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SQL: Sample Database

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❖ SQL Sample Database

It is easier to discuss SQL via concrete examples

We use a database about beer, people who drink it, ...

- beers have a name and style, and are made by a brewery
- beer drinkers go to bars/hotels where they can drink beer
- bars/hotels sell a variety of beers, at varying prices
- drinkers have favourite beers and other beers they like

Many other aspects, e.g. ABV, ratings, notes, etc. could have been added

This database is not autobiographical ...

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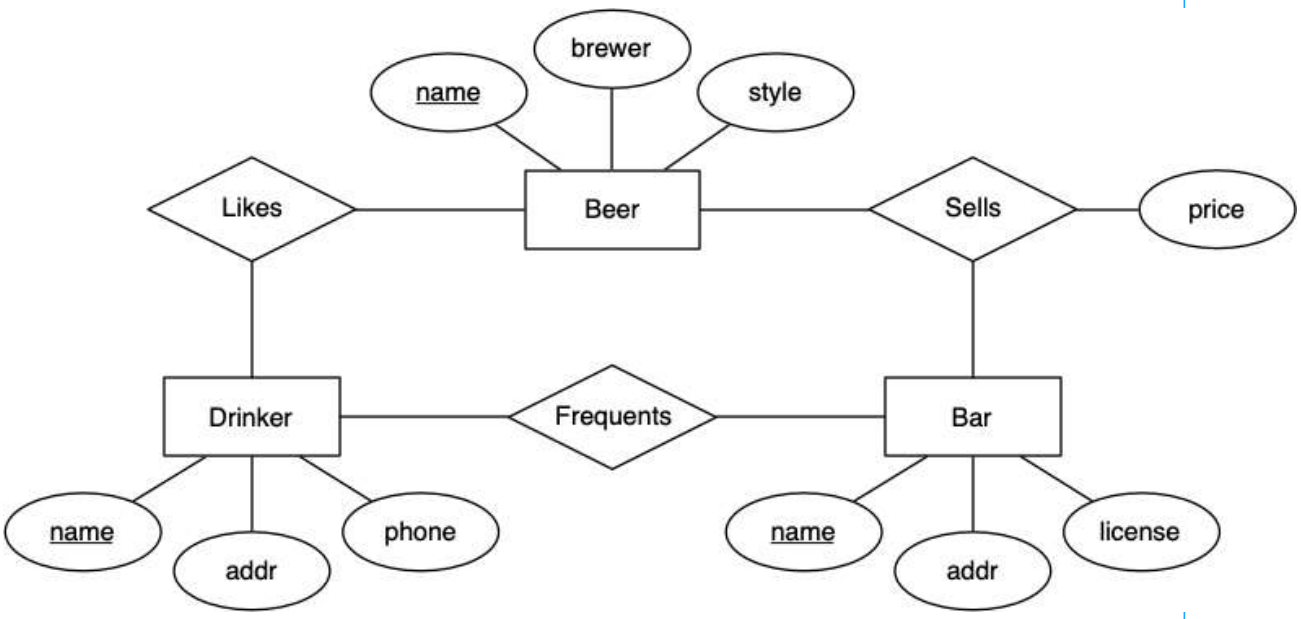
❖ SQL Sample Database (cont)

ER design for beer database ...



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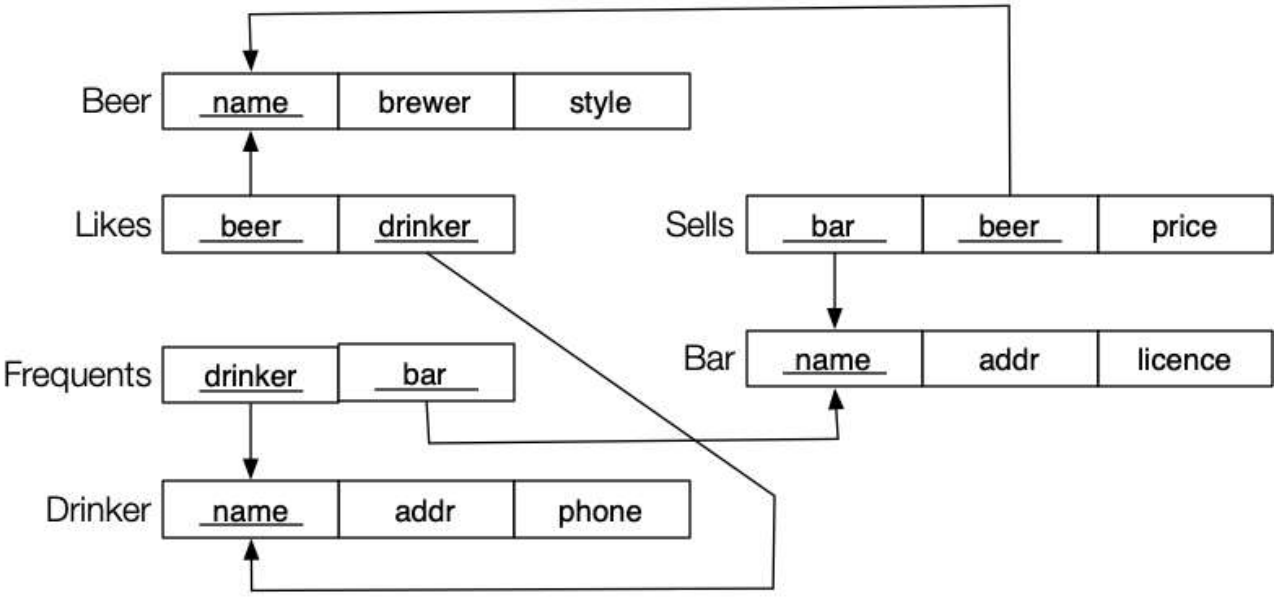
❖ SQL Sample Database (cont)

Relational model for beer database ...



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❖ SQL Sample Database (cont)

SQL schema for beer database ...

```
-- Some useful data "types"

create domain BeerName varchar(50);
create domain BarName varchar(30);
create domain DrinkerName varchar(20);

-- Tables based on entities

create table Beers (
    name    BeerName,
    brewer  varchar(40) not null,
    style   varchar(40),
    primary key (name)
);

create table Bars (
    name    BarName,
    addr    varchar(20),
    license integer not null,
    primary key (name)
);

create table Drinkers (
    name    DrinkerName,
    addr    varchar(30) not null,
    phone   char(10) not null,
    primary key (name)
);

-- Tables based on relationships

create table Sells (
    bar     BarName,
    beer    BeerName,
    price   float,
    primary key (bar,beer),
    foreign key (bar) references Bars(name),
    foreign key (beer) references Beers(name)
```

these domains are useful for re-use but they also protect the foreign key type being identical to the primary key type i.e. you won't make the mistake of using varchar(x) for the pkey, and varchar(y) for the fkey.

```
);

create table Likes (
    drinker DrinkerName,
    beer    BeerName,
    primary key (drinker,beer),
    foreign key (drinker) references Drinkers(name),
    foreign key (beer) references Beers(name)
);

create table Frequents (
    drinker DrinkerName,
    bar     BarName,
    primary key (drinker,bar),
    foreign key (drinker) references Drinkers(name),
    foreign key (bar) references Bars(name)
);
```

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❖ SQL Sample Database (cont)

Sample beer data ...

```
beer=# select * from Beers order by name limit 15;
        name          |     brewer      |          style
----------------------+-----------------+-------------------------
 1750 Export Porter   | Kees            |
 4D                   | Dainton         | Imperial Red Rye IPA
 80/-                 | Caledonian      | Scotch Ale
 Age of Aquarius      | Garage Project  | NEIPA
 Alexander            | Rodenbach       | Flanders Red Ale
 Amber Ale            | James Squire    | Amber Ale
 Apollo After Dark    | Hawkers         | Imperial Stout
 Astrolabe            | Frenchies       | Red Biere de Garde
 BBARIS               | Mismatch        | Russian Imperial Stout
 Banana Pastry Stout  | Hop Nation      | Pastry Stout
 Barley Griffin       | Bentspoke       | Pale Ale
 Berserker            | Ekim            | Amber IPA
 Betelgeuse           | Kaiju           | Double Red Ale
 Big Nut              | Bentspoke       | Dark IPA
 Bigfoot              | Sierra Nevada   | Barleywine
(15 rows)
```

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❖ SQL Sample Database (cont)

Sample data about drinkers ..

```
beer=# select * from Drinkers;
  name   |    addr     |   phone
---------+-------------+------------
 Adam    | Randwick    | 9385-4444
 Gernot  | Newtown     | 9415-3378
 John    | Alexandria  | 9665-1234
 Andrew  | Clovelly    | 9123-1234
 Justin  | Mosman      | 9845-4321
 Helen   | Coogee      | 9876-5432
(6 rows)
```

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❖ SQL Sample Database (cont)

Sample data about drinkers ..

```
beer=# select * from Bars;
       name        |     addr     | license
-------------------+--------------+---------
 Australia Hotel   | The Rocks    |  123456
 Coogee Bay Hotel  | Coogee       |  966500
 Lord Nelson       | The Rocks    |  123888
 Marble Bar        | Sydney       |  122123
 Regent Hotel      | Kingsford    |  987654
 Royal Hotel       | Randwick     |  938500
 Local Taphouse    | Darlinghurst |  884488
(7 rows)
```

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