

Solution

Solution 3a

```
CREATE TABLE Planets(  
    star TEXT NOT NULL,  
    name TEXT NOT NULL,  
    distance FLOAT NOT NULL CHECK(distance > 0),  
    mass FLOAT NOT NULL CHECK(mass > 0),  
    atmosphere BOOLEAN NOT NULL,  
    oxygen FLOAT NOT NULL CHECK((oxygen = 0 and not atmosphere) OR (  
        atmosphere AND oxygen >= 0 AND oxygen <= 100)),  
    water FLOAT NOT NULL CHECK(water >= 0 AND water <= 100),  
    PRIMARY KEY(star, name),  
    UNIQUE(star, distance)  
);
```

Solution 3b

```
SELECT COUNT(*) FROM Planets WHERE  
    distance > (SELECT distance FROM Planets WHERE  
        star='Kerbol' AND name='Duna');
```

Solution 3c

```
(SELECT star, name, 'habitable' FROM Planets WHERE  
    distance >= 100 AND distance <= 200 AND  
    atmosphere AND oxygen >= 15 AND oxygen <= 25 AND  
    water > 0)  
UNION  
(SELECT star, name, 'uninhabitable' FROM Planets WHERE NOT(  
    distance >= 100 AND distance <= 200 AND  
    atmosphere AND oxygen >= 15 AND oxygen <= 25 AND  
    water > 0));
```

or

```
WITH habitables AS (SELECT star, name FROM planets WHERE  
    distance >= 100 AND distance <= 200 AND  
    atmosphere AND oxygen >= 15 AND oxygen <= 25 AND  
    water > 0)  
SELECT star, name, 'habitable' FROM Planets WHERE  
    (star, name) IN (SELECT star, name from habitables)  
UNION  
SELECT star, name, 'unhabitable' FROM Planets WHERE  
    (star, name) NOT IN (SELECT star, name from habitables);
```