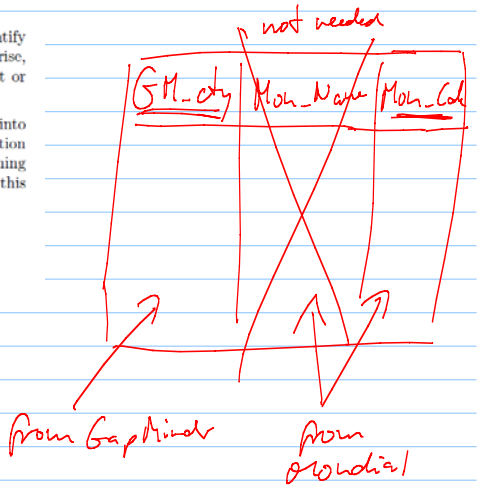
Discussion, Week 11

Note Title 12/2/2013

Deliverable D6 (Mondial++: Mondial + GM Integration) Mondial uses country codes to uniquely identify a country, along with the country names, where GM uses only country names. Data integration challenges arise, e.g., due to possible different spellings between Mondial and GM country names, as well as the transient or evolving nature of countries (USSR, Germany, Korea, etc.), their official names, etc.

Create and populate a "bridge table" that associates Mondial country codes with GM country names. Take into account the GM documentation[1] and think what additional columns you might need to describe an association between a Mondial code and a GM country name. For example, you could have a comment field, explaining possible "issues" with the association, or you could have one or more columns describing in what years this association is valid, etc. As part of this deliverable, document:

1. how you populated the table, and
2. what "problem cases" you have detected and how you are dealing with them.

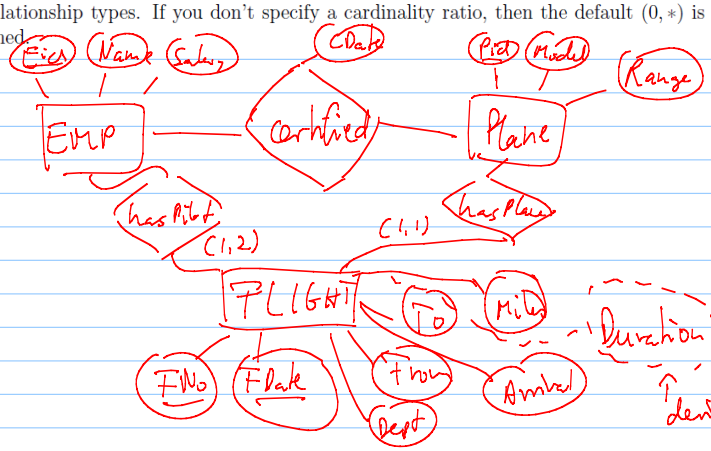


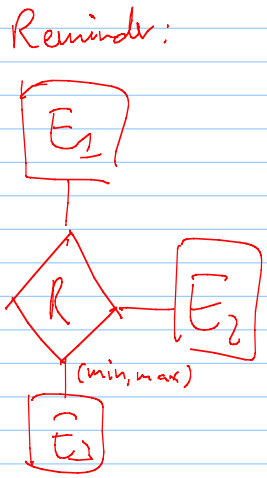
Problem 1 (ER Modeling) (10+6+3 = 19 Points)

a. Draw the Entity-Relationship diagram from which the above four relations `FLIGHT`, `PLANE`, `EMPLOYEE`, and `certified` have been derived, and include the following **two additional relationships**:

- `hasPilot` says that a `FLIGHT` has one or two `EMPLOYEE`s (pilots) assigned to it
- `hasPlane` says that each `FLIGHT` has a single `PLANE` assigned to it

Make sure to clearly identify primary key attributes for entity types and cardinality ratios for relationship types. If you don't specify a cardinality ratio, then the default $(0, *)$ is assumed.





derived attribute (not asked)

b. Give SQL create table statements for FLIGHT, certified, and hasPilot. Include all primary and foreign key constraints as well as appropriate check constraints.

create table **FLIGHT**(

```
FNo number,
Fdate date,
From varchar2(20),
TO text,
Miles number
Depart datetime , -- timestamp ≅ date + time
Arrives datetime
PRIMARY KEY (FNo, Fdate) );
```

create table certified(

c. Create a view that gives all employees (i.e., pilots) who are assigned to flights that (i) originate in Sacramento (SMF) and (ii) use a Boeing-737.

```
CREATE VIEW myPilots as (
  SELECT Eid, Name, Salary
  FROM EMPLOYEE E, PLANE P, hasPilot h, hasPlane hp, Flight F
  WHERE E.Eid = h.Eid and hp.Fno = F.Fno and hp.Fdate = F.Fdate
  and h.Fno = F.Fno and h.Fdate = F.Fdate and hp.pid = P.pid
  and From = 'SMF' and Model = 'Boeing-737');
```

EMP ~ hasPilot ~ FLIGHT ~ hasPlane ~ PLANE

e. List the pilot(s), certified for the most planes.

```
select Eid from certified
group by Eid
having count(*) = ( select max(count(*))
                    from certified
                    group by Eid
                    );
```

(select Eid, count(*)
from certified
group by Eid);