Database Description

Consider the following relational database describing the information about a very large (and rather fictional) castle [1] [2]:

Floors(Code CHAR(3), Name VARCHAR(80) , Purpose VARCHAR(40))
Rooms(Name VARCHAR(80), Floor CHAR(3), Internal INT)
Connections(Room1 VARCHAR(80),Room2 VARCHAR(80))
Furnishings(FId INT, Name VARCHAR(80), Type VARCHAR(20), Room VARCHAR(80))
Inhabitants(Name VARCHAR(40), Status VARCHAR(20), Room VARCHAR(80))
Ghosts(Nickname VARCHAR(10), Name VARCHAR(80), Type VARCHAR(16), Alignment VARCHAR(16)
Sightings(SightingDate DATE, Ghost VARCHAR(10), Room VARCHAR(80))

In a nutshell, the castle consists of various floors. Because it's a fictional castle, with quite a bit of magic (some say) going on about it, it is hard to number the floors, so instead, each floor has a unique three-letter code (e.g., `"AGV"` or `"BZZ"`) and a unique name, e.g. "Ground(?) Floor", or "1st level basement maybe?". The purpose of each floor, e.g., "Guest Lodgings", "Secret hideout" or "storage" is known better, although multiple floors may have the same purpose. Each floor contains a number of rooms. Rooms may be connected to each other, and (due to the abovementioned fictional nature of the castle), rooms on different floors may be connected to each other. Also note, that for the very same reason (did we mention: the castle is rather fictional) , the fact that room A is connected to Room B does not imply that Room B is connected to Room A. Rooms can be internal, Room.Internal=1, i.e., without windows, or external (Room.Internal=0 means a room with an outside view). The database also keeps track of furnishings (pieces of art, pieces of furniture, etc.) and their locations in the castle. Furnishings have unique ids. They also have names ("Statue of Duke's Great Grandfather"), types ("statue", "chair", "desk", "rug") and locations. The database tracks the castle inhabitants who stay in different rooms of the castle. The inhabitants have names. Their status identifies their relationship to the castle: "employee", "owner", "relative", "guest", etc...

Last, but not least, this is a haunted castle. There are multiple ghosts known to the castle inhabitants, and they are catalogued in the `Ghosts` table, where each ghost is given a short nickname ("Morty"), a full name ("Earl Mortimer Lloyd ap-Donahuill the Third, in his early years") and a category (type) ("ancestor", "victim", "event", "object", "other", etc.). They also have an alignment which represents their general intentions towards living beings ("friendly", "neutral", "malicious", etc.). The castle staff tries to maintain the full list of all ghost sightings in the `Sightings` table, which contains the date of the sighting, the ghost that was seen and the room where the ghost appeared (multiple sightings of the same ghost in the same room on the same date count as a single sighting).

Note that the foreign keys in the databases are straightforward: e.g., Rooms.Floor is a foreign key on Rooms, etc. The most overworked person in the castle is its keeper, who has to make sense out of most things that happen in the castle... He needs your help. Write SQL statements for the following queries.

[1] For more information about large, but rather fictional castles, read ironic science fiction by John deChancie.

[2] This is also partly an homage to Brant Parker and Johnny Hart, the two (now deceased) original creators of the Wizard of ID comic strip.

Problem 3 ***[15 pts.]*** *Consider the following collection of relations*

movies (M)

Id	Title	Year	Director	BoxOffice
1	'Rain Man'	1988	1	$240 mln.
2	'Wag The Dog'	1997	1	$43 mln.
3	'Taxi Driver'	1976	2	$10 mln.
4	'Fargo'	1996	3	$24.5 mln.
5	'Clerks'	1995	4	$3.1 mln.
6	'Memento'	2000	5	$25.5 mln.

directors (D)

Id	Name	NumMovies
1	'Barry Levinson'	20
2	'Martin Scorcese'	22
3	'Joel Coen'	15
4	'Kevin Smith'	10
5	'Christopher Nolan',	7

actors (A)

Id	Name
1	'Dustin Hoffman'
2	'Robert De Niro'
3	'William H. Macy'
4	'Kevin Smith'
5	'Tom Cruise'
6	'Frances McDormand'
7	'Guy Pearce'

roles (R)

Movie	Actor	Part	Award
1	1	'Raymond Babbit'	'Oscar'
1	5	'Charlie Babbit'	'none'
2	1	'Stanley Moss'	'none'
2	2	'Conrad Brean'	'none'
2	3	'CIA Agent'	'none'
3	2	'Travis Bickle'	'none'
4	3	'Jerry Lundegaard'	'none'
4	6	'Marge Gunderson'	'Oscar'
5	4	'Silent Bob'	'none'
6	7	'Leonard Shelby'	'Ind. Sprit'

Notes. (i) Id attributes of movies, directors and actors serve as primary keys. (ii) Director attribute of movies is a foreign key on directors. (iii) Movie and Actor attributes of roles are foreign keys on movies and actors respectively. (iv) Single quotes indicate string values (but are not part of the value). (v) You can use M,D,A and R instead of full relation names in your queries.