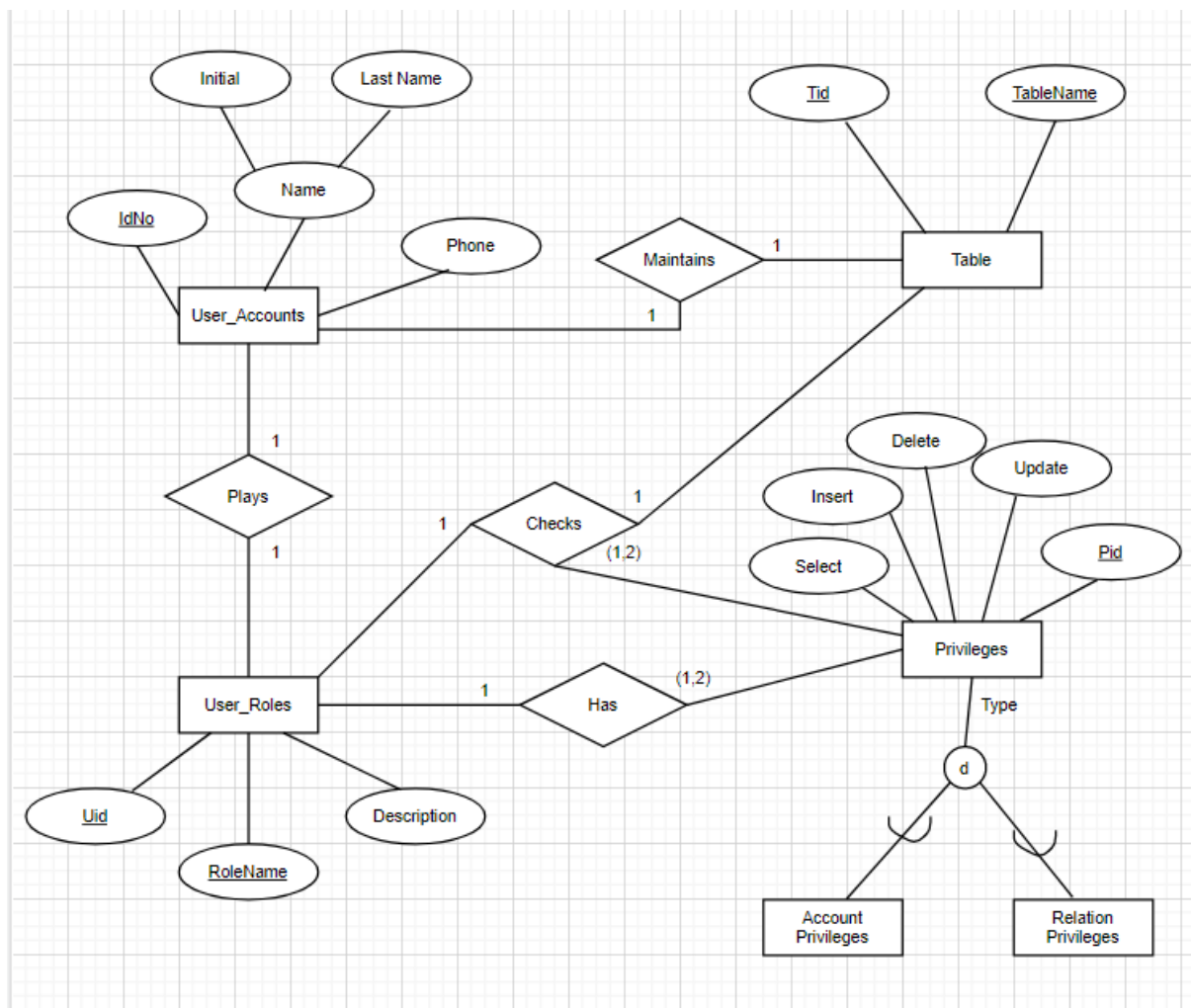


# EER Report

The enhanced entity–relationship (EER) model (or extended entity–relationship model) in computer science is a high-level conceptual data model incorporating extensions to the original entity relationship (ER) model, used in the design of databases. It was developed to reflect more precisely the properties and constraints that are found in more complex databases.

Part 1:

The EER diagram for the Security Database is as follows:



The EER diagram pertaining to the Security database has been made with the following assumptions:

1) Main entity types and their primary key:

Each entity has a unique attribute as shown below:

➤ User\_Accounts:

Here, The Primary Key is the Id\_No. Also, the attribute Name is made composite with the attributes Initial and Last Name.

➤ User\_Roles:

The Role\_name is the Primary key. Uid is a foreign key which maps to the primary key in the User\_Accounts table.

➤ Table(dbtable in DB):

The Tid and TableName are the primary keys for this table where id maps as a foreign key to the User\_accounts Table.

➤ Privileges:

The Pid is the primary key for this table where id maps as a foreign key to the User\_accounts Table as well.

2) Specialization:

Based on the Type, Privileges are specialized into Account\_Privileges and Relation\_Privileges. It is partial disjoint specialization.

3) Constraints:

- There are only 2 types of privileges and each privilege belongs to only one of the 2 types.
- Each Table is related to a single User Account.

4) Relationships and Relationship types:

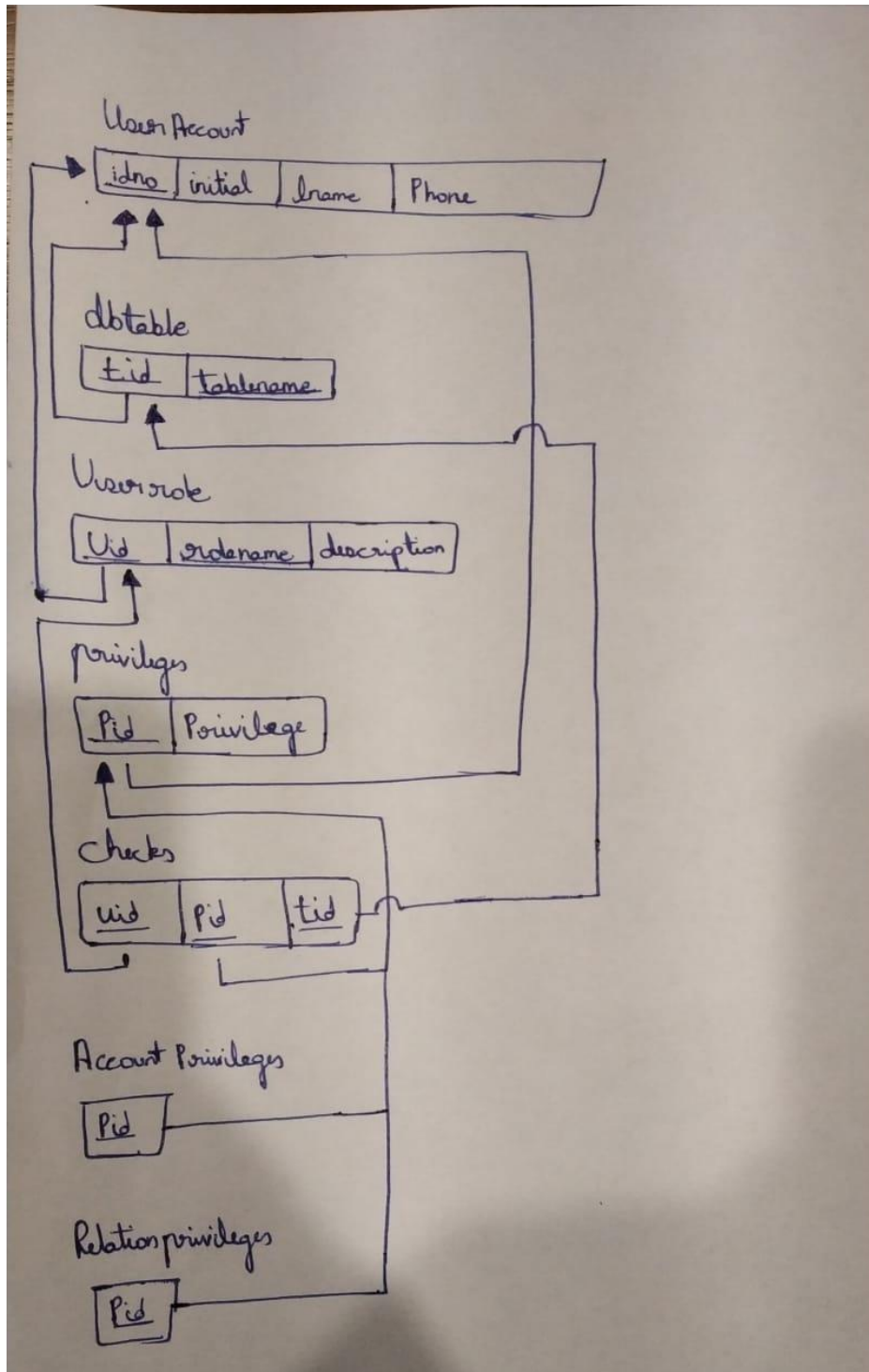
We can see many types of relationships in the schema and they are as follows:

- Plays: This is a Relationship of type 1:1 where each User can play just one role. Each Role has a description and is mapped to the User based on the ID.
- Has: This is a Relationship of the type 1:N where a User\_Role can have either of the two Privileges-Relation\_Privileges or Account\_Privileges. If a role is related to a particular privilege, then all user accounts related to that role will have that privilege.
- Maintains: This is a Relationship of type 1:1 where each User maintains one unique TableName, and is related to a single USER\_ACCOUNT

who is the owner of the TABLE..Each User is mapped to the User based on the ID.

- Checks: This is a Ternary Relationship where each User has a unique Role which is stored under a separate table name and can have either of the 2 mentioned privileges.

Part 2:



## CREATE Table Commands:

1]

```
create table useraccount  
(  
  idno int(5) PRIMARY KEY,  
  initial VARCHAR(15) ,  
  lname VARCHAR(20),  
  phone VARCHAR(20)  
);
```

2]

```
create table dbtable  
(  
  tid int(5),  
  tablename varchar(30) ,  
  PRIMARY KEY (tid,tablename),  
  FOREIGN KEY(tid) REFERENCES useraccount(idno)  
);
```

3]

```
create table userrole  
(  
  uid int(5),  
  rolename varchar(30) ,  
  description varchar(50),  
  PRIMARY KEY (uid,rolename),  
  FOREIGN KEY(uid) REFERENCES useraccount(idno)  
);
```

4]

```
create table privileges  
(
```

```
pid int(5) primary key,  
selectc varchar(30) ,  
insertc varchar(30) ,  
deletec varchar(30) ,  
updatec varchar(30) ,
```

```
FOREIGN KEY(pid) REFERENCES useraccount(idno)  
);
```

5]

```
create table checks
```

```
(  
uid int(5),  
pid int(5),  
tid int(5),
```

```
primary key(uid,tid,pid),
```

```
FOREIGN KEY(uid) REFERENCES useraccount(idno),  
FOREIGN KEY(pid) REFERENCES privileges(pid),  
FOREIGN KEY(tid) REFERENCES dbtable(tid)
```

```
);
```

6]

```
create table accountprivileges
```

```
(  
pid int(5),
```

```

FOREIGN KEY(pid) REFERENCES privileges(pid)
);

```

7]

```

create table relationprivileges
(
pid int(5),
FOREIGN KEY(pid) REFERENCES privileges(pid)
);

```

Part 3:

```
mysql> show tables;
```

```

+-----+
| Tables_in_security |
+-----+
| accountprivileges |
| checks            |
| dbtable           |
| privileges        |
| relationprivileges |
| useraccount       |
| userrole          |
+-----+

```

7 rows in set (0.01 sec)

```
mysql> select * from useraccount;
```

```

+-----+-----+-----+-----+
| idno | initial | lname | phone |
+-----+-----+-----+-----+

```

1	J	snow	1111111110
2	A	ralph	1111111111
3	V	megz	1111111112
4	R	ahaan	1111111113
5	M	amar	1111111114
6	A	apsara	1111111115
7	V	arpitha	1111111116
8	R	kallu	1111111117
9	S	john	1111111118
10	K	ham	1111111119

+-----+-----+-----+-----+

10 rows in set (0.00 sec)

mysql> select \* from dbtable;

+-----+-----+

tid	tablename
-----	-----------

+-----+-----+

1	table1
---	--------

2	table2
---	--------

3	table3
---	--------

4	table4
---	--------

5	table5
---	--------

6	table6
---	--------

7	table7
---	--------

8	table8
---	--------

9	table9
---	--------

10	table10
----	---------

+-----+-----+

10 rows in set (0.00 sec)

```
mysql> select * from userrole;
```

```
+-----+-----+-----+
| uid | rolename | description      |
+-----+-----+-----+
|  1 | admin   | The main person  |
|  2 | guest   | has no permissions |
|  3 | guest   | has no permissions |
|  4 | employee | limited permissions |
|  5 | manager | manages employees |
|  6 | teamlead | leads the employees |
|  7 | employee | limited permissions |
|  8 | ceo     | owns the place   |
|  9 | employee | limited permissions |
| 10 | guest   | has no permissions |
+-----+-----+-----+
```

```
10 rows in set (0.00 sec)
```

```
mysql> select * from privileges;
```

```
+-----+-----+
| pid | privilege |
+-----+-----+
|  1 | account  |
|  2 | relation  |
|  3 | relation  |
|  4 | relation  |
|  5 | account  |
|  6 | account  |
|  7 | relation  |
|  8 | account  |
|  9 | relation  |
```



```
| 10 | relation |
```

```
+-----+-----+
```

```
10 rows in set (0.00 sec)
```

```
mysql> select * from accountprivileges;
```

```
+-----+
```

```
| pid |
```

```
+-----+
```

```
| 1 |
```

```
| 5 |
```

```
| 6 |
```

```
| 8 |
```

```
+-----+
```

```
4 rows in set (0.00 sec)
```

```
mysql> select * from relationprivileges;
```

```
+-----+
```

```
| pid |
```

```
+-----+
```

```
| 2 |
```

```
| 3 |
```

```
| 4 |
```

```
| 7 |
```

```
| 9 |
```

```
| 10 |
```

```
+-----+
```

```
6 rows in set (0.00 sec)
```

```
mysql> notee
```

