DATA BASE MANAGEMENT SYSTEMS

Assignment-1

By

A. Sai Meghana	-	160121733001
A. Kousalya	-	160121733005
N. Mounika	-	160121733013
P. Triveni	-	160121733016
V. Priyanka	-	160121733027
Y. Dhanalakshmi	-	160121733030

BE/B. Tech 2/4- CSE (COMPUTER SCIENCE AND ENGINEERING)

Branch: **Department of Computer Science and Engineering (CSE-1)**

Submitted to

Ch. Vijayalakshmi

Assistant Professor

Department of Computer Science & Engineering

CHAITANYA BHARATHI INSTITUTE OF TECHNOLOGY (A)

(Affiliated to Osmania University)
Gandipet, Hyderabad- 500075

2022 – 2023

1.PROBLEM SATEMENT:

Scenario: A Poster Exhibition The setting is that you are one organiser of a poster exhibition on "Global Problems of the 21st Century", and you must design a database to keep track of the administration of the exhibition. There are three phases to the administration: submission, selection, and presentation.

Submission Phase: Graphic designers design and submit posters to the exhibition that illustrate one of the chosen global problems. Relevant information on designers includes their name and their affiliation (the organisation they work for) — we assume that these together are enough to uniquely identify each designer. Each poster has a title and is assigned an identification number. Posters may be created by several graphic designers; although each individual designer may only be involved with one poster. Where a group of graphic designers create a poster, we distinguish between the main designer and the co-designers. In case of a single graphic designer, that person is considered to be the main designer of the poster. The main designer is always the point of contact, so should provide an email address.

Selection Phase: All posters created for this exhibition are judged by members of a jury. A judge is a graphic design expert with experience in communication for raising public awareness and for public benefit. Relevant information about each judges includes their name, their affiliation and email. Each poster is judged by three different judges. When judging a poster, a judge gives a decision: accept or reject. A poster is selected for the exhibition only if all three judges give an "accept" decision. The judges cannot compete themselves to appear in the exhibition.

Presentation Phase: All selected posters are presented in the exhibition by their main graphic designers. The poster presentation is allocated a stand and an exhibition session. Each exhibition session takes place at a specific date, and 4 session topics have been announced: human rights, climate change, inequality, and war.

2.METHODOLOGY

a)Submission Phase:

In this phase ,Graphic designers design and submit the posters on one of the chosen global problems. As per the problem statement a designer can be a main designer or co-designer. In a group of designers one will be main graphic designer and others are considered to be co-designers whereas for a single graphic designer that person is considered to be main designer.

Q1.Determining possible entity sets

In the submission phase, the chosen entities are:

- Poster
- Designer
- Main Designer
- Co-Designer

These are the entity sets that are included in this phase. Each entity set is a collection of similar type of such entities i.e Poster entity set is a collection of many such poster designs and Designer entity set is group of designers who are of same type of entity.

Q2.Defining attributes for a given entity-set.

For Poster entity set the attributes are

- Title
- Poster id

For Designer entity set the attributes are:

- Name
- Affiliation (it is the organization that the designer works for)

For Main Designer entity set the attributes are:

- Name
- Affiliation
- Email id
- Designer id

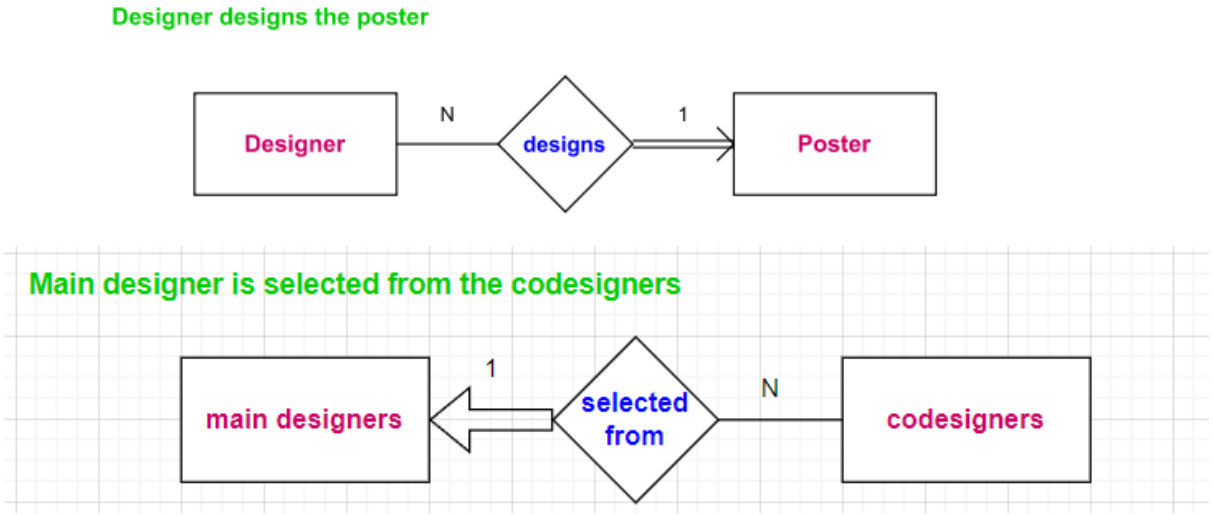
For Co- Designer entity set the attributes are:

- Name
- Affiliation(it is the organization that the designer works for)
- Designer id

Id is allocated for designers based on the poster that they design.

Q3.Describing relationships

There are two relationships in this phase. One relation exists between Designer and Poster. And the other between Co-designer and Main designer.



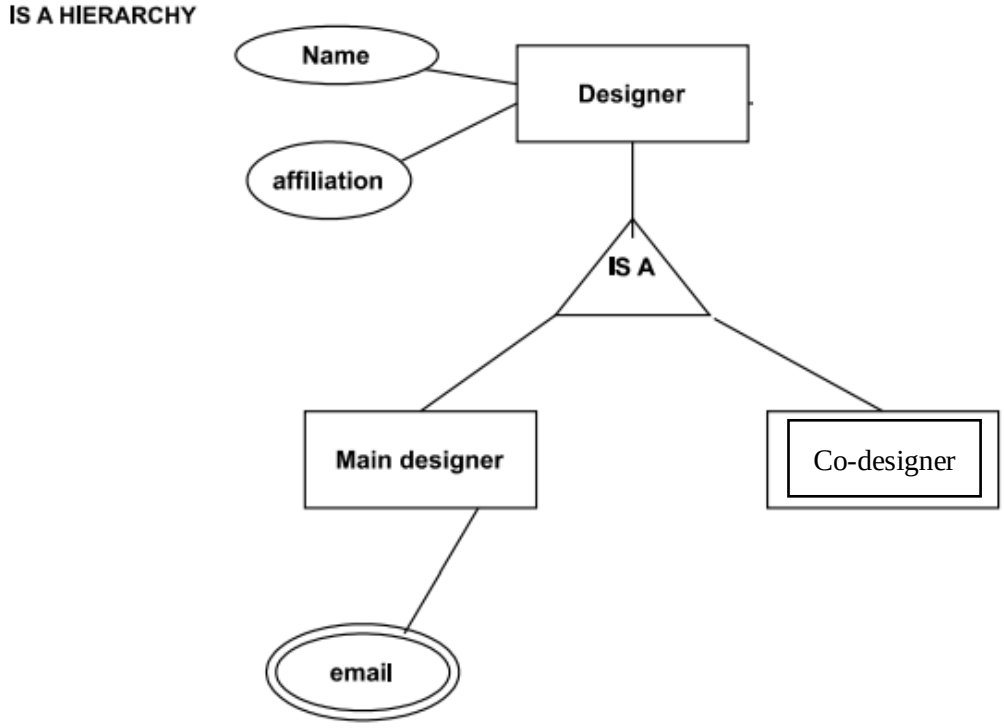
Participation Constraints:

1. Not all designers will design the poster, some are allocated for judge position. So Designer entity set partially participate in design relationship.
2. All the posters will be done by the designers only. So posters will totally participate in the relationship.
3. All the co-designers will be managed by main-designer. But in case of single designer there are no co-designers. So co-designer entity will be Partial Participation.
4. In case of single designer, the same person is considered to be main-designer. So main-designer will be total participation.

Since Co-designer doesn't have any primary key attributes it is considered to be weak entity set.

There exists an ISA hierarchy between Designer & Main designer and Designer & Co-designer. It explains that a Designer can be Main designer or Co-designer. As main-designer is the point of contact, he is given an email address which is an given

as an attribute to that of designer entity set.



Foreign Key:

In the whole concept Id's are provided only to the Poster. The designer who designs the poster is allocated that particular poster Id. So the poster Id acts as a foreign key to the designer entity.
Designer Attribute Name+Affiliation acts as foreign key to co-designer

Q4.Defining Primary keys

A Primary Key is a single column/field in a table that uniquely identifies each record in a database table. In the specified entity sets the primary keys are as follows:

- For Poster entity set poster id is considered as primary key since each poster has unique ID and it is not null.
- For Designer entity set, Name + Affiliation is considered to be a primary key as they together uniquely identify entities in this entity set.
- For Main designer, email id is considered to be a primary key because in this case email-id is unique and not null (mandatory for a main-designer).
- Co-designer is assigned the main-designer ID which acts as primary key.

b)Selection Phase:

Judge is considered to be a designer with experience. All the posters are judged by a group of three different judges. Each judge gives a decision “accept” or “reject”. The poster will be selected if and only if all three judges gives an accept decision.

Q1.Determining possible entity sets

In the selection phase, the chosen entities are:

- Poster
- Judge

Poster is the same entity set that is included in the submission phase. Judge entity set includes a set of 3 judges with similar attributes.

Q2.Defining attributes for a given entity-set.

For Poster entity set the attributes are

- Title
- Poster id

For Judge entity set the attributes are

- Name
- Affiliation
- Email id
- Experience

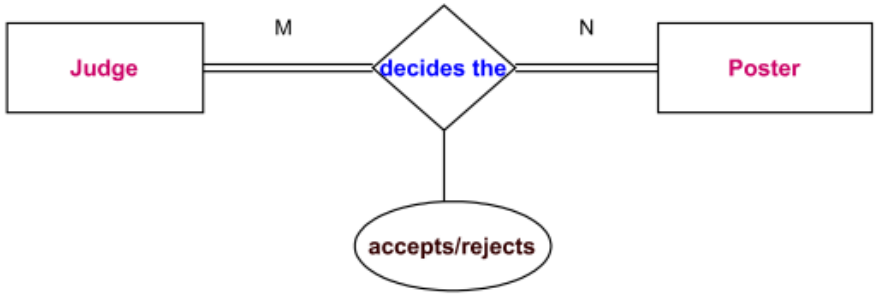
Q3.Describing relationships

In this phase, there exists a relationship between judge and poster. Judge decides Poster**.** Poster is submitted to the judge by Main designer. There is an IS-A relationship between Designer and three other entities Main designer, Co-designer and Judge. This explains that a Designer can be main designer or co-designer or judge with some added attributes.

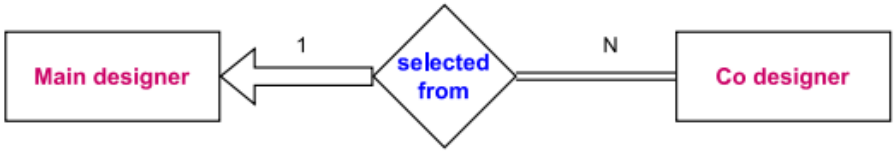
Foreign Key:

Poster ID acts as a foreign key to designer entity.

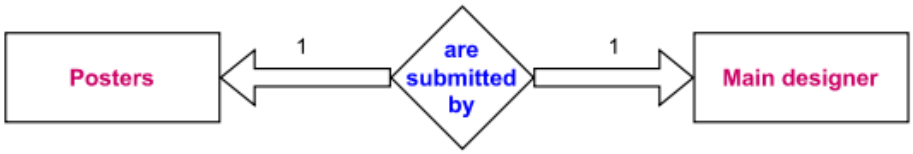
Judge decides the poster



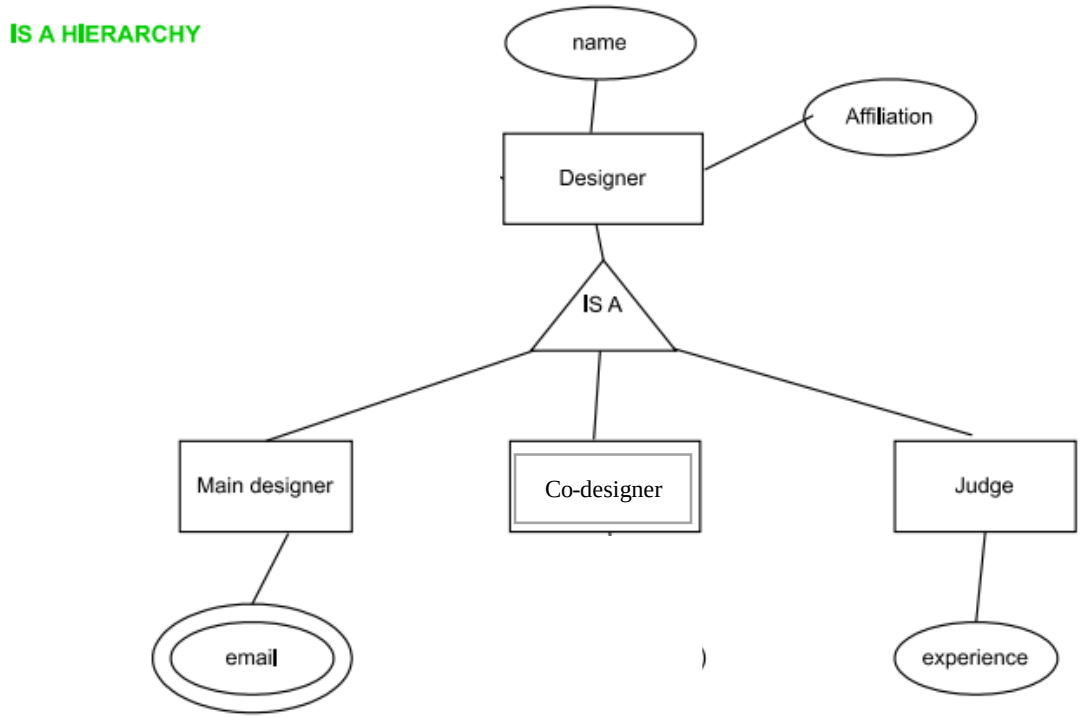
Main designer selected from codesigner



Posters are submitted by main designer



IS-A Relationship



Q4. Defining Primary keys

- For Judge entity set, email id is considered to be a primary key as they together uniquely define entities in this entity set.
- For designers Name+affiliation is considered to be primary key.
- For Main-Designer email-id is considered to be primary key.

c) Presentation Phase:

Selected Posters are presented by Main Designer and each poster is allocated a session which has attributes as session date, session topic.

Q1. Determining possible entity sets

In the presentation phase, the chosen entities are:

- Poster
- Main-designer
- Session

Poster is the same entity set that is included in the submission phase. Judge entity set includes a set of 3 judges with similar attributes.

Q2. Defining attributes for a given entity-set.

For Poster entity set the attributes are

- Title
- Poster id

For main-designer

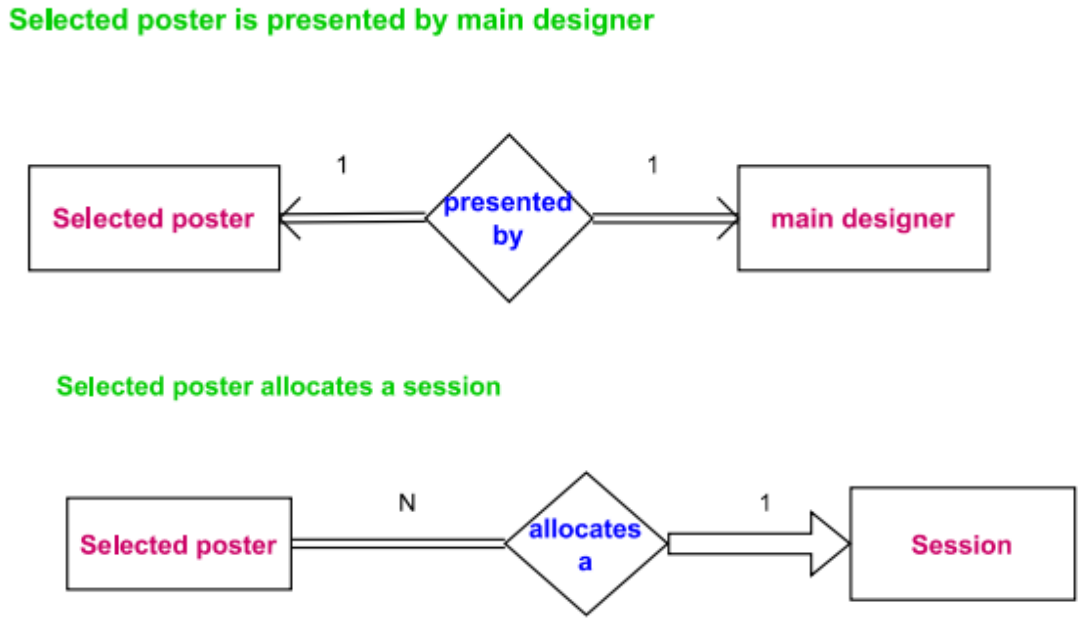
- Email id
- Name
- Affiliation
- ID

For session

- date
- topic

Q3.Describing relationships

In this phase, there exists an relationship between Main Designer and poster i.e Main Designer presents the poster in the allocated session**.**



Q4.Defining Primary keys

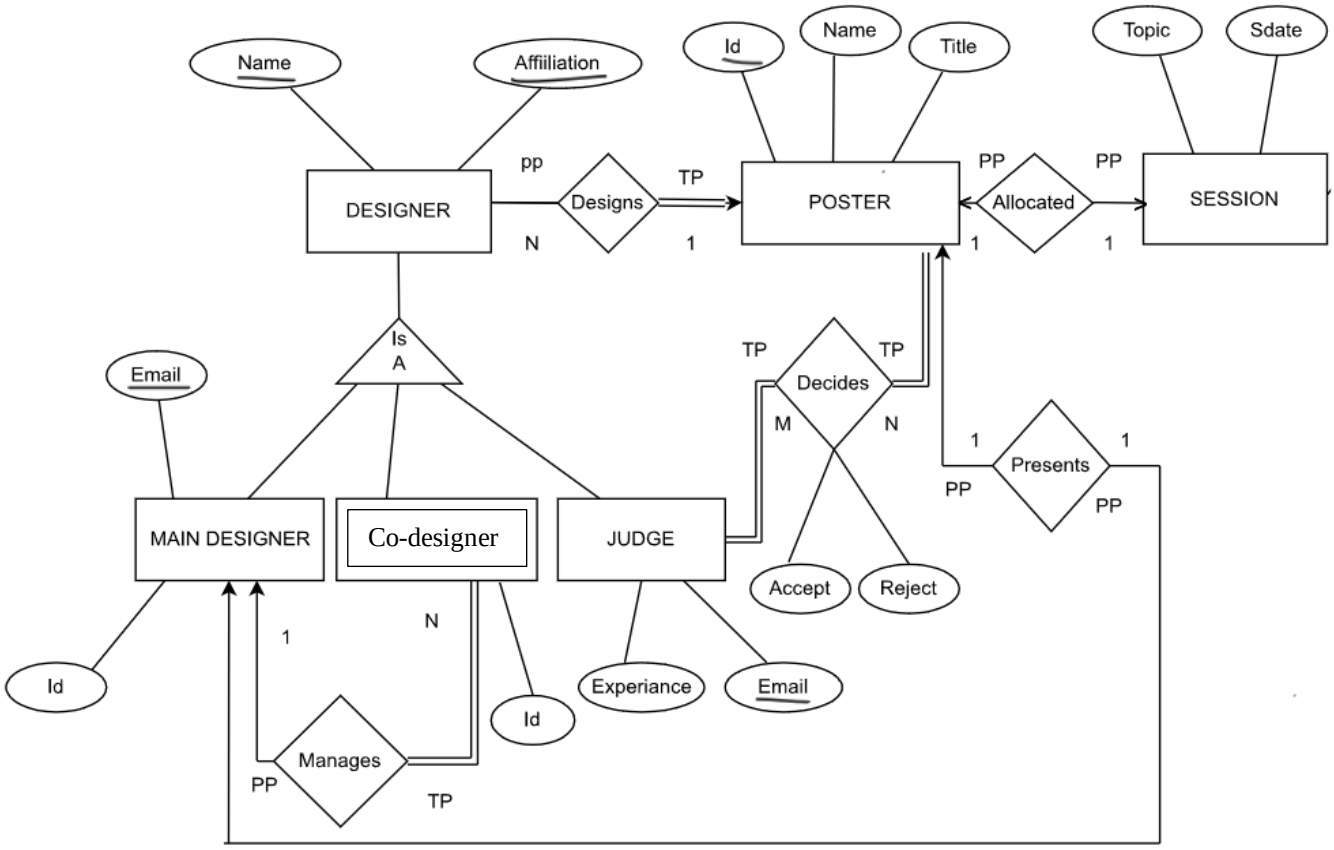
- For main designer email id is primary key.
- Selected poster Id is primary key attribute.
- For session date is taken as primary key attribute because date is unique and

not null in this case.

Foreign Key:

Poster Id acts as a foreign key to main designer id.

ER Model



Relational Model

Submission Phase

1. **Poster database**

```
create table poster(pid number(5) primary key, title varchar2(20) not null);
insert into poster values(1001, 'Human Rights');
insert into poster values(1002, 'Climate Change');
insert into poster values(1003, 'Inequality');
insert into poster values(1004, 'War');
insert into poster values(1005, 'Human Rights');
    select * from poster;
```

	PID	TITLE
1	1001	Human Rights
2	1002	Climate Change
3	1003	Inequality
4	1004	War
5	1005	Human Rights

2. **Designer database**

```
create table designer(
   name varchar2(30),
   affiliation varchar2(30),
   constraint cons_pk primary key(name,affiliation)
);
insert into designer values('Joseph Geller','Senior design expert');
insert into designer values('Harsh Sharma','Main Designer');
insert into designer values('Rekha Mukerjee','Co designer');
insert into designer values('Monika Geller','Main designer');
insert into designer values('Joseph Tribuani','Coordinator');
insert into designer values('Sunny','Junior designer');
insert into designer values('Devi','Senior designer');
insert into designer values('Mark','Assistant designer');
insert into designer values('Elon','expert designer');
insert into designer values('Mohith','Junior designer');
    select * from designer;
```

	NAME	AFFILIATION
1	Joseph Geller	Senior design expert
2	Harsh Sharma	Main Designer
3	Rekha Mukerjee	Co designer
4	Monika Geller	Main designer
5	Joseph Tribuani	Coordinator
6	Sunny	Junior designer
7	Devi	Senior designer
8	Mark	Assistant designer
9	Elon	expert designer
10	Mohith	Junior designer

Main Designer Database

```
create table maindesigner(
    mid number(5),
    name varchar2(30),
    affiliation varchar2(30),
    email varchar2(20),
    primary key(name,affiliation,email),
   Foreign key (mid) references poster(pid),
   Foreign key (name,affiliation) references designer(name,affiliation)
     );
insert into maindesigner values(1001,'Joseph Geller','Senior design
    expert','joseph@yahoo.com');
insert into maindesigner values(1002,'Harsh Sharma','Main
    Designer','harsh@gmail.com');
    insert into maindesigner values(1003,'Joseph
    Tribuani','Coordinator','trib@yahoo.com');
    select * from maindesigner;
```

	MID	NAME	AFFILIATION	EMAIL
1	1001	Joseph Geller	Senior design expert	joseph@yahoo.com
2	1002	Harsh Sharma	Main Designer	harsh@gmail.com
3	1003	Joseph Tribuani	Coordinator	trib@yahoo.com

Codesigner database

```
create table codesigner(
    cid number(5),
    name varchar2(30),
    affiliation varchar2(30),
   Foreign key (cid) references poster(pid),
   Foreign key (name,affiliation) references designer(name,affiliation)
);
select * from codesigner;

insert into codesigner values(1001,'Sunny','Junior designer');
insert into codesigner values(1002,'Devi','Senior designer');
insert into codesigner values(1003,'Mark','Assistant designer');
insert into codesigner values(1003,'Elon','expert designer');
insert into codesigner values(1002,'Mohith','Junior designer');
```

select * from codesigner;

	CID	NAME	AFFILIATION
1	1001	Sunny	Junior designer
2	1002	Devi	Senior designer
3	1003	Mark	Assistant designer
4	1003	Elon	expert designer
5	1002	Mohith	Junior designer

Selection Phase

1. **Judge database**

```
create table Judge(
    name varchar2(30),
    email varchar2(30) primary key,
    affiliation varchar2(30),
    experience number(2)
);
```

```
insert into judge
values('Joseph Geller','joseph21@gmail.com','Senior design expert',12);
insert into judge
values('Margeret Tribuani','marge@gmail.com','Asst. Deputy designer',10);
insert into judge
values('Rachel Green','greenrachel@yahoo.com','Senior Coordinator',15);
```

```
select * from judge;
```

	NAME	EMAIL	AFFILIATION	EXPERIENCE
1	Joseph Geller	joseph21@gmail.com	Senior design expert	12
2	Margeret Tribuani	marge@gmail.com	Asst. Deputy designer	10
3	Rachel Green	greenrachel@yahoo.com	Senior Coordinator	15

```
select pid ,title
from poster
where status = ‘accept’;
```

	PID	TITLE
1	1002	Climate Change
2	1004	War

Presentation Phase

Session Database

```
create table Session1(sdate date primary key, stopic varchar2(20) not null);
insert into session1 values('07-Jun-2023','Climate change');
insert into session1 values('08-Jun-2023','Human Rights');
insert into session1 values('09-Jun-2023','War');
insert into session1 values('10-Jun-2023','Inequality');
select * from session1;
```

	SDATE	STOPIC
1	07-JUN-23	Climate change
2	08-JUN-23	Human Rights
3	09-JUN-23	War
4	10-JUN-23	Inequality

Conclusion:

The ER Model for the given scenario is done by merging all the entities and Relationships from three phases. Hence the ER model is built successfully. Relational Model is constructed using entities and attributes described in ER model.

Video recording link

https://drive.google.com/file/d/12FbE3RAXE6d3ciuP_wgTAC1vHUOEUnxP/view?usp=sharing