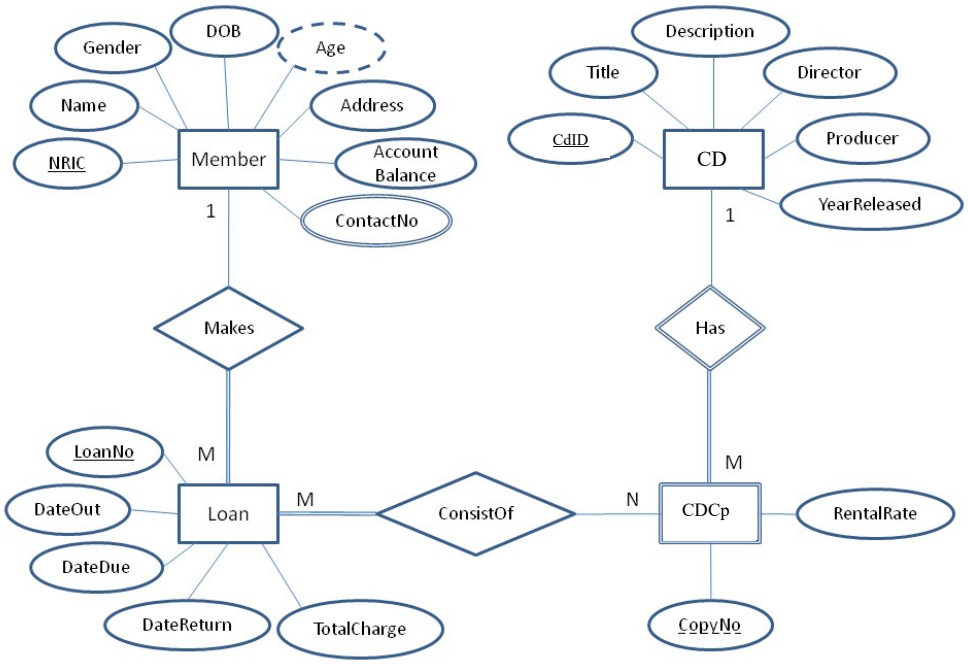
c. The company is organizing a birthday party for its employees and dependents. It needs to find out which employees' birthday falls in the month of May.

d. Which of the staff do not have dependents?

Task 3 – Examine a given ER model to determine if business queries can be supported

Recommended Time allotted: 30 mins

Examine the following ER model and answer the following questions:



Determine if the following business queries can be met with the proposed ER model above and explain the reasons:

(a) track monthly rental income
(b) track reservation placed on a CD
(c) track popular CD titles for the past one month
(d) track popular CD titles among customers between age 15 to 20
(e) track CD copy that is long overdue
(f) track CD copy that is damaged