

The WHERE clause

Database Development – 2023
Cody Henrichsen

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Limiting Results

- Most of the time ALL the rows is not what is needed
- Adding DISTINCT to the SELECT clause doesn't cut it either
- How to limit
 - Equality
 - Similarity
 - Relational
 - Range
 - Specificity
 - Compound logic

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Equality

- When looking for an exact match either numeric, Boolean, or text a single equals sign (=) is used
- Inequality is represented with !=
- Just like in mathland the left and right hand sides of the operator are interchangeable!
- Style guide says field on left, value on right
- Remember that text values are specified with single quotes

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Equality Demo

```
SELECT
  grade_point
FROM
  grade_conversion
WHERE
  max_grade = 79
;
```

```
SELECT
  max_grade
FROM
  grade_conversion
WHERE
  letter_grade = 'B+'
;
```

```
SELECT
  section_id
FROM
  grade_type_weight
WHERE
  drop_lowest != 'Y'
;
```

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Similarity

- ▶ The LIKE command is used to match values that are similar using wildcard operators
- ▶ Used with the single quotes to surround the value
- ▶ Wildcards can be placed anywhere within the quotes
- ▶ Works with NUMBER and VARCHAR
 - ▷ %
 - Replaces ANY number of unspecified symbols
 - Includes zero symbols
 - ▷ _
 - Replaces ONE unspecified symbol

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Similarity Demo

```
SELECT
  section_no
FROM
  section
WHERE
  location LIKE '%4'
;
```

```
SELECT
  description
FROM
  course
WHERE
  course_no LIKE '5_-'
;
```

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Relational

- When using the <, <=, >, >= operators you need to remember how they work with the different data types
 - VARCHAR
 - Lower case letters are "Bigger" than capital
 - NUMBER
 - Just like mathland
 - DATE
 - Implicit TO_DATE on text value

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Relational Demo

```
SELECT
  section_no
FROM
  section
WHERE
  capacity <= 25
;
```

```
SELECT
  section_id
FROM
  enrollment
WHERE
  student_id > 254
;
```

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Range

- The BETWEEN command is used to limit results to a range of values
- Use the AND operator to separate the two values
 - BETWEEN value a AND value b
- It is INCLUSIVE on both sides of the range!
- Works with NUMBER, VARCHAR, and DATE
 - Implicit TO_DATE call of a properly formatted string

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Range Demo

```
SELECT
  student_id
FROM
  section
WHERE
  section_id BETWEEN 83 AND 91
;
```

```
SELECT
  student_id
FROM
  student
WHERE
  last_name BETWEEN 'Abdou' AND 'Avia'
;
```

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Specificity

- ▶ To identify specific values to limit results the IN operator is used
- ▶ Values are specified in a set of parens separated by commas
- ▶ The order of the values is NOT important

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Specificity Demo

```
SELECT
  first_name
FROM
  instructor
WHERE
  last_name IN ('Perez','Hronczik','Zhao')
;
```

```
SELECT DISTINCT
  grade_type_code
FROM
  grade
WHERE
  numeric_grade IN (85, 99, 76)
;
```

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Compound Logic

- Use parens to group each component of compound logical limits
- Use AND/OR to combine each of the components
- Order of operations is parens first, then top to bottom
- Remember that computers are dumb little boxes of sand and metal and only do EXACTLY what you say!

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Compound Logic Demo

```
SELECT
  description
FROM
  course
WHERE
  (
    course_no LIKE 'S_'
    AND
    course_no != '9581'
  )
  OR
  (
    course_no > 200
  )
;
```

```
SELECT
  first_name AS first,
  last_name AS last,
  city
FROM
  students
WHERE
  (
    last_name LIKE 'J%'
    OR
    last_name LIKE '____%'
  )
  AND
  first_name LIKE 'M%'
;
```

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