Date Functions

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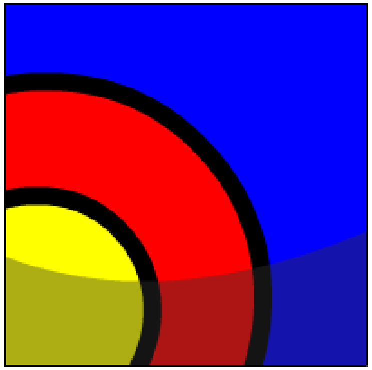
What Will I Learn?

In this lesson, you will learn to:

- Select and apply the single-row functions MONTHS_BETWEEN, ADD_MONTHS, NEXT_DAY, LAST_DAY, ROUND, and TRUNC that operate on date data
- Explain how date functions transform Oracle dates into date data or a numeric value
- Demonstrate proper use of the arithmetic operators with dates
- Demonstrate the use of SYSDATE and date functions
- State the implications for world businesses to be able to easily manipulate data stored in date format



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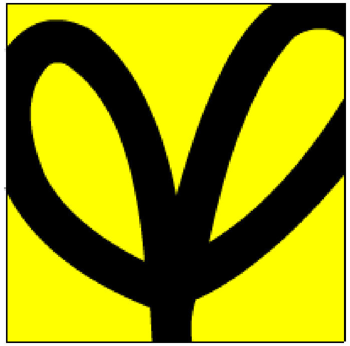
Why Learn It?

Have you ever wondered how many days remain in the school year or how many weeks there are until graduation? Because the Oracle database stores dates as numbers, it's easy to perform calculations on dates using addition and subtraction.



Businesses depend on being able to use date functions to schedule payrolls and payments, track employee performance reviews and years of service, or keep track of orders and shipments. All of these business needs are easily handled using simple SQL date functions.

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Displaying Dates

The default display format for dates is **DD-MON-RR** -- that is, **02-DEC-99**.

However, the Oracle database stores dates internally with a numeric format, representing the century, year, month, day, hours, minutes, and seconds.

The default display and input format for any date is **DD-MON-RR**. Valid Oracle dates are between January 1, 4712 B.C., and December 31, 9999 A.D. This represents the range of dates that you can store successfully in an Oracle database.

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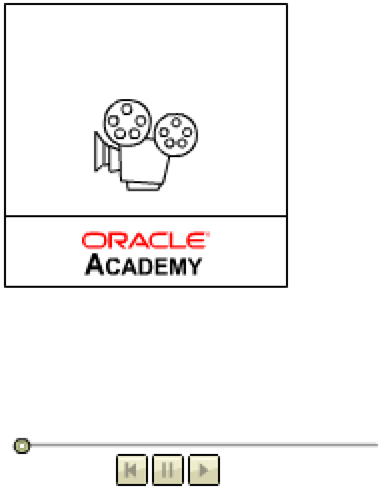

SYSDATE

When a record with a date column is inserted into a table, the century information is picked up from the SYSDATE function. SYSDATE is a date function that returns the current database server date and time.

```
SYSDATE
```

To display the current date, use the DUAL table.

```
SELECT SYSDATE
FROM DUAL;
```

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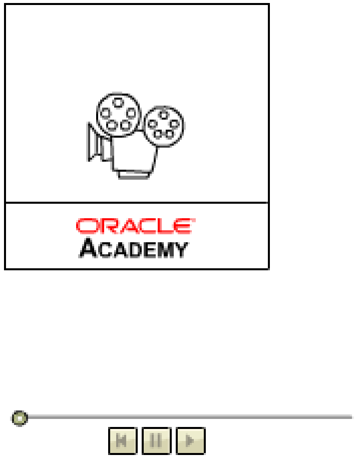
DATE Data Type

The DATE data type always stores year information as a four-digit number internally: two digits for the century and two digits for the year. For example, the Oracle database stores the year as 1996 or 2004, not just as 96 or 04.



Although the internal storage keeps track of the complete date, when the date column is displayed on the screen, the century component is not displayed by default.

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Working with Dates

```
SELECT last_name, hire_date + 60
FROM employees;

SELECT last_name, (SYSDATE – hire_date)/7
FROM employees;

SELECT order_no, amt_due, purch_date + 30 “Due Date”
FROM dual;
```

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Date Functions

The date functions shown in the table operate on Oracle dates. All of the date functions return a value with a DATE data type except the MONTHS_BETWEEN function, which returns a numeric data type value.

Function	Description
MONTHS_BETWEEN	Number of months between two dates
ADD_MONTHS	Add calendar months to date
NEXT_DAY	Next day of the date specified
LAST_DAY	Last day of the month
ROUND	Round date
TRUNC	Truncate date

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Date Functions (continued)

The following query shows how the date functions are used.

Date Functions

Function	Description
MONTHS_BETWEEN	Number of months between two dates
ADD_MONTHS	Add calendar months to date
NEXT_DAY	Next day of the date specified
LAST_DAY	Last day of the month
ROUND	Round date
TRUNC	Truncate date

```
SELECT employee_id, hire_date,
ROUND(MONTHS_BETWEEN(SYSDATE, hire_date)) AS TENURE,
ADD_MONTHS (hire_date, 6) AS REVIEW,
NEXT_DAY(hire_date, 'FRIDAY'),
LAST_DAY(hire_date)
FROM employees
WHERE MONTHS_BETWEEN (SYSDATE, hire_date) > 36;
```

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Date Functions (continued)

Here is another example of a query using multiple date functions.

```
SELECT employee_id, hire_date,
ROUND(MONTHS_BETWEEN(SYSDATE, hire_date)) AS TENURE,
ADD_MONTHS (hire_date, 6) AS REVIEW,
NEXT_DAY(hire_date, 'FRIDAY'),
LAST_DAY(hire_date)
FROM employees
WHERE MONTHS_BETWEEN (SYSDATE, hire_date) > 36;
```

The result set from this query returns 20 rows including:

EMPLOYEE_ID	HIRE_DATE	TENURE	REVIEW	NEXT_DAY	LAST_DAY
101	21-SEP-89	181	21-MAR-90	22-SEP-89	30-SEP-89

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Date Functions (continued)

Below are the results from queries using ROUND and TRUNC date functions with SYSDATE (assume **`SYSDATE = '25-JUL-95'`**).

Function	Result
`ROUND (SYSDATE, 'MONTH')`	`01-AUG-95`
`ROUND (SYSDATE, 'YEAR')`	`01-JAN-96`
`TRUNC (SYSDATE, 'MONTH')`	`01-JUL-95`
`TRUNC (SYSDATE, 'YEAR’)`	`01-JAN-95`

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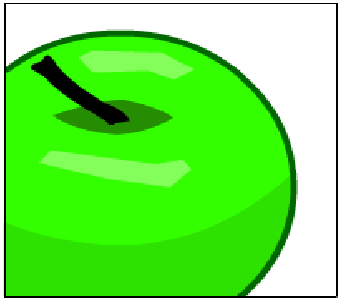
Terminology

Key terms used in this lesson include:



ADD_MONTHS

LAST_DAY

MONTHS_BETWEEN

NEXT_DAY

SYSDATE

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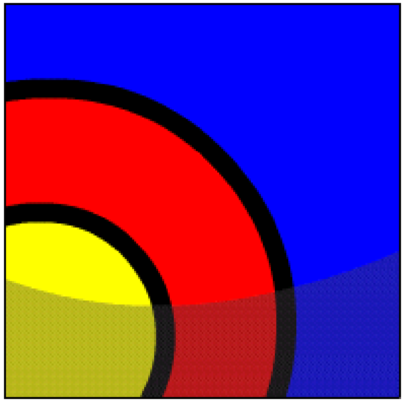
Summary

In this lesson, you have learned to:



- Select and apply the single-row functions MONTHS_BETWEEN, ADD_MONTHS, NEXT_DAY, LAST_DAY, ROUND, and TRUNC that operate on date data
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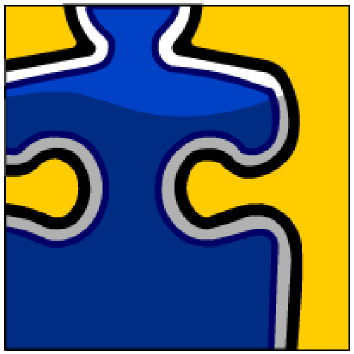
Summary

Practice Guide

The link for the lesson practice guide can be found in the course resources in Section 0.



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