The WHERE clause

Database Development – 2023
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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','Hromcik','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
    student_id
FROM
    student
WHERE
    (
        last_name BETWEEN 'Abdou' AND 'Avia'
    )
    AND
    (
        salutation != 'Mr.'
    )
;
```

```
SELECT
    description
FROM
    course
WHERE
    (
        course_no LIKE '_5_'
    )
    OR
    (
        course_no > 200
    )
;
```

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