

# Querying Relational Databases Part 5 Notes

Team Treehouse

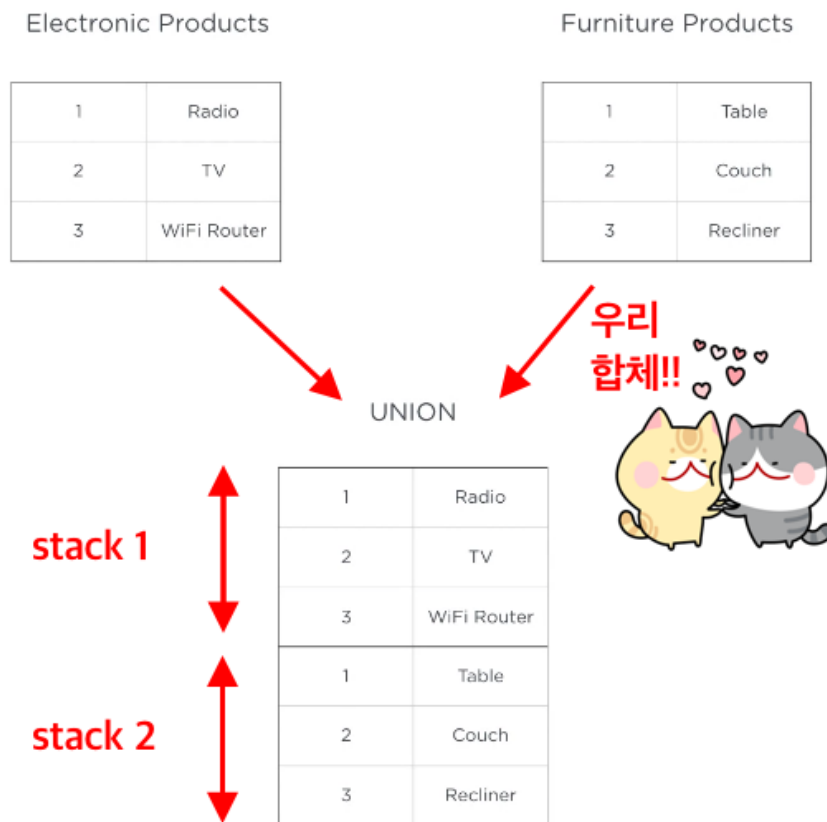
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## 1 What are Set Operations?

- 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,  
2  MakeName FROM ForeignMake;
```

```
1 -- <Statement 1> UNION <Statement 2>
2
3 -- What are all the domestic and foreign makes?
4
5 SELECT MakeID, MakeName FROM Make UNION SELECT ForeignMakeID, MakeName FROM ForeignMake;
6
```

Reset

Run

MakeID	MakeName
1	BMW
1	Ford
2	Chevy
2	Volkswagen
3	Audi
3	Jeep
4	Dodge
4	Honda
5	Honda

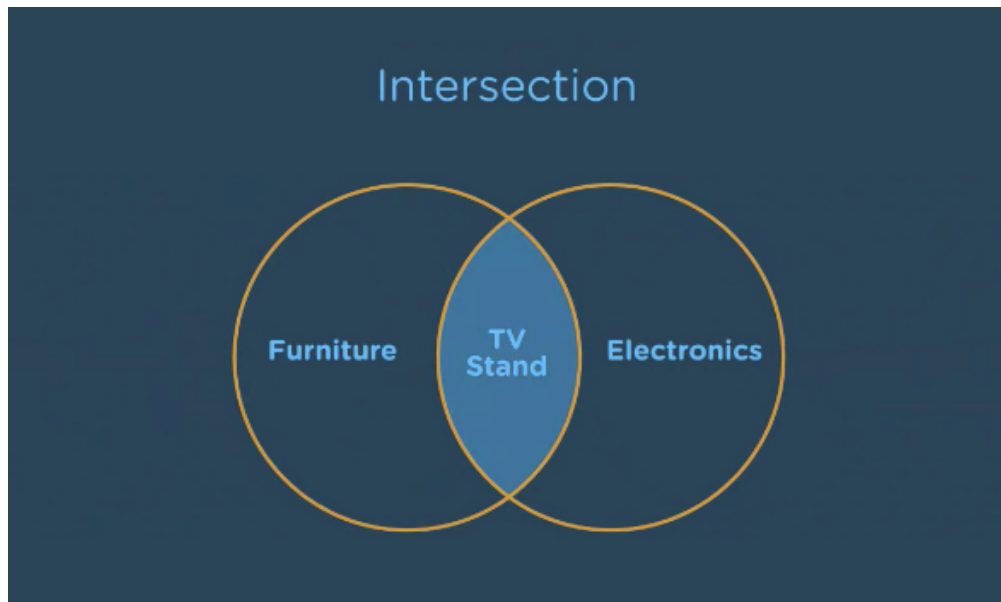
### Example 2:

```
1 SELECT MakeID, MakeName FROM Make
2 WHERE MakeName < "D"
3 UNION
4 SELECT ForeignMakeID, MakeName FROM ForeignMake
5 WHERE MakeName < "D"
6 ORDER BY MakeName;
7
```

## 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     INTERSECT
3 SELECT MakeName FROM ForeignMake ORDER BY MakeName DESC;
4
```

```
1 -- <Statement 1> INTERSECT <Statement 2>
2
3 -- What are makes that are in both the domestic and foreign makes?
4
5 SELECT MakeName FROM Make INTERSECT SELECT MakeName FROM ForeignMake;
6
```

Reset

Run

MakeName
BMW
Honda
Kia
Toyota

### Example 2:

```
1 SELECT MakeID MakeName FROM Make
2 INTERSECT
3 SELECT ForeignMakeID, MakeName FROM ForeignMake ORDER BY MakeName
4 DESC; // <- Returns empty result
```

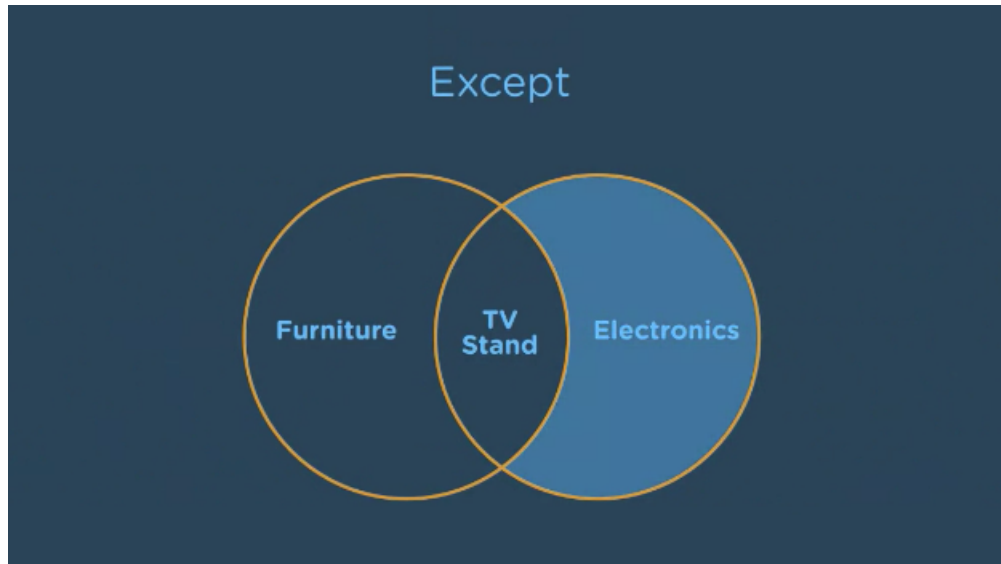
```
1 -- <Statement 1> INTERSECT <Statement 2>
2
3 -- What are makes that are in both the domestic and foreign makes?
4
5 SELECT MakeID, MakeName FROM Make
6 INTERSECT
7 SELECT ForeignMakeID, MakeName FROM ForeignMake ORDER BY MakeName DESC;
8
```

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
2  MakeID, MakeName FROM Make; // shows only forien made goods
```

## 6 Set Operations Reivew

1. Which Set Operation is used to find and return values that exist in two different data sets?
  - A. EXCEPT
  - B. UNION
  - C. INTERSECT
  - D. UNION ALL

**Answer: C**

2. Which Operator eliminates duplicates while combining multiple data sets into one result set?

- A. EXCEPT
- B. UNION ALL
- C. MERGE
- D. UNION

**Answer: D**

3. It is valid to have fewer columns in the query that comes after the UNION operation.

- A. True
- B. False

**Answer: B**

4. Which of the following is NOT a SQL Set Operation?

- A. UNION
- B. INTERSECT
- C. EXCEPT
- D. CONJOIN

**Answer: D**

5. Which Set Operation is used to return only the results that are NOT in another table?

- A. UNION ALL
- B. INTERSECT
- C. EXCEPT
- D. UNION

**Answer: C**

## 7 Review and Practice

### 8 Exercise 1

- Solution included in *exercise\_1.sql*