Cognixia™

Oracle SQL

Day 3

Day 3

- Recap
- DDL
  - Data Types
  - Tables: CREATE, ALTER, DROP
  - Views: CREATE, REPLACE, DROP
- Functions
  - String
  - Numeric
  - Date

Data Definition Language

- **Data Types**

- **Tables**

- **Views**

Datatypes

Character: **CHAR** *[(size)],*

VARCHAR2(size)

Numeric: **NUMBER** *[(p,s)]* – rounding for scale,

FLOAT *[(p)]*

Date: **DATE –** stores year, month, day, hour, minute, and second

TIMESTAMP [(*fractional_seconds_precision*)]

Unstructured: **LOB** (large objects for text, image, video, spatial data)

- BLOB - binary

- CLOB – character data

- NCLOB – Unicode

Rowid: unique Oracle address for a row

TABLE DDL

```
CREATE TABLE table_name (
    column1 datatype,
    column2 datatype,
...
)
```

Variations:

- **CREATE TABLE *tablename* AS SELECT ...**

DESCRIBE *tablename*;

TABLE DDL

```
CREATE TABLE table_name (
    column1 datatype [clauselist],
    column2 datatype,
...
)
```

Clauses:

- **DEFAULT [ON NULL] value**

- **NOT NULL**

ALTER TABLE

```
ALTER TABLE table_name
  ADD | MODIFY (column_1 column_definition,
     ...
      column_n column_definition);


ALTER TABLE DROP COLUMN column_1;


ALTER TABLE RENAME COLUMN old_name TO new_name;


ALTER TABLE table_name RENAME TO new_table_name;
```

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DROP TABLE

```
DROP TABLE [schema_name].table_name
[ CASCADE CONSTRAINTS ]
[ PURGE ];;
```

CASCADE CONSTRAINTS - Optional. If specified, all referential integrity constraints will be dropped as well. If not specified, and there are RI constraints on the table, it will return error.

PURGE - Optional. If specified, the table and its dependent objects will be purged from the recycle bin. If not specified, the table and its dependent objects are placed in the recycle bin and can be recovered later, if needed.

VIEWS

```
CREATE [OR REPLACE] VIEW view_name [(aliaslist)] AS
   SELECT columnlist
   FROM tablelist
   [WHERE conditionlist]
[WITH READ ONLY]
[WITH CHECK OPTION]
```

OR REPLACE is better than DROP/CREATE because the access privileges are retained.

DROP VIEW

String Functions

Function	Example	Result	Purpose
ASCII	ASCII('A')	65	Returns an ASCII code value of a character
CHR	CHR('65')	'A'	Converts a numeric value to its corresponding ASCII character
CONCAT	CONCAT('A','BC')	'ABC'	Concatenate two strings and return the combined string
INITCAP	INITCAP('hi there')	'Hi There'	Converts the first character in each word in a specified string to uppercase and the rest to lowercase.
INSTR	INSTR('This is a joke', 'is')	3	Search for a substring and return the location of the substring in a string
LENGTH	LENGTH('ABC')	3	Return the number of characters (or length) of a specified string
LOWER	LOWER('Abc')	'abc'	Return a string with all characters converted to lowercase
LPAD	LPAD('ABC',5,'*')	'**ABC'	Return a string that is left-padded with the specified characters to a certain length.
LTRIM	LTRIM(' ABC ')	'ABC '	Remove spaces or other specified characters in a set from the left end of a string
REGEXP_LIKE	REGEXP_LIKE('Year of 2017','\d+')	TRUE	Match a string based on a regular expression pattern
REPLACE	REPLACE('JACK AND JOND','J','BL');	'BLACK AND BLOND'	Replace all occurrences of a substring by another substring in a string
RTRIM	RTRIM(' ABC ')	' ABC'	Remove all spaces or specified character in a set from the right end of a string
SUBSTR	SUBSTR('Oracle Substring', 1, 6)	'Oracle'	Extract a substring from a string
TRIM	TRIM(' ABC ')	'ABC'	Remove the space character or other specified characters either from the start or end of a string
UPPER	UPPER('Abc')	'ABC'	Convert all characters in a specified string to uppercase

Numeric Functions

Function	Example	Result	Description
ABS()	ABS(-12)	12	Return the absolute value
CEILING()	CEILING(12.33)	13	Return the smallest integer value not less than the argument
GREATEST()	GREATEST(2,1,3)	3	Returns the greatest value in a list of expressions.
MOD()	MOD(4,2)	0	Return the remainder
ROUND()	ROUND(55.3281,2)	55.33	Round the argument
SIGN()	SIGN(-666)	-1	Return the sign of the argument
TRUNCATE()	TRUNC(55.3281,2)	55.32	Truncate to specified number of decimal places

Date Functions

Function	Example	Result	Description
ADD_MONTHS	ADD_MONTHS(DATE '2016-02-29', 1)	31-MAR-16	Add a number of months (n) to a date and return the same day which is n of months away.
CURRENT_DATE	SELECT CURRENT_DATE FROM dual	06-AUG-2017 19:43:44	Return the current date and time in the session time zone
CURRENT_TIMESTAMP	SELECT CURRENT_TIMESTAMP FROM dual	06-AUG-17 08.26.52.742000000 PM -07:00	Return the current date and time with time zone in the session time zone
EXTRACT	EXTRACT(YEAR FROM SYSDATE)	2017	Extract a value of a date time field e.g., YEAR, MONTH, DAY, ... from a date time value.
FROM_TZ	FROM_TZ(TIMESTAMP '2017-08-08 08:09:10', '-09:00')	08-AUG-17 08.09.10.000000000 AM -07:00	Convert a timestamp and a time zone to a TIMESTAMP WITH TIME ZONE value
LAST_DAY	LAST_DAY(DATE '2016-02-01')	29-FEB-16	Gets the last day of the month of a specified date.
LOCALTIMESTAMP	SELECT LOCALTIMESTAMP FROM dual	06-AUG-17 08.26.52.742000000 PM	Return a TIMESTAMP value that represents the current date and time in the session time zone.
MONTHS_BETWEEN	MONTHS_BETWEEN(DATE '2017-07-01', DATE '2017-01-01')	6	Return the number of months between two dates.

Date Functions (2)

Function	Example	Result	Description
NEW_TIME	NEW_TIME(TO_DATE('08-07-2017 01:30:45', 'MM-DD-YYYY HH24:MI:SS'), 'AST', 'PST')	06-AUG-2017 21:30:45	Convert a date in one time zone to another
NEXT_DAY	NEXT_DAY(DATE '2000-01-01', 'SUNDAY')	02-JAN-00	Get the first weekday that is later than a specified date.
ROUND	ROUND(DATE '2017-07-16', 'MM')	01-AUG-17	Return a date rounded to a specific unit of measure.
SESSIONTIMEZONE	SELECT SESSIONTIMEZONE FROM dual;	-07:00	Get the session time zone
SYSDATE	SYSDATE	01-AUG-17	Return the current system date and time of the operating system where the Oracle Database resides.
TO_CHAR	TO_CHAR(DATE'2017-01-01', 'DL')	Sunday, January 01, 2017	Convert a DATE or an INTERVAL value to a character string in a specified format.
TO_DATE	TO_DATE('01 Jan 2017', 'DD MON YYYY')	01-JAN-17	Convert a date which is in the character string to a DATE value.
TRUNC	TRUNC(DATE '2017-07-16', 'MM')	01-JUL-17	Return a date truncated to a specific unit of measure.
TZ_OFFSET	TZ_OFFSET('Europe/London')	+01:00	Get time zone offset of a time zone name from UTC

Date Operations

Operation	Result	Description
Date + number	Date	Adds a number of days to a date
Date - number	Date	Subtracts a number of days from a date
Date – date	Number of days	Subracts one date from another
Date + number/24	Date	Adds a number of hours to a date

References

Resource	Location
Oracle SQL Reference	