

Functions

Employee Table

- CREATE TABLE EMP
- (EMPNO NUMBER(4) NOT NULL,
- ENAME VARCHAR2(10),
- JOB VARCHAR2(9),
- MGR NUMBER(4),
- HIREDATE DATE,
- SAL NUMBER(7, 2),
- COMM NUMBER(7, 2),
- DEPTNO NUMBER(2));
- INSERT INTO EMP VALUES
- (7369, 'SMITH', 'CLERK', 7902,
- TO_DATE('17-DEC-1980', 'DD-MON-YYYY'), 800, NULL, 20);
- INSERT INTO EMP VALUES
- (7499, 'ALLEN', 'SALESMAN', 7698,
- TO_DATE('20-FEB-1981', 'DD-MON-YYYY'), 1600, 300, 30);
- INSERT INTO EMP VALUES
- (7521, 'WARD', 'SALESMAN', 7698,
- TO_DATE('22-FEB-1981', 'DD-MON-YYYY'), 1250, 500, 30);

Employee Table

- INSERT INTO EMP VALUES
- (7566, 'JONES', 'MANAGER', 7839,
- TO_DATE('2-APR-1981', 'DD-MON-YYYY'), 2975, NULL, 20);
- INSERT INTO EMP VALUES
- (7654, 'MARTIN', 'SALESMAN', 7698,
- TO_DATE('28-SEP-1981', 'DD-MON-YYYY'), 1250, 1400, 30);
- INSERT INTO EMP VALUES
- (7698, 'BLAKE', 'MANAGER', 7839,
- TO_DATE('1-MAY-1981', 'DD-MON-YYYY'), 2850, NULL, 30);
- INSERT INTO EMP VALUES
- (7782, 'CLARK', 'MANAGER', 7839,
- TO_DATE('9-JUN-1981', 'DD-MON-YYYY'), 2450, NULL, 10);
- INSERT INTO EMP VALUES
- (7788, 'SCOTT', 'ANALYST', 7566,
- TO_DATE('09-DEC-1982', 'DD-MON-YYYY'), 3000, NULL, 20);
- INSERT INTO EMP VALUES
- (7839, 'KING', 'PRESIDENT', NULL,
- TO_DATE('17-NOV-1981', 'DD-MON-YYYY'), 5000, NULL, 10);

Employee Table

- INSERT INTO EMP VALUES
- (7844, 'TURNER', 'SALESMAN', 7698,
- TO_DATE('8-SEP-1981', 'DD-MON-YYYY'), 1500, NULL, 30);
- INSERT INTO EMP VALUES
- (7876, 'ADAMS', 'CLERK', 7788,
- TO_DATE('12-JAN-1983', 'DD-MON-YYYY'), 1100, NULL, 20);
- INSERT INTO EMP VALUES
- (7900, 'JAMES', 'CLERK', 7698,
- TO_DATE('3-DEC-1981', 'DD-MON-YYYY'), 950, NULL, 30);
- INSERT INTO EMP VALUES
- (7902, 'FORD', 'ANALYST', 7566,
- TO_DATE('3-DEC-1981', 'DD-MON-YYYY'), 3000, NULL, 20);
- INSERT INTO EMP VALUES
- (7934, 'MILLER', 'CLERK', 7782,
- TO_DATE('23-JAN-1982', 'DD-MON-YYYY'), 1300, NULL, 10);

Dates

- Oracle database stores dates in an internal numeric format: century, year, month, day, hours, minutes, seconds
- The default date display format is DD-MON-RR

```
SELECT ENAME, HIREDATE FROM EMP WHERE ENAME like 'B%';
```

ENAME	HIREDATE
BLAKE	01-MAY-81
BLAKE	01-MAY-81

`SYSDATE` is a function that returns:

- Date
- Time

Arithmetic with Dates

- Add or subtract a number to or from a date for a resultant date value.
- Subtract two dates to find the number of days between those dates.
- Add hours to a date by dividing the number of hours by 24.

```
SELECT ENAME, (SYSDATE-HIREDATE)/7 AS WEEKS FROM EMP WHERE DEPTNO = 20;
```

ENAME	WEEKS
SMITH	2102.626438492063492063492063492057
JONES	2087.4835813492063492063492063492063492
SCOTT	1999.4835813492063492063492063492063492
ADAMS	1994.626438492063492063492063492063492057
FORD	2052.4835813492063492063492063492063492

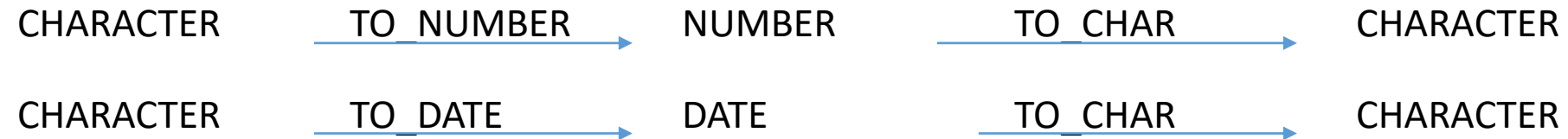
Date Functions

- 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

Assume SYSDATE = '25-JUL-95':

- MONTHS_BETWEEN ('01-SEP-95','11-JAN-94')
 - 19.6774194
- ADD_MONTHS ('11-JAN-94',6)
 - '11-JUL-94'
- NEXT_DAY ('01-SEP-95','FRIDAY')
 - '08-SEP-95'
- LAST_DAY('01-FEB-95')
 - '28-FEB-95'
- ROUND(SYSDATE,'MONTH')
 - 01-AUG-95
- ROUND(SYSDATE , 'YEAR')
 - 01-JAN-96
- TRUNC(SYSDATE , 'MONTH')
 - 01-JUL-95
- TRUNC(SYSDATE , 'YEAR')
 - 01-JAN-95

Explicit Data Type Conversion



TO_CHAR Function with Dates

- TO_CHAR(date, 'format_model')

The format model:

- Must be enclosed in single quotation marks and is case sensitive
- Can include any valid date format element
- Is separated from the date value by a comma

Elements of the Date Format Model

YYYY	Full year in numbers	• Time elements format the time portion of the date.
YEAR	Year spelled out	• HH24:MI:SS AM 15:45:32 PM
MM	Two-digit value for month	• Add character strings by enclosing them in double quotation marks.
MONTH	Full name of the month	• DD "of" MONTH 12 of OCTOBER
MON	Three-letter abbreviation of the month	• Number suffixes spell out numbers.
DY	Three-letter abbreviation of the day of the week	• Ddspth fourteenth
DAY	Full name of the day of the week	
DD	Numeric day of the month	

TO_CHAR Function with Dates

- `SELECT ENAME, TO_CHAR(HIREDATE, 'DD Month YYYY') AS HIRE_DATE FROM EMP;`

ENAME	HIRE_DATE
SMITH	17 December 1980
ALLEN	20 February 1981
WARD	22 February 1981
JONES	02 April 1981

TO_CHAR Function with Numbers

- **TO_CHAR (number, 'format_model ')**

These are some of the format elements you can use with the TO_CHAR function to display a number value as a character

9	->	Represents a number
0	->	Forces a zero to be displayed
\$	->	Places a floating dollar sign
L	->	Uses the floating local currency symbol
.	->	Prints a decimal point
,	->	Prints a thousand indicator

```
SELECT TO_CHAR(SAL, '$99,999.00') SALARY FROM EMP WHERE ENAME = 'WARD';
```

SALARY
\$1,250.00
\$1,250.00

TO_NUMBER and TO_DATE Functions

- Convert a character string to a number format using the TO_NUMBER function:
- `TO_NUMBER(char, 'format_model')`
- `SELECT TO_NUMBER('1210.73', '9999.99') FROM DUAL;`

Convert a character string to a date format using the TO_DATE function:

`TO_DATE(char, 'format_model ')`

```
SELECT TO_DATE('January 15, 1989, 11:00 A.M.', 'Month dd, YYYY, HH:MI  
A.M.') FROM DUAL;
```

These functions have an fx modifier. This modifier specifies the exact matching for the character argument and date format model

RR Date Format

Current Year	Specified Date	RR Format	YY Format
1995	27-OCT-95	1995	1995
1995	27-OCT-17	2017	1917
2001	27-OCT-17	2017	2017
2001	27-OCT-95	1995	2095

- To find employees hired prior to 1990, use the RR format, which produces the same results whether the command is run in 1999 or now:

```
SELECT ENAME, TO_CHAR(HIREDATE, 'DD-Mon-YYYY')  
FROM EMP WHERE HIREDATE < TO_DATE('01-Jan-81', 'DD-Mon-RR');
```

ENAME	TO_CHAR(HIREDATE, 'DD-MON-YYYY')
SMITH	17-Dec-1980
SMITH	17-Dec-1980

		If the specified two-digit year is:	
		0–49	50–99
If two digits of the current year are:	0–49	The return date is in the current century	The return date is in the century before the current one
	50–99	The return date is in the century after the current one	The return date is in the current century