

Slide 1: Working with Date and Time Strings

# Working with Date and Time Strings

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Slide 2: Learning Objectives

## Learning Objectives

Describe the complexities of adjusting date and time strings

Discuss the different formats in which dates and times are presented

List and describe the 5 different functions in SQL that can be used to manipulate date and time strings

## Working with Date Variables

“As long as your data contains only the date portion, your queries will work as expected. However, if a time portion is involved, it gets more complicated.”

“The most difficult part when working with dates is to be sure that the format of the date you are trying to insert, matches the format of the date column in the database.”

Dates are stored as datatypes

Each DBMS uses it's own variety of datatypes

```
Wednesday, September 17th, 2008  
9/17/2008 5:14:56 P.M. EST  
9/17/2008 19:14:56 GMT  
2612008 (Julian format)
```

-W3 Schools

Slide 4: Date Formats

# Date Formats

DATE

Format YYYY-MM-DD

DATETIME

Format: YYYY-MM-DD HH:MI:SS

TIMESTAMP

Format: YYYY-MM-DD HH:MI:SS

If you query a **DATETIME** with:

```
WHERE PurchaseDate='2016-12-12'
```

You will get no results

Slide 5: SQLite Date Time Functions

# SQLite Date Time Functions

SQLite supports 5 date and time functions:

```
DATE(timestring, modifier, modifier, ...)  
TIME(timestring, modifier, modifier, ...)  
DATETIME(timestring, modifier, modifier, ...)  
JULIANDAY(timestring, modifier, modifier, ...)  
STRFTIME(format, timestring, modifier, modifier, ...)
```

## Slide 6: Timestrings

# Timestrings

A time string can be in any of the following formats

```
YYYY-MM-DD  
YYYY-MM-DD HH:MM  
YYYY-MM-DD HH:MM:SS  
YYYY-MM-DD HH:MM:SS.SSS  
YYYY-MM-DDTHH:MM  
YYYY-MM-DDTHH:MM:SS  
YYYY-MM-DDTHH:MM:SS.SSS  
HH:MM  
HH:MM:SS  
HH:MM:SS.SSS
```

Slide 7: Modifiers

## Modifiers

NNN days

NNN hours

NNN minutes

NNN.NNNN seconds

NNN months

NNN years

start of month

start of year

start of day

weekday N

unixepoch

localtime

utc