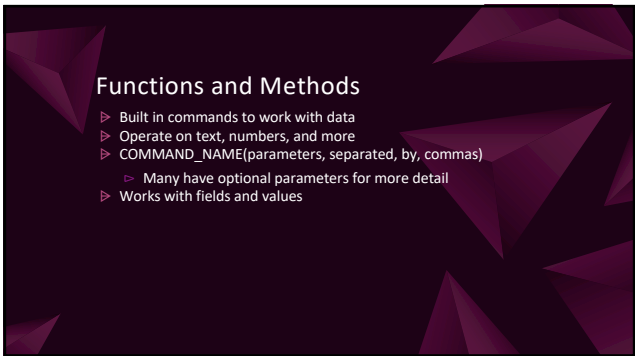
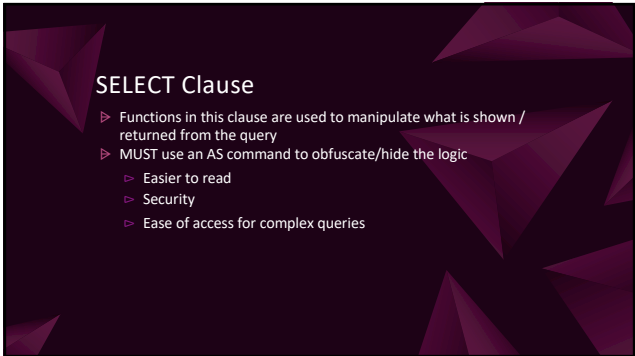




1



2



3

WHERE Clause

- Functions in this clause are used to limit and or restrict the the results of the query
- Remember AND requires both sides of the equation to be true, OR needs only one, and NOT negates result
- De Morgans' law still applies
- Parens are a big deal still!

4

String Functions

- Manipulation and or extracting information from text
- String indices start at 1!!!!
- Info
 - LENGTH, INSTR
- Padding (less used now)
 - LPAD, RPAD
- Trim
 - LTRIM, RTRIM, TRIM
- Partial
 - SUBSTR
- Manipulate
 - CONCAT, REPLACE, UPPER, LOWER, INITCAP

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String Functions Examples

Partial

```
SELECT
  SUBSTR (first_name, 2) AS partial_first,
  SUBSTR (last_name, LENGTH(last_name) / 2 ) AS last_half_name,
  SUBSTR (first_name, -4) AS last_four_letters_of_first
FROM
  student;
```

Formatting

```
SELECT
  LOWER(city) || ' ' || city AS small_and_normal_city,
  UPPER(modified_by) AS BIG_MOD,
  SUBSTR(city, 4) AS partial_city_name
FROM
  zipcode
WHERE
  MOD(zip, 2) = 8;
```

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More String Examples

Padding

```
SELECT
  LPAD(city, 50, 'x') AS left_pad_demo,
  RPAD(city, 6, '?') AS right_pad_demo,
  RPAD(city, 20, '?') AS right_pad_demo
FROM
  zipcode
WHERE
  zip < 5000;
```

Trimming

```
SELECT
  LTRIM('code', 'c') AS left_trim,
  RTRIM('xxxxx z', 'x') AS right_trim,
  RTRIM('xxxxx yz', 'z') AS right_trim_two,
  LTRIM('
  code') AS left_trim_two,
  LTRIM('xxxxxxx', 'x') AS ltr
FROM
  dual;
```

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Numeric Functions

- Only work on NUMERIC types
 - ABS (value)
 - MOD (value, divisor)
 - ROUND(value, precision)
 - TRUNC(value, precision)
 - FLOOR(value)
 - CEIL(value)

8

ROUND Example

```
SELECT
  ROUND (1234.127, 2) AS partial_round,
  ROUND (1274.127, -2) AS whole_round
FROM
  dual;
```

9

Arithmetic

You can use the basic operators in your queries and they operate as you would expect

()
*
/
+
-

10

CASE statement

- ▶ How to handle multiple options in SQL
- ▶ Just like an if/else if/else block
- ▶ Order of evaluation matters!

```
CASE
  WHEN field comparison THEN value
  WHEN field other comparison THEN value
  ELSE default
END AS named_column
```

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CASE Example

```
SELECT
  first_name,
  CASE
    WHEN zip < 1000 THEN 'here'
    WHEN zip < 3999 THEN 'there'
    WHEN zip > 4000 THEN 'over there ish'
    ELSE 'idk'
  END AS where_are_they
FROM
  student;
```

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Handling NULL values

OK: NVL

```
SELECT
  NVL (field_name, '') AS data_source
FROM
  table_name;
```

Better: CASE

```
SELECT
  CASE
    WHEN field_name IS NULL THEN 'empty'
    WHEN field_name < 123 THEN 'small'
    ELSE 'datasource'
  END AS datasource
FROM
  table_name;
```

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The dual table

- How to get data without a table
- Used as a placeholder
- Oracle specific

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