TT1964 DATADASE

TUTORIAL 1

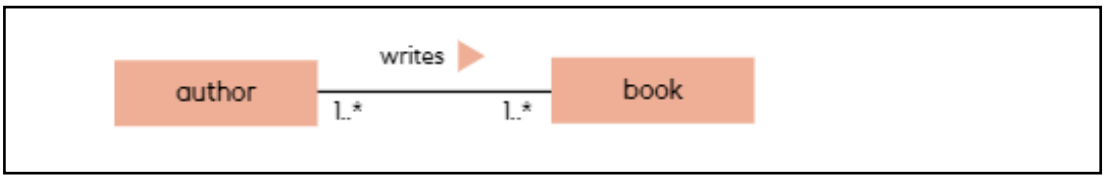
Entity Relationship Diagram (ERD)

Instruction: Please answer all of the following questions BEFORE tutorial session. Then you can have some discussion regarding the questions during your tutorial session.
(You can refer flipped material ERD 1 & ERD 2 *http://myftsm.wixsite.com/database-flipped*)

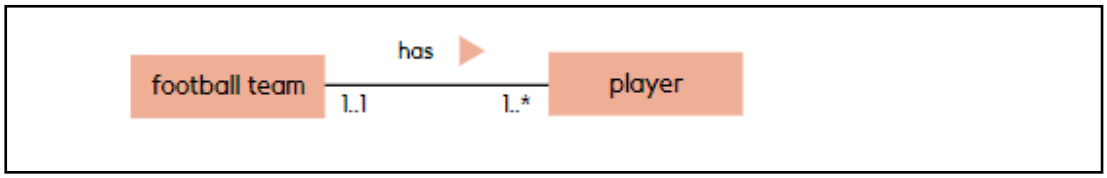
Section A

1. Draw a single ER diagram for the following rules, showing Entities, Relationships and Cardinality.

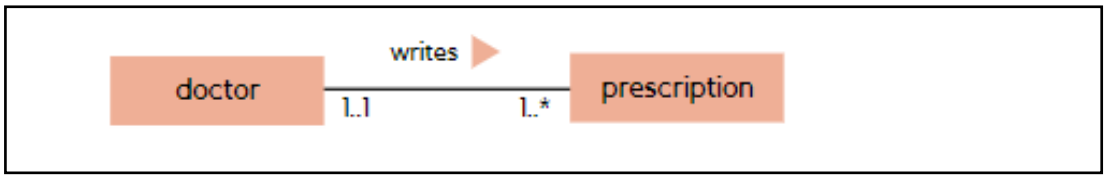
   a) An author can write many books.
   A book may be written by many authors.



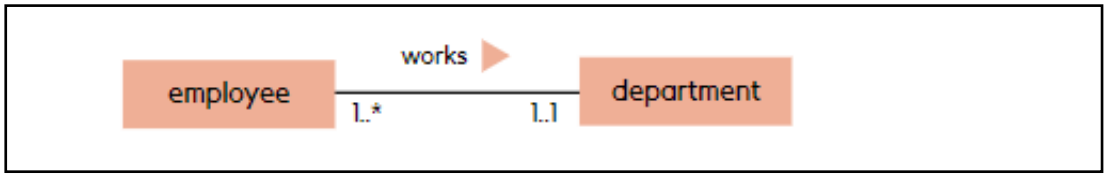
   b) A football team consists of many players.
   A player plays for only one football team.



   c) A doctor writes one or more prescriptions.
   A prescription can be issued by only one doctor.

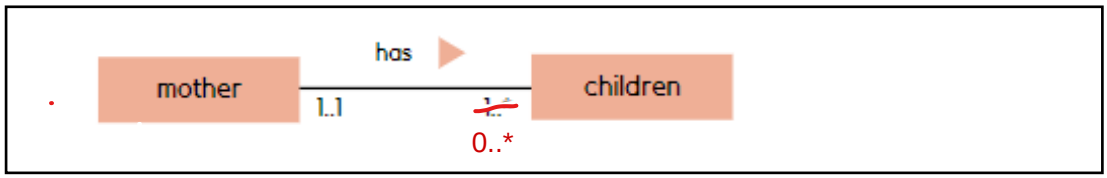


   d) A department has many employees.
   An employee works in only one department.



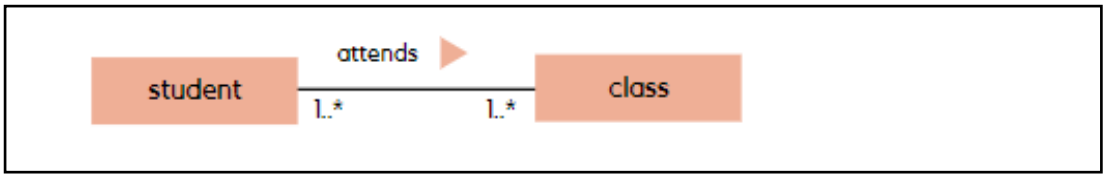
e) A mother may has many children.

A child has one mother.



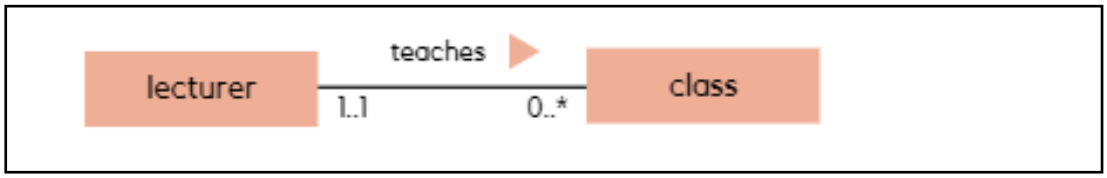
f) Each student attends several classes.

There are several students in each class.

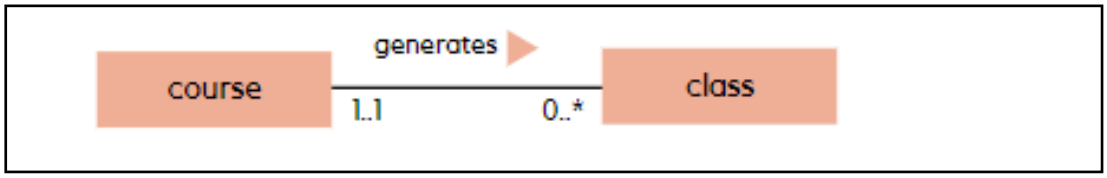


2. Create an ERD for each of the following description: 1:* relationship

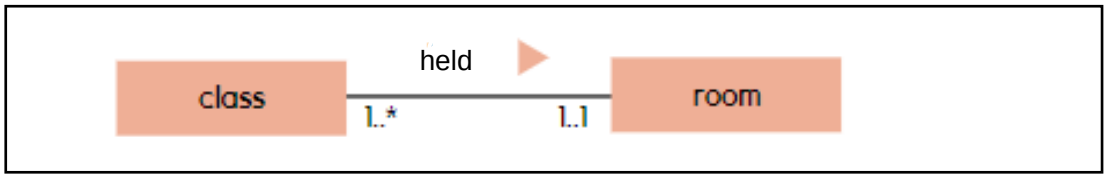
a) A lecturer teaches zero, one or many classes and a class is taught by one lecturer.



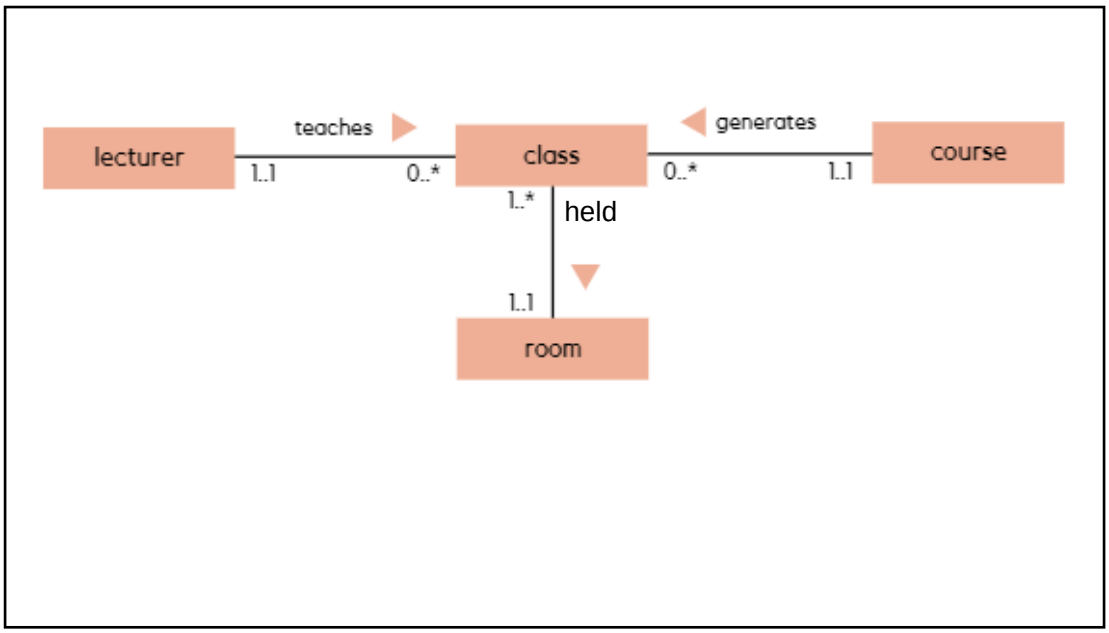
b) A course may generate zero, ONE or MANY classes and a class comes from one course.



c) A class is held in one room but a room has many classes.



d) Combine all the ER diagram in (a), (b) and (c) into a single ER Diagram.



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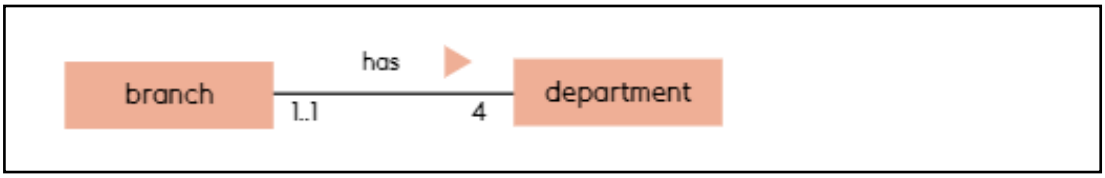
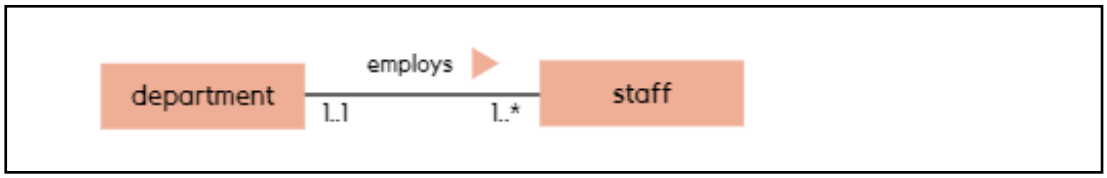
3. Create an ERD for each of the following description:

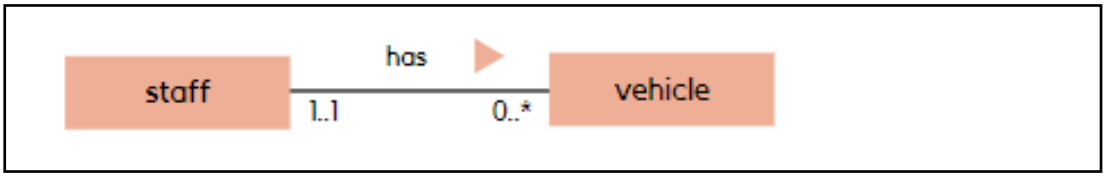
a) Each Branch has FOUR departments, and EACH department belongs to ONE Branch.



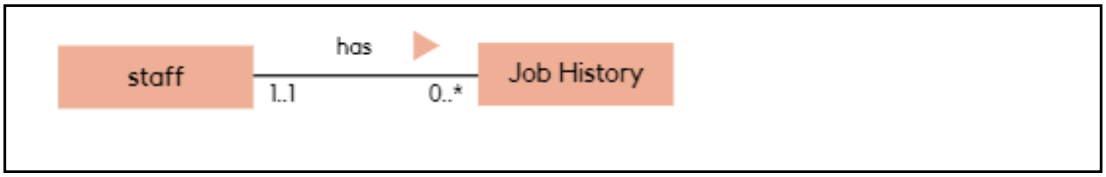
b) EACH department in part (a) employs ONE or MORE staffs, and EACH staff works for ONE department.



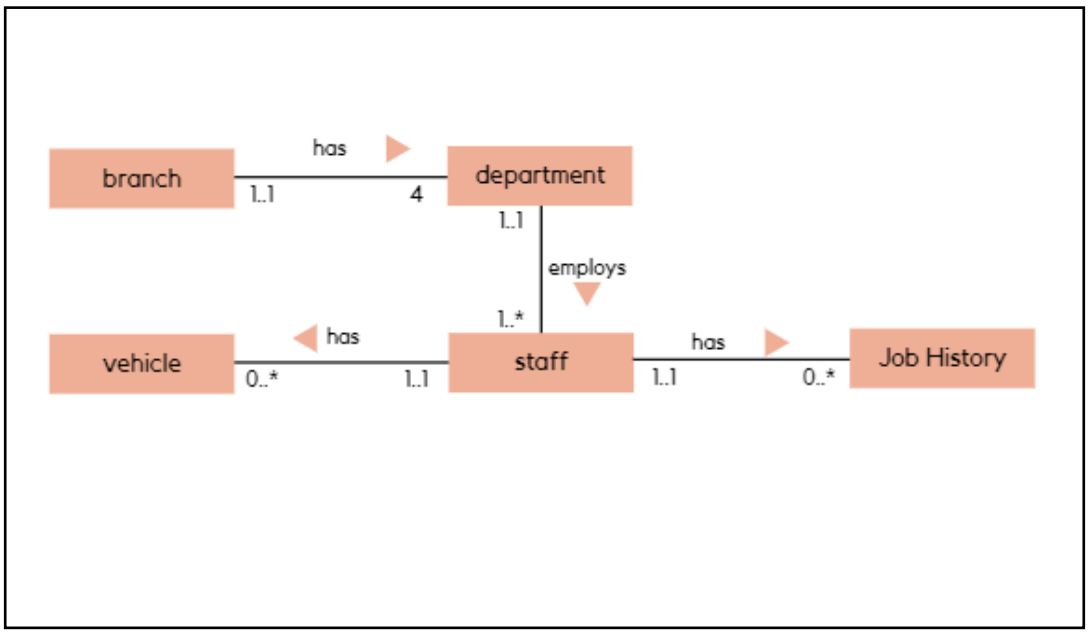
c) EACH staffs in part (b), MAY or MAY NOT have ONE or MORE Vehicles, and EACH vehicle belongs to ONE staffs.



d) EACH staff in part (c) MAY or MAY NOT have previous Job History.



e) Combine all the ER diagram in (a), (b), (c) and (d) into a single ER Diagram.



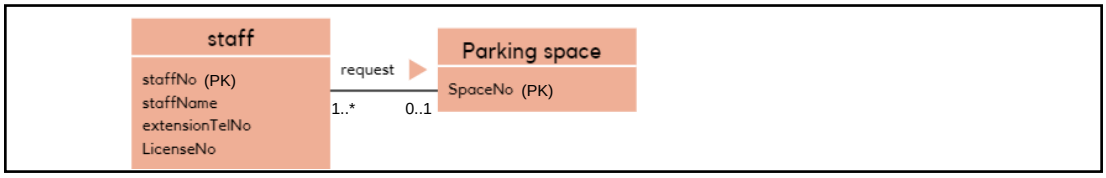
4. Create an ER model for each of the following descriptions:

a) A Company XYZ has several parking lots, which are used by staff.

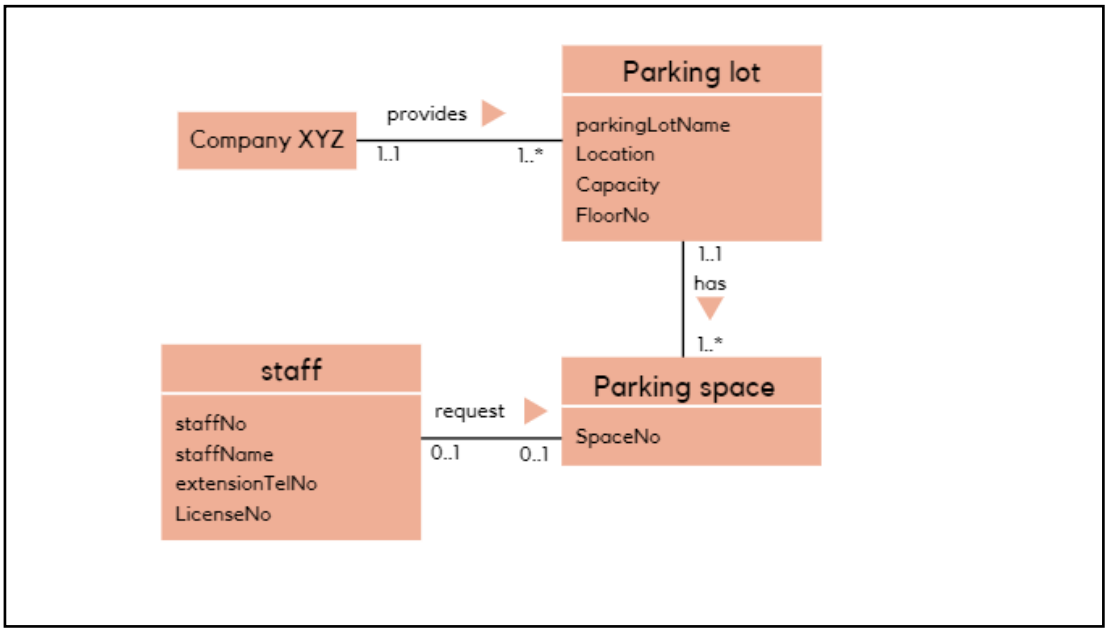
b) Each parking lot has a unique name, location, capacity, and number of floors.

c) Each parking lot has parking spaces, which are uniquely identified using a space number.

d) A staff can request the use of a parking space. Each staff has a unique number, name, telephone extension number, and vehicle license number.



e) Represent all the ER models described in parts (a), (b), (c), and (d) as a single ER Model. Provide any assumptions necessary to support your model.



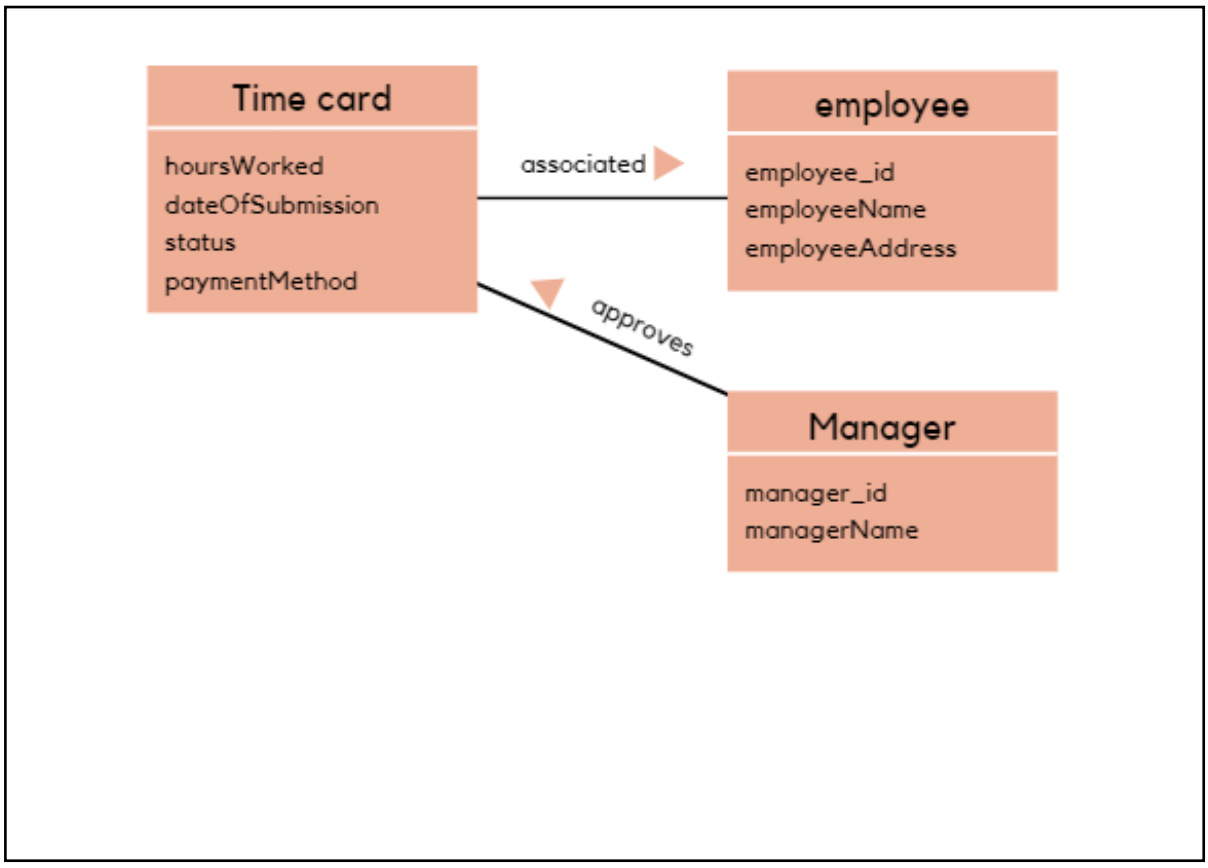
Section B

Draw the complete ER Diagram for all of the questions.

(You can refer flipped material ERD 1 & ERD 2 *http://myftsm.wixsite.com/database-flipped*)

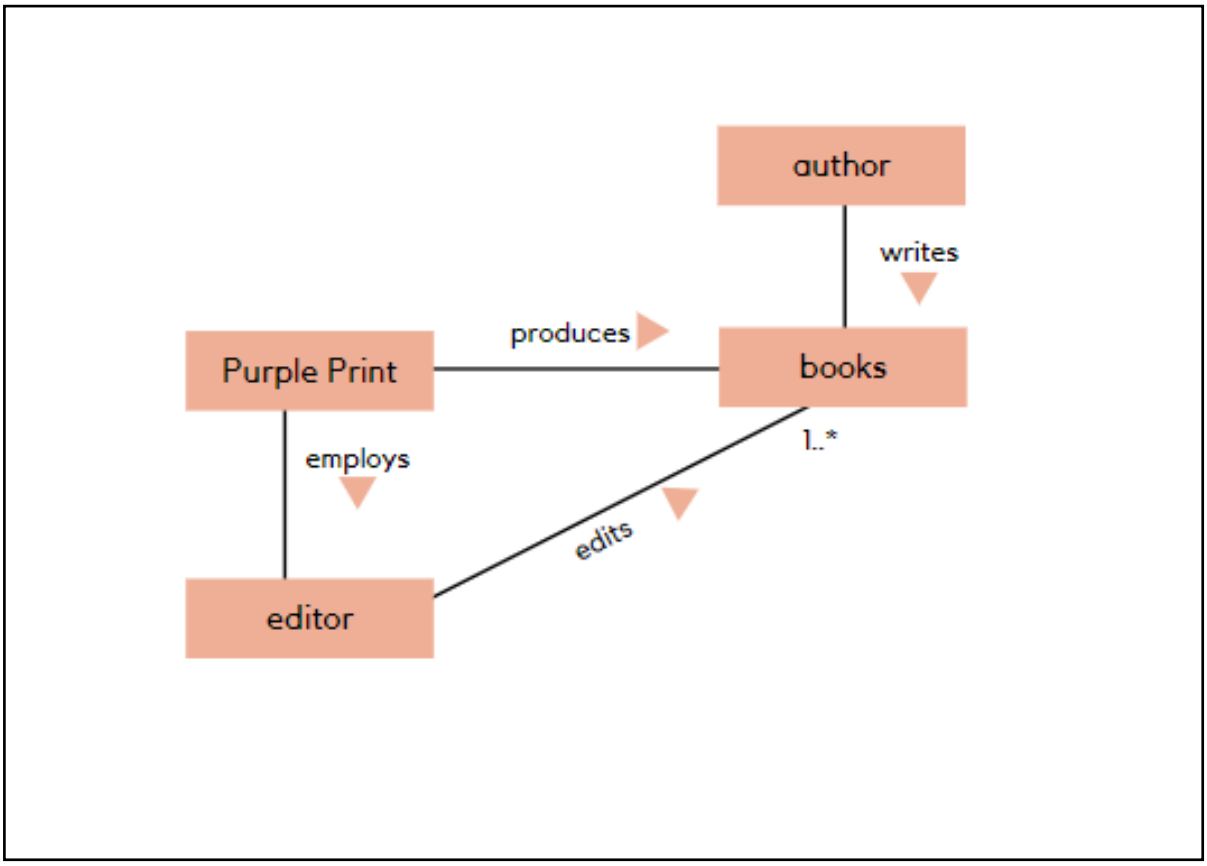
Case Study 1

Harmony Company wants to digitize employee time cards. A timecard should have hours worked and date submitted. Each timecard is associated with exactly one employee and should have a unique id. Each timecard has a status either approved, not approved or pending. Each employee has a unique id, name and address. Employee will submits a timecard every pay period and stated their method of payment either direct deposit or physical check. Each manager has a unique id and name and he/she will in charge and approved timecard for multiple employees. You need in design the database for submitting and approving time cards with information given.



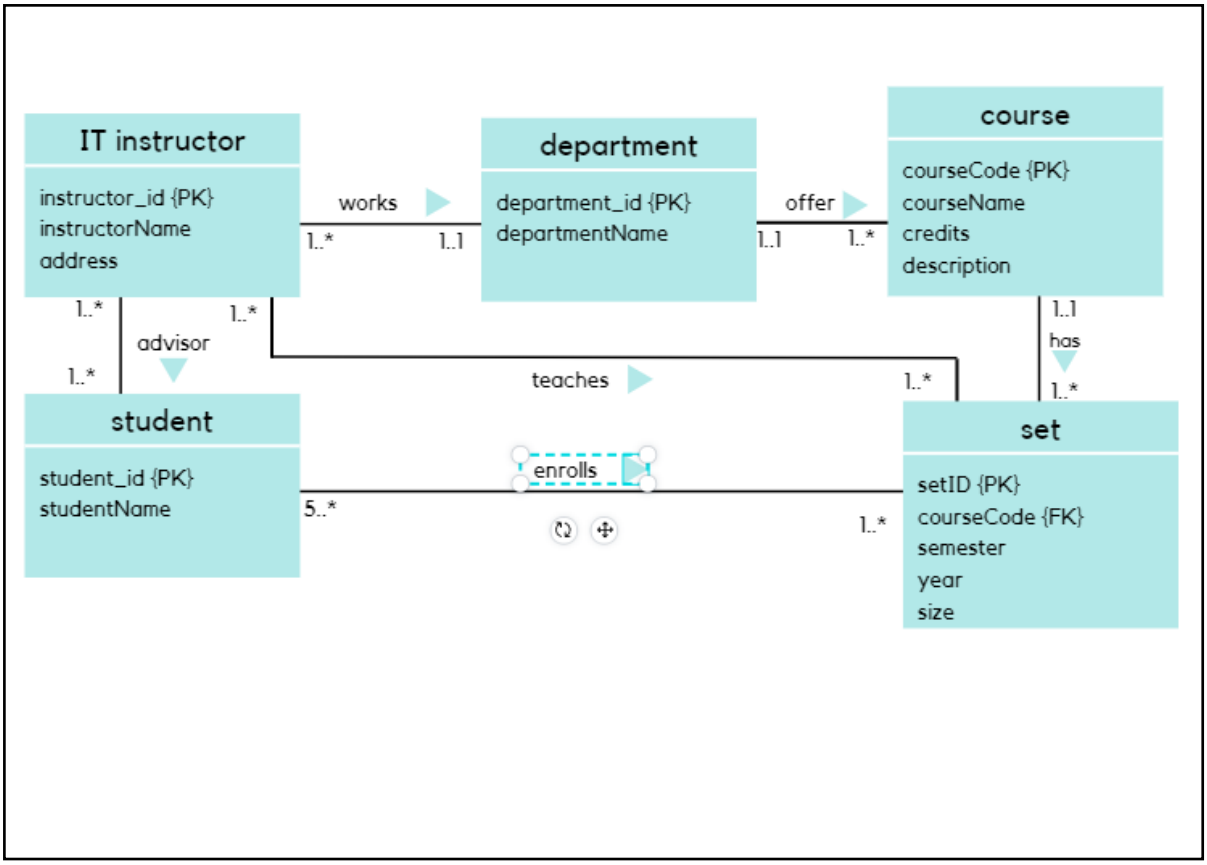
Case Study 2

A Purple Print is a publishing company that produce books on various area. The books are written by authors who specialize in one particular area. The company employs editors who, not necessarily being specialists in a particular area, each take sole responsibility for editing one or more books. A book covers one of the specialist areas and is normally written by a single author. The company tries to employ a variety of authors, more than one author being a specialist in a particular area.



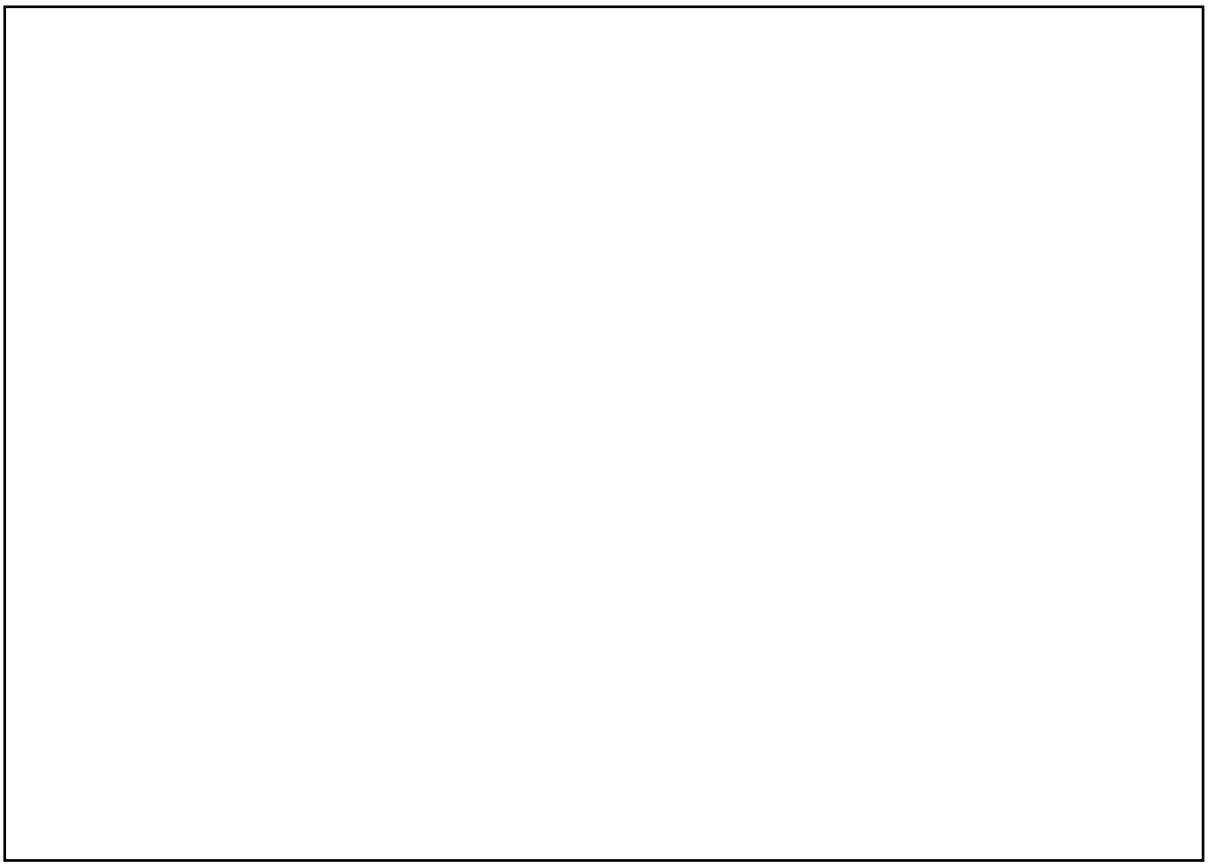
Case Study 3

Design an ER diagram for a university. The database needs to keep track of each IT Instructor with id, name, and address. Each IT Instructor works for one department and each department has at least one IT Instructor. The departments have an id and a name. Courses are offered by a single department and have a name, and course code unique to each department. Each course has at least one set that store the course code, name, credits, and description. Each set will store course code, semester, year, and size. Students have student ids and names. Each student has a single IT Instructor as an advisor. Students enroll in one or more sets. A set must have at least five students or it is cancelled. A set is taught by at least one IT Instructor. Assumes each department teaches at least one course.



Case Study 4

Air Asia airlines offer flights to domestic and foreign destinations. A Plane is uniquely identified by its RegistrationNumber, so we use this as the primary key. A Flight is uniquely identified by its FlightNumber, so we use the flight number as the primary key. The departure and destination airports are captured in the origin and destination attributes, and we have separate attributes for the departure and arrival date and time. A plane can be involved in any number of flights, while each flight uses exactly one plane. A passenger can book any number of flights, while a flight can be booked by many of passengers. Identifying such entities allows us to get a better picture of the requirements.



SAMPLE PROJECT : PROBLEM SOLVING

CHOMEY MINI MART

Chomey mini mart is located at Seri Bangi is one of the shop that sell variety of household product. As one of the IT student that doing the practical there, you are responsible to design a database that can meet the needs of their requirement. The database will store information about customer, order, product, category, staff and supplier. Customer information such as unique customer id, name and phone should be recorded in the database. Through this system, customers can make several orders. Order information contain a unique order id, date, quantity and related attributes from other entities. Each order will be handle by one staff only. Staff information contain unique staff id and name. In the order process customers can buy many products. Product will store information such as unique product code, product name, price and category. Each category will have many products. Category information contain unique category code and category name. All the products will be supplied by one supplier according to the category of products. Supplier must have information such as supplier id, company, address and phone.

** There is a composite key exist in one of the process above

Chomey Mini Mart

Date : 28/2/2016 Order No: CN101
Customer Id : C001

Product Code	Name	Category	Qty	Price/unit	Total
CM01	Super Ring	Snacks	1	2.70	2.70
CM05	Twister Orange	Beverages	2	5.60	11.20
CM07	F&N Krimer	Canned Goods	1	3.20	3.20
CM11	Potato Wedges (1kg)	Frozen	2	4.50	9.00
CM12	Kiwi	Fruits & Vegetables	2	9.90	19.80
				Total	**45.90**

Approved by :
Staff Name : Anzalna Nasir

ERD DIAGRAM