

PART 1:

Inventory [__SKU__ (string), name (string), price (float), quantity (integer)]

Inventory [__SKU__ (string), __aisle__ (integer), name (string), price (float)]

Cars [__VIN__ (string), make (string), model (string), year (integer), color (string)]

Salespeople [__SSN__ (integer), name (string)]

Assignments [__VIN__ (string), __SSN__ (integer)]

PART 2:

```
CREATE TABLE Patrons (  
    Name (string),  
    CardNum (integer),  
    PRIMARY KEY (cardNum)  
)
```

```
CREATE TABLE Phones (  
    CardNum (integer),  
    PhoneNum (string),  
    PRIMARY KEY (cardNum, PhoneNum),  
    FOREIGN KEY (cardNum) REFERENCES Patrons  
)
```

```
CREATE TABLE Inventory (  
    Serial (integer),  
    ISBN (string),  
    PRIMARY KEY (Serial)  
)
```

```
CREATE TABLE Titles (  
    ISBN (string),  
    Title (string),  
    Author (string),  
    PRIMARY KEY (ISBN),  
    FOREIGN KEY (ISBN) REFERENCES Inventory  
)
```

```
CREATE TABLE CheckedOut (  
    CardNum (integer),  
    Serial (integer),  
    PRIMARY KEY (Serial),  
    FOREIGN KEY (cardNum) REFERENCES Patrons
```

)

PART 3:

__VIN__ (string), make (string), model (string), year (integer), color (string)

Cars:

__VIN__ year	Color	make	model
JH4DA3350HS000229 2008	Red	Toyota	Tacoma
JM3ER293490222369 1999	Green	Toyota	Tacoma
JH4DA9350LS003644 2018	White	Tesla	Model 3
1FVACWCSX4HM74500 2016	Blue	Subaru	WRX
JH4KA3140KC015221 2004	Red	Ford	F150

SalesPeople:

__SSN__	Name
210919203	Arnold
203970239	Hannah
092348080	Steve

Assignments:

__VIN__	__SSN__
JH4DA3350HS000229	210919203
JM3ER293490222369	210919203
JH4DA3350HS000229	203970239
JH4KA3140KC015221	203970239
JH4DA9350LS003644	092348080

PART 4:

Attribute Sets	Superkey?	Proper Subsets Key?
{A1}	no	{}

{A2}	no	{}	no
{A3}	no	{}	no
{A1, A2}	yes	{A1}, {A2}	no
{A1, A3}	no	{A1}, {A3}	yes
{A2, A3}	no	{A2}, {A3}	no
{A1, A2, A3}	yes	{A1}, {A2}, {A3}, {{A1},	no
{A2}}, {{A1}, {A3}} , {{A2}, {A3}}			no

PART 5:

If {x} is a superkey, then any set containing x is also a superkey:
false, superkeys can be created by two non-superkey subsets.

If {x} is a key, then any set containing x is also a key.
false, if x is a key, then any set containing it also contains a super key, so it is not a key.

If {x} is a key, then {x} is also a superkey.
true, to be a key, a set must also be a super key.

If {x, y, z} is a superkey, then one of {x}, {y}, or {z} must also be a superkey
false, a superkey can be made up of non super-key subsets

If an entire schema consists of the set {x, y, z}, and if none of the proper subsets of {x, y, z} are keys, then {x, y, z} must be a key.
no, there is no guarantee that x, y, and z make a super key together, so it is not necessarily a key.