

# SQL Level 2

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## Part 1

# CAST

Changing Data Types

# Data Types

- Each column is assigned a data type so the information is stored in the correct format. (Determined by the person creating the database.)
- Examples: numbers, text (strings), date, datetime, etc.
- When the data is not be stored in the format our query needs, we use **CAST()** to convert it into the format we need.

# Exercise

Open the file “1.0 CAST.sql” (in SQL Level 2 folder)

# Aggregate Functions

Performing Calculations

# Aggregate Functions

Aggregate functions perform common statistical operations (calculations) on the values in a specified column, returning a single summary value.

They boil down the resulting data.

**SUM()**

**MAX()**

**MIN()**

**AVG()**

**COUNT()**

# Aggregate Functions: Examples

values	→	Aggregate Functions:	Result
5		COUNT(values)	9
4		SUM(values)	42
6		MAX(values)	9
3		MIN(values)	2
2		AVG(values)	4.6
4			
2			
7			
9			

# Aggregate Functions: Examples

- **How many** orders were shipped to Florida?
- What was **the most** any user spent?



# Maximum

```
SELECT MAX(price)  
FROM products;
```

# Minimum

```
SELECT MIN(price)  
FROM products;
```

# Count

```
SELECT COUNT(ship_state)  
FROM orders  
WHERE ship_state = 'FL';
```

Count ALL the rows! (not just distinct values)

# Addition

```
SELECT SUM(price)  
FROM line_items;
```

# Average

```
SELECT  AVG(price)  
FROM  line_items;
```

# Exercise

Open the file “1.1 Aggregate Functions and ROUND.sql”  
(in SQL Level 2 folder)

# Date Functions

Working with Dates (Year, Month, Day, etc.)

# Date Functions

Date functions perform calculations on columns that contain a date or time value (like YYYY-MM-DD HH:MI:SS)

Name	Description
DATE	date (no time of day)
TIME	time of day (no date)
TIMESTAMP	both date and time (with or without time zone)



# Common Date Functions

Function	Description
PostgreSQL: <b>SELECT CURRENT_DATE;</b> SQL Server: <b>SELECT CAST(GETDATE() AS DATE);</b>	Returns the current date
PostgreSQL: <b>SELECT CURRENT_TIME;</b> SQL Server: <b>SELECT CAST(GETDATE() AS TIME);</b>	Returns the current time
PostgreSQL: <b>DATE_PART('datepart', source)</b> SQL Server: <b>DATEPART(datepart, source)</b>	Get part of a date: year, month, day, etc.
PostgreSQL: <b>SELECT NOW();</b> SQL Server: <b>SELECT GETDATE();</b>	Returns the current date and time from the database server's time zone

# Get Part of a Date: Retrieve the Hour

In PostgreSQL:

```
SELECT DATE_PART('hour', created_at)  
FROM products;
```

In SQL Server:

```
SELECT DATETIMEPART(hour, created_at)  
FROM products;
```

# Get Part of a Date: Day of the Week

In PostgreSQL:

```
SELECT DATE_PART('dow', created_at)  
FROM products;
```

This returns 0–6: Sunday (0) to Saturday (6)

In SQL Server:

```
SELECT DATETIMEPART(dow, created_at)  
FROM products;
```

This returns 1–7: Sunday (1) to Saturday (7)

# Exercise

Open the file “1.2 Date Functions.sql” (in SQL Level 2 folder)