

Assignment 4

Qinglin Li, 5110309074

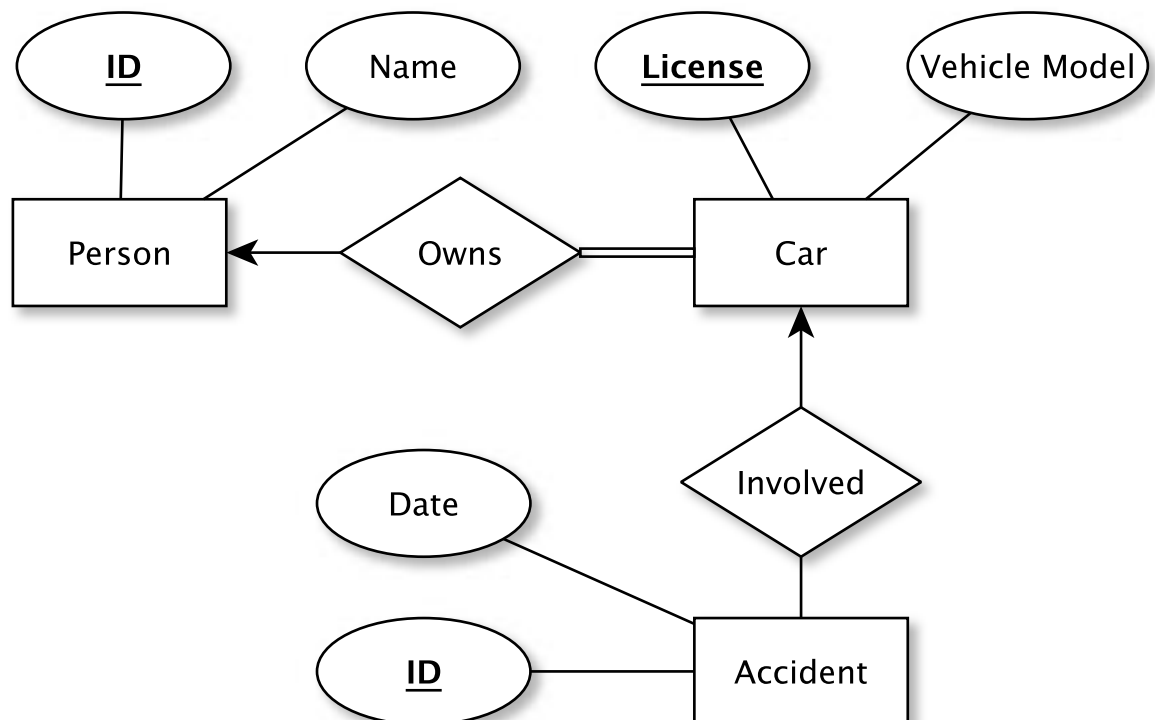
Problem 1

- **Super key** is a set of attributes that uniquely identifies a tuple within a relation,
- **Candidate key** is a super key and no proper subset of it can be a super key.
- **Primary key** is the candidate key that is selected to identify tuples uniquely within the relation.

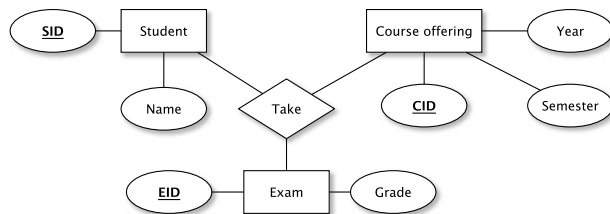
Problem 2

- **Weak entity set** is an entity set has no sufficient attributes to form a primary key.
- **Strong entity set** is an entity set has a primary key.

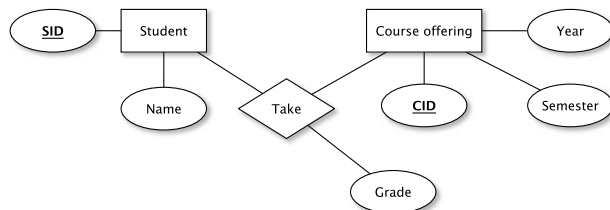
Problem 3



Problem 4



a)



b)

Problem 5

```
create table person(
  ID int primary key not null auto_increment ,
  name varchar(20)
);
```

```
create table car(
  license varchar(20) primary key not null ,
  person_id int references person ,
  vehicle_model varchar(20) not null
);
```

```
create table accident(
  ID int primary key not null auto_increment ,
  accident_date date not null
);
```

```
create table involved(
  accident_id int references accident ,
  car_license varchar(20) references car ,
  primary key (accident_id , car_license)
);
```

Problem 6

Aggregation is an abstraction through which relationships are treated as higher-level entities. Thus the relationship between entities can be treated as an entity.

Examples:

1. Programmers work for projects. A programmer works for a certain project using many languages.
2. Workers work for projects. A worker work for a certain project using many tools.