# Querying Relational Databases Part 5 Notes

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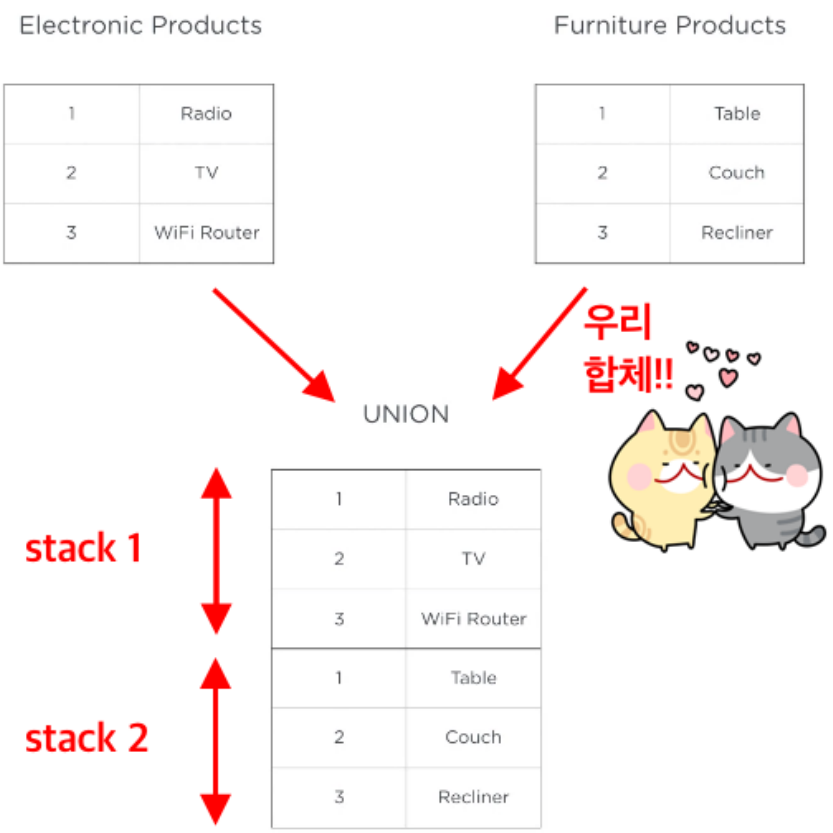
## 1 What are Set Operations?

- Combine or limit results using two or more datasets
- has 4 set operations
  - UNION / UNION ALL
  - INTERSET
  - EXCEPT

## 2 Union Operations

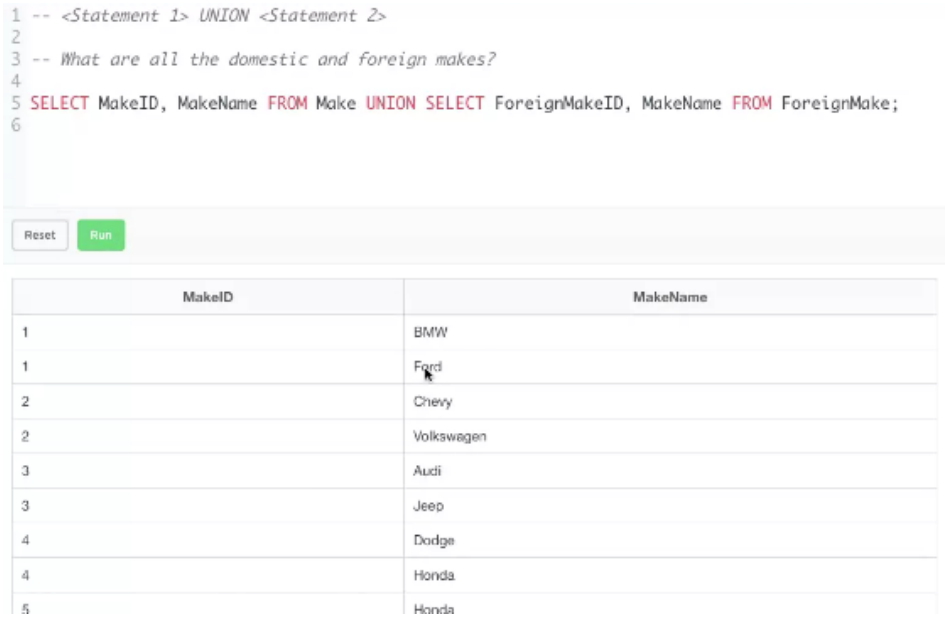
- Stacks data vertically




- has to have matching number of columns
- **Syntax:** *query 1* UNION *query 2*

**Example:**

```
1    SELECT MakeID, MakeName FROM Make UNION SELECT ForeignMakeID,
     MakeName FROM ForeignMake;
2
```



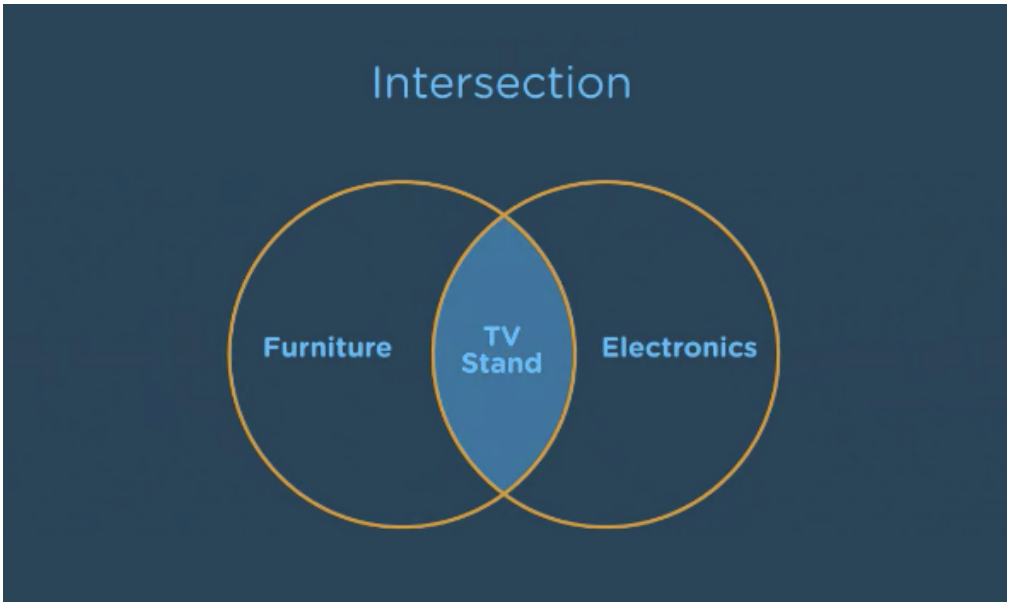

**Example 2:**

```
    SELECT MakeID, MakeName FROM Make
        WHERE MakeName < "D"
    UNION
    SELECT ForeignMakeID, MakeName FROM ForeignMake
        WHERE MakeName < "D"
        ORDER BY MakeName;
```

# 3 Union All Operations

- Is the same as union but does not eliminate duplicates
- **Syntax:** *query 1* UNION ALL *query 2*

# 4 Intersect




- Only returns results that exist in both
- Intersection is based on supplied columns
  - multiple columns → intersection is based on intersecting values in those columns
- **Syntax:** *query 1* INTERSECT *query 2*

**Example:**

```
1    SELECT MakeName FROM Make
2        INTERSET
3    SELECT MakeName FROM  ForeignMake ORDER BY MakeName DESC;
4
```

```
-- <Statement 1> INTERSECT <Statement 2>

-- What are makes that are in both the domestic and foreign makes?

SELECT MakeName FROM Make INTERSECT SELECT MakeName FROM ForeignMake;

```

Reset Run

| MakeName |
| --- |
| BMW |
| Honda |
| Kia |
| Toyota |

## Example 2:

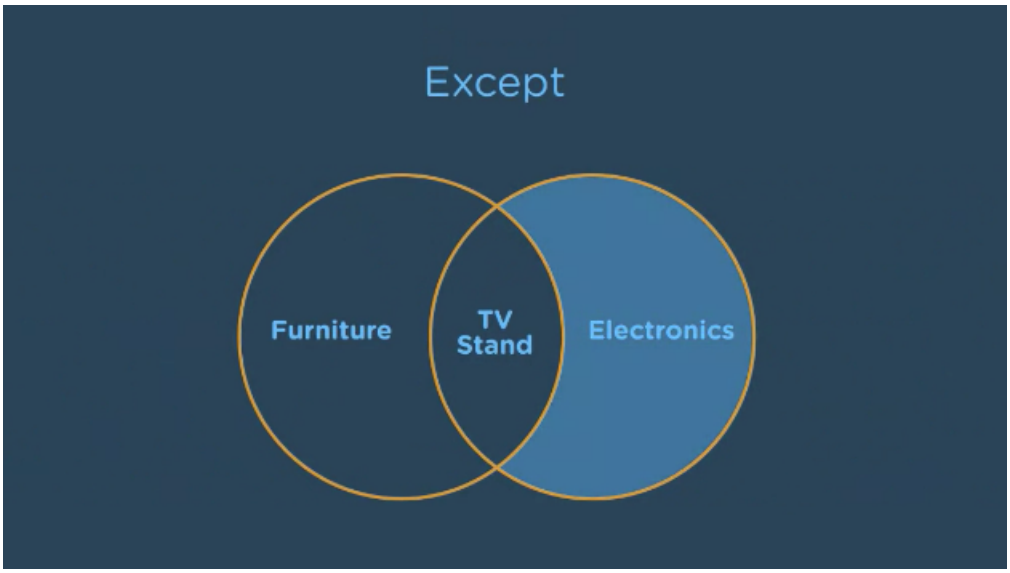
```
    SELECT MakeID MakeName FROM Make
        INTERSET
    SELECT ForeignMakeID, MakeName FROM  ForeignMake ORDER BY MakeName
    DESC; // <- Returns empty result

```

```
-- <Statement 1> INTERSECT <Statement 2>

-- What are makes that are in both the domestic and foreign makes?

SELECT MakeID, MakeName FROM Make
  INTERSECT
SELECT ForeignMakeID, MakeName FROM ForeignMake ORDER BY MakeName DESC;

```

Reset Run

Query returned no results.

# 5 Except Operations




- **Syntax:** *Query 1* EXCEPT *Query 2*
- SQL accounts for all columns considered
- Except uses the same format as INTERSET but outputs only the records that are not in the latter table

**Example:**

```
1    SELECT ForeignMakeID, MakeName FROM ForeignMake EXCEPT SELECT
     MakeID, MakeName FROM Make; // shows only forien made goods
2
```