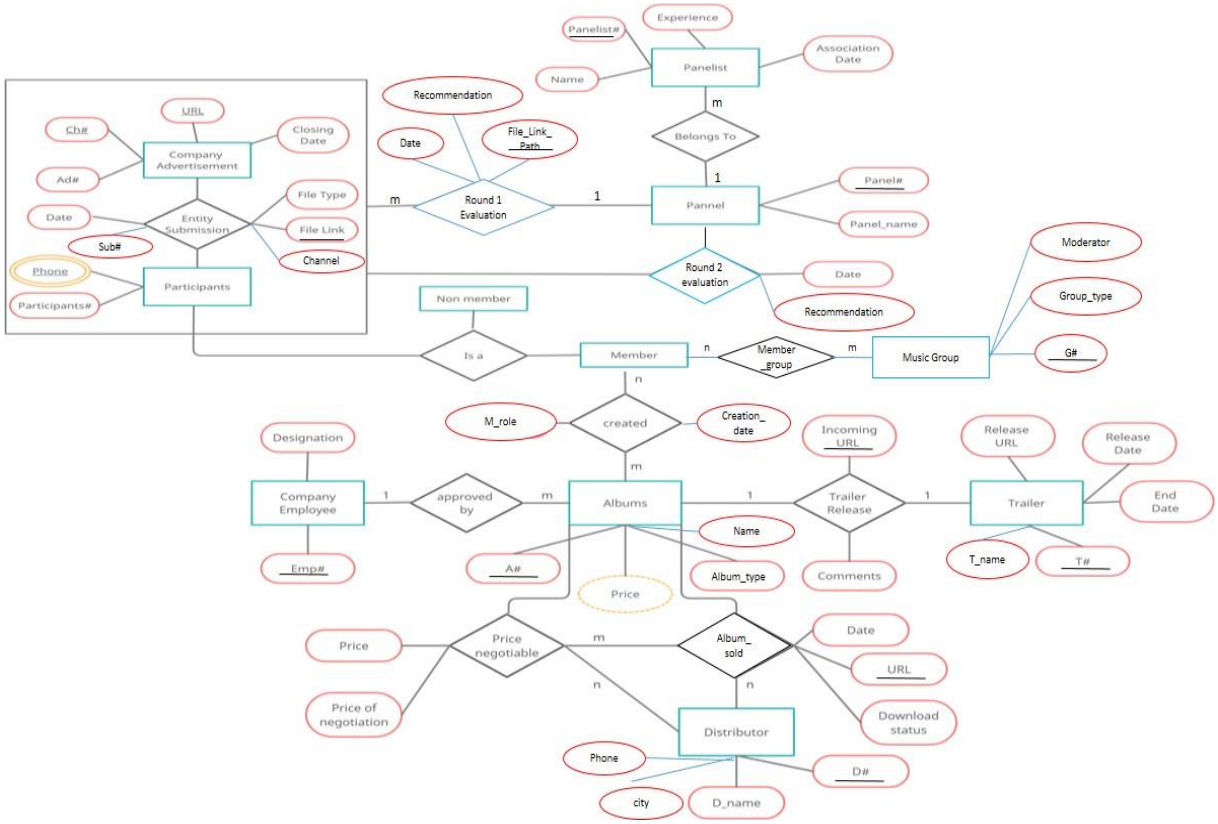
Solution for Tutorial-4

Question1



Design and draw an ER diagram. List your assumptions, if any. We will accept all reasonable assumptions. Your E-R diagram should clearly --

- Identify all entities and their attributes
- Identify relationships between these entities and their attributes
- Identify and underline the primary key of each entity
- Identify entity relationship participation and constraints

Entities-

Company_Advt (Advt#, Channel, URL, Starting_Date, Closing_Date)

Participants (Participant#, Participant_Name, {Phone#}, City, State

Note: Phone is multi-valued

Panellist (Pannelist#, Name, Years_Experience, Joining_Date, Panel#)

Panel (Panel#, Panel_Name)

Company_Employee (E#, Desgination)

Albums (A#, Name, App_E#, Album_type, Price)

Music_Group (Group#, Name, Group_type, Moderator#)

Trailer (T#, T_Name, R-URL, R-Date, E-Date)

Distributor (D#, D_Name, Phone, City)

- Channel and media file can be weak entity.

Relationships with attributes

Entry_Submission (Participant#, URL, Channel, File_Type, Submission_Date, File_Link_Path, S#)

Round1_evaluation (Panel#, File_Link_Path, Date, Recommendation)

Round2_evaluation (Panel#, Member#, Recommendation, Date)

Album_creation (A#, M#, M_Role, Creation_Date)

Tariler_Release (A#, T#, Incoming_URL, Comments)

Album_sold (A#, D#, URL, Date)

Member_Group (M#, Group#)

Price_negotiable(A#, D#, Negotiated_Price, Date)

Question 2: Convert your E-R diagram of Question 1 into relational schemas.

Company_Advt (Advt#, Channel, URL, Starting_Date, Closing_Date)
Participants (Participant#, Participant_Name, {Phone#}, City, State)

Entry_Submission (Participant#, URL, Channel, File_Type, Submission_Date, File_Link_Path, S#)

Panellist (Pannelist#, Name, Years_Experience, Joining_Date, Panel#)

Panel (Panel#, Panel_Name)

Round1_evaluation (Panel#, File_Link_Path, Date, Recommendation)

Round2_evaluation (Panel#, Member#, Recommendation, Date)

Company_Employee (E#, Desgination)

Albums (A#, Name, App_E#, Album_type, Price)

Album_creation (A#, M#, M_Role, Creation_Date)

Music_Group (Group#, Name, Group_type, Moderator#)

Member_Group (M#, Group#)

Trailer (T#, T_Name, R-URL, R-Date, E-Date)

Tariler_Release (A#, T#, Incoming_URL, Comments)

Distributor (D#, D_Name, Phone, City)

Album_sold (A#, D#, URL, Date, Download status)

Price_negotialble(A#, D#, Negotiated_Price, Date)

Question 3: Write the Relational Algebraic Expression (RAE) for each of the following query on relational schemas of Question 2.

A. List all 'Audio' albums released in 2020.

$\sigma_{album_{type}={}^{F}Audio{}^{F}\text{A } creation\_dat(year)=2020}$(Album)

B. List all participants who have submitted both Audio and Video files.

$\pi_{Participants\#}(\sigma_{FileType=Audio \text{ A } FileType=Video}$ (Entry_submission))

C. List all members who have been the member of more than one group

$\pi_{memberName}$ (Member_Group - ($\pi_{memberI}$(Member_Group)))

D. List all members of 'Pop' music group who are not part of any other music group.

$\pi_{memberID}$ ($\sigma_{Group\_Type="pop"}$(Member_Group $\bowtie$ Music_group)) –

$\pi_{memberID}$ ($\sigma_{Group\_Type\neq"pop"}$(Member_Group $\bowtie$ Music_group))

E. List all distributors who sold all types of albums

$\pi_{d\#}(\sigma_{AlbumType=Audio}$ (Album_sold $\bowtie$ Album)) A
$\pi_{d\#}(\sigma_{AlbumType=vedio}$ (Album_sold $\bowtie$Album))

Question 4: Write the SQL statement on relational schemas of Question 2.

A. List all 'Audio' albums released in 2020.

```
SELECT Album#
    FROM Album
    WHERE albumType =Audio AND creation_date(year) =2020;
```

B. List all members who have been the member of more than one group.

```
SELECT M#
    FROM Member_Group
    WHERE ( SELECT Distinct member as m
                FROM Music_Group
                WHERE Member_Group.m = m# AND
                        GROUP By group_name)>1;
```

C. List all members of 'Pop' music group who are not part of any other music group.

```
SELECT DISTINCT Member_Group.m#
    FROM Member_Group, Music_group
    WHERE Music_group.G# = Member_Group.G# AND
        Music_group.Group_type = 'POP' AND
        NOT EXIST IN
        (SELECT M#
        FROM Member_Group
        WHERE Music_group.Group_type != 'POP');
```

D. List all participants who have submitted both Audio and Video files.

```
SELECT participant#

    FROM Entry_submission
    WHERE fileType =Audio AND fileType =video;
```

E. The McM company would like to analyze the data for "Which advertisement channel has been effective that attracted maximum number of entry submissions?"

```
SELECT channel, COUNT(*)
    FROM Entry_submission
    GROUP BY channel;
```