Assignment 4

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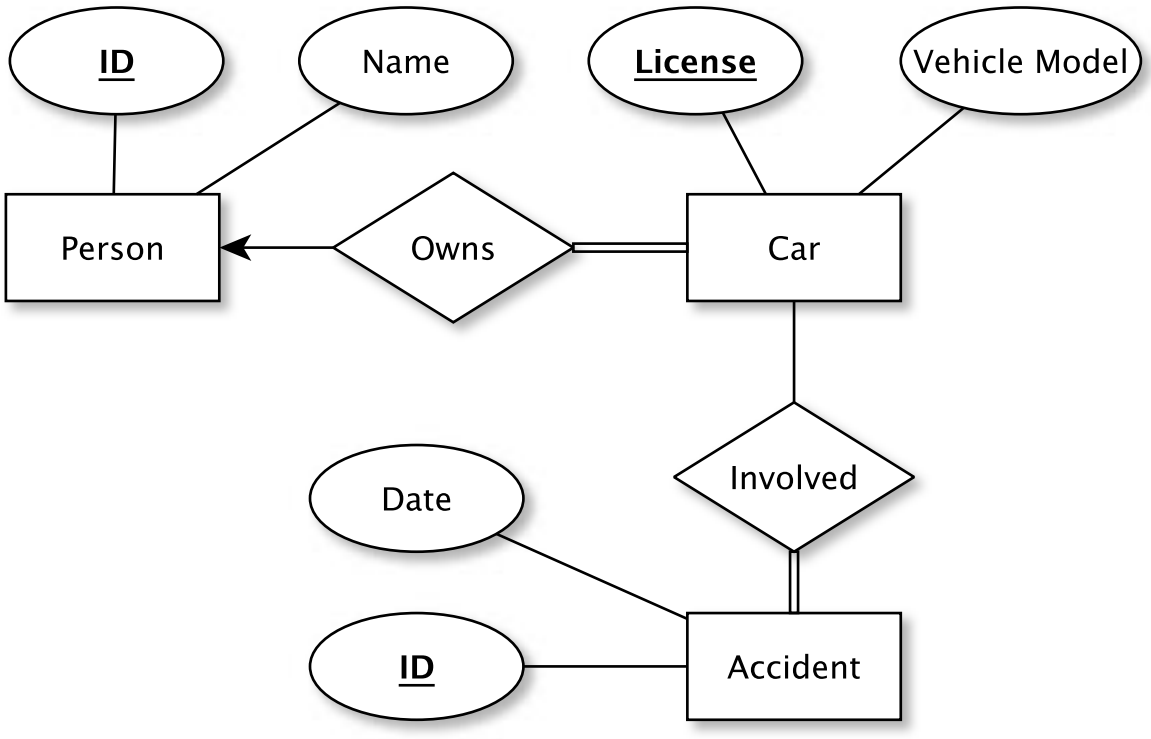
Problem 1

- **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

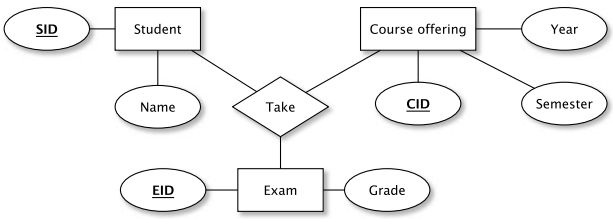
- **Weak entity set** is an entity set has no sufficient attributes to form a primary key.
- **Strong entity set** is an entity set has a primary key.

Problem 3

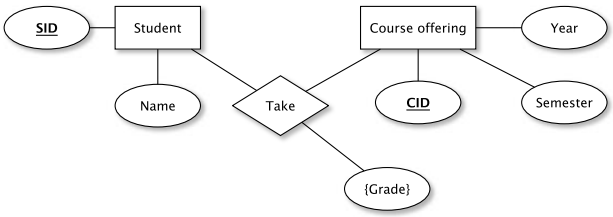


Problem 4

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 centain project using many tools.