

Name: _____ **KEY** _____

Vehicle(VRN, Ma, Mo, Color) ,
 VRN Ma Mo Color

123	Honda	Hawk	Red
234	Mazda	RX7	Blue
345	Ford	Taurus	Blue
456	Ford	Ranger	Green
567	Honda	Accord	Red
678	Mazda	RX7	Silver
789	VW	Bug	White
890	Suzuki	Intruder	Black
901	Harley	Sportster	Black
012	VW	Bug	Red

Own(VRN, SSN) ,
 VRN SSN

123	bcd
234	abc
456	def
567	ghi
683	def
795	abc
901	bcd

Person (SSN, Name, Addr, Phone)
 SSN Name Addr Phone

abc	Dave	Birch	xxx
bcd	Mary	Grove	yyy
cde	Sriram	Oak	zzz
def	Fang	Birch	www
efg	Derek	Elm	uuu
fgh	Joan	Elm	vvv
ghi	Xie	Oak	sss
hij	Gilford	Birch	ttt

This self-assessment was given BEFORE the class learned aggregate operators (relevant to 2 potentially) or special JOIN keywords such as LEFT JOIN, RIGHT JOIN, etc (relevant to both 1 and 2 potentially)

1. Write an SQL query that returns the Name and Phone of all Persons owning a Ford.

```
SELECT P.Name, P.Phone
FROM Vehicle V, Own O, Person P
WHERE V.Ma = 'Ford' AND V.VRN = O.VRN AND O.SSN = P.SSN;
```

In class we discussed common mistakes that those new to SQL might make, like leaving out one or more of the join conditions (V.VRN = O.VRN AND O.SSN = P.SSN), particularly because the need for join is often not explicit in the query specification, whereas select conditions (V.Ma = 'Ford') are typically explicit

2. Write a query that returns the VRN and Mo of any vehicle that isn't owned.

```
SELECT V.VRN, V.Mo
FROM Vehicle V
WHERE V.VRN
  NOT IN
  (SELECT O.VRN FROM Own O)
```

```
SELECT V.VRN, V.Mo
FROM Vehicle V
EXCEPT
SELECT V.VRN, V.Mo
FROM Vehicle V, Own O
WHERE V.VRN = O.VRN
```

Two alternatives that essentially start with all vehicles, and filter out any that are owned (i.e., participate in Own).

We discussed the implicit assumption in these answers, that a NULL SSN in Own was NOT used to represent that a Vehicle (a VRN in Own) was unowned (though that could be a possible representation) . Our assumption: an Unowned Vehicle does not participate in Own