SELECT STATEMENT

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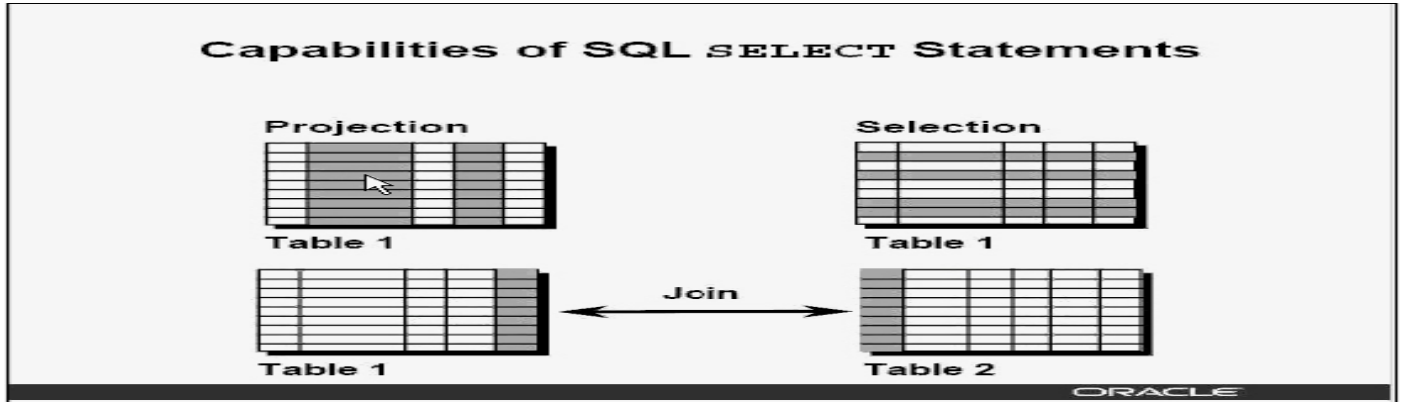
SQL SELECT Statement

- Use a **SELECT** statement to retrieve data from one or more tables



- Unconditional structure
- **SELECT** columnsNames **FROM** tableName
- Conditional structure
- **SELECT** columnsNames **FROM** tableName **WHERE** condition

SQL SELECT Statement

- * is used to show all columns from a table.
- SELECT * FROM departments;
- Instead of * we can write the name of all fields of department table
- SELECT **department_id, department_name, manager_id, location_id** FROM departments

DEPARTMENT_ID	DEPARTMENT_NAME	MANAGER_ID	LOCATION_ID
10	Administration	200	1700
20	Marketing	201	1800
30	Purchasing	114	1700
40	Human Resources	203	2400
50	Shipping	121	1500
60	IT	103	1400
70	Public Relations	204	2700
80	Sales	145	2500
90	Executive	100	1700
100	Finance	108	1700

More than 10 rows available. Increase rows selector to view more rows.

SQL SELECT Statement

- SELECT determined Fields.
- SELECT location_id, department_id FROM departments

LOCATION_ID	DEPARTMENT_ID
1700	10
1800	20
1700	30
2400	40
1500	50
1400	60
2700	70
2500	80
1700	90
1700	100
More than 10 rows available. Increase rows selector to view more rows.	

Arithmetic Expression

- SELECT last_name, salary, **salary+300** From employees

LAST_NAME	SALARY	SALARY+300
King	24000	24300
Kochhar	17000	17300
De Haan	17000	17300
Hunold	9000	9300

- SELECT last_name,salary,**12*salary+100** From employees

LAST_NAME	SALARY	12*SALARY+100
King	24000	288100
Kochhar	17000	204100
De Haan	17000	204100

- SELECT last_name,salary,**12*(salary+100)** From employees

LAST_NAME	SALARY	12*(SALARY+100)
King	24000	289200
Kochhar	17000	205200
De Haan	17000	205200

NULL Value

- 0 (zero) means value.
- Space means character.
- Null means unknown value or missing value.
- Some fields may contains NULL value when there is no UNNUL constraint on it.

SELECT last_name,job_id,salary,commission_pct From employees

LAST_NAME	JOB_ID	SALARY	COMMISSION_PCT
King	AD_PRES	24000	-
Kochhar	AD_VP	17000	-
De Haan	AD_VP	17000	-

- Any arithmetic expression on NULL values tend to Null

SELECT last_name,job_id,salary,**12*salary*commission_pct** From employees

LAST_NAME	JOB_ID	SALARY	12*SALARY*COMMISSION_PCT
King	AD_PRES	24000	-
Kochhar	AD_VP	17000	-
De Haan	AD_VP	17000	-

ALIAS

- `SELECT last_name as name,commission_pct comm From employees`

NAME	COMM
King	-
Kochhar	-
De Haan	-

- `SELECT last_name "Name", salary * 12 "Annual Salary" From employees`

Name	Annual Salary
King	288000
Kochhar	204000
De Haan	204000

- Write as or put “” for alias
- It is required to use “” when using a name with two words

Concatenation Operator

- SELECT last_name || job_id as "Employees" From employees

Employees
KingAD_PRES
KochharAD_VP
De HaanAD_VP

- Using Literal Character String
- SELECT last_name || ' is a ' || job_id as "Employees" From employees

Employees
King is a AD_PRES
Kochhar is a AD_VP
De Haan is a AD_VP

- SELECT last_name || ': 1 Month Salary=' || salary monthly From employees

MONTHLY
King: 1 Month Salary=24000
Kochhar: 1 Month Salary=17000
De Haan: 1 Month Salary=17000

Duplicate Rows

- SELECT department_id From employees

DEPARTMENT_ID
90
90
90
60
60

- SELECT DISTINCT department_id From employees

DEPARTMENT_ID
100
30
-
90

- SELECT DISTINCT department_id,job_id From employees

DEPARTMENT_ID	JOB_ID
110	AC_ACCOUNT
90	AD_VP
50	ST_CLERK

DESCRIBE

- DESC employees

Table	Column	Data Type	Length	Precision	Scale	Primary Key	Nullable	Default	Comment
EMPLOYEES	EMPLOYEE_ID	Number	-	6	0	1	-	-	Primary key of employees table.
	FIRST_NAME	Varchar2	20	-	-	-	✓	-	First name of the employee. A not null column.
	LAST_NAME	Varchar2	25	-	-	-	-	-	Last name of the employee. A not null column.
	EMAIL	Varchar2	25	-	-	-	-	-	Email id of the employee
	PHONE_NUMBER	Varchar2	20	-	-	-	✓	-	Phone number of the employee; includes country co area code
	HIRE_DATE	Date	7	-	-	-	-	-	Date when the employee started on this job. A not n column.

- SELECT * FROM tab

TNAME	TABTYPE	CLUSTERID
REGIONS	TABLE	-
COUNTRIES	TABLE	-
LOCATIONS	TABLE	-
DEPARTMENTS	TABLE	-
JOBS	TABLE	-
EMPLOYEES	TABLE	-
JOB_HISTORY	TABLE	-
EMP_DETAILS_VIEW	VIEW	-

SQL Command Line or SQL*PLUS

```
SQL> connect hr/hr
  Connected
SQL> select * from TABLE_NAME;
SQL> DESC departments;
SQL> SELECT * FROM departments;
SQL> DESC employees;
SQL> SELECT employee_id,last_name,job_id,hire_date “STARTDATE” FROM Employee;
SQL> SAVE c:/lab1.sql
    created file c:/lab1.sql
SQL> GET c:/lab1.sql
    1  SELECT employee_id,last_name,job_id,hire_date “STARTDATE” FROM Employee;
SQL>/
```

SELECT with WHERE Statement

- SELECT employee_id, last_name, job_id, department_id from employees WHERE department_id=90

EMPLOYEE_ID	LAST_NAME	JOB_ID	DEPARTMENT_ID
100	King	AD_PRES	90
101	Kochhar	AD_VP	90
102	De Haan	AD_VP	90

- SELECT last_name, job_id, department_id from employees WHERE job_id='SA_REP'

LAST_NAME	JOB_ID	DEPARTMENT_ID
Tucker	SA_REP	80
Bernstein	SA_REP	80
Hall	SA_REP	80
Olsen	SA_REP	80
Cambrault	SA_REP	80
Tuvault	SA_REP	80

- SELECT last_name, job_id, department_id from employees WHERE last_name='WHALEN'

no data found

COMPARISON PARAMETERS

- SELECT last_name,salary from employees WHERE salary<=3000

LAST_NAME	SALARY
Baida	2900
Tobias	2800
Himuro	2600

- SELECT last_name,salary from employees WHERE salary between 2500 and 3500

LAST_NAME	SALARY
Khoo	3100
Baida	2900
Tobias	2800

- SELECT last_name,salary from employees WHERE salary >=2500 and salary<= 3500

LAST_NAME	SALARY
Khoo	3100
Baida	2900
Tobias	2800

COMPARISON PARAMETERS

- Between can also be used with Text and Date
- SELECT last_name, salary from employees WHERE last_name between 'A' and 'D'
- We also have NOT BETWEEN
- SELECT last_name,salary from employees WHERE salary not between 2500 and 3500

COMPARISON PARAMETERS

- SELECT employee_id,last_name,salary,manager_id FROM employees WHERE manager_id IN (100,101,102)

EMPLOYEE_ID	LAST_NAME	SALARY	MANAGER_ID
101	Kochhar	17000	100
102	De Haan	17000	100
114	Raphaely	11000	100

- SELECT employee_id,last_name,salary,manager_id FROM employees WHERE manager_id =101 or manager_id =102 or manager_id =103

- SELECT employee_id,last_name,salary,manager_id FROM employees WHERE last_name IN ('Hartstein','Vargas')

EMPLOYEE_ID	LAST_NAME	SALARY	MANAGER_ID
201	Hartstein	13000	100
144	Vargas	2500	124

COMPARISON PARAMETERS

- SELECT first_name FROM employees WHERE first_name like 'S%'

FIRST_NAME
Sundar
Shelli
Sarah

- SELECT last_name,hire_date FROM employees WHERE hire_date like '95%'

LAST_NAME	HIRE_DATE
Khoo	95-05-18
Kaufling	95-05-01
Ladwig	95-07-14
Rajs	95-10-17

- SELECT last_name FROM employees WHERE last_name like '_o%'

LAST_NAME
Colmenares
Doran
Fox

COMPARISON PARAMETERS

- SELECT last_name,job_id FROM employees WHERE job_id like '%SA_%' ESCAPE'\'

LAST_NAME	JOB_ID
Russell	SA_MAN
Partners	SA_MAN
Errazuriz	SA_MAN

- SELECT last_name,manager_id FROM employees WHERE manager_id is null

LAST_NAME	MANAGER_ID
King	-

- SELECT last_name,job_id,commission_pct FROM employees WHERE commission_pct is null

LAST_NAME	JOB_ID	COMMISSION_PCT
King	AD_PRES	-
Kochhar	AD_VP	-
De Haan	AD_VP	-

LOGICAL PARAMETERS

AND	TRUE	FALSE	NULL
TRUE	TRUE	FALSE	NULL
FALSE	FALSE	FALSE	FALSE
NULL	NULL	FALSE	NULL

```
SELECT employee_id,last_name,job_id,salary FROM employees  WHERE
salary>=10000 AND  job_id like '%MAN%'
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
114	Raphaely	PU_MAN	11000
145	Russell	SA_MAN	14000
146	Partners	SA_MAN	13500

LOGICAL PARAMETERS

OR	TRUE	FALSE	NULL
TRUE	TRUE	TRUE	TRUE
FALSE	TRUE	FALSE	NULL
NULL	TRUE	NULL	NULL

```
SELECT employee_id,last_name,job_id,salary FROM employees WHERE
salary>=10000 OR  job_id like '%MAN%'
```

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
100	King	AD_PRES	24000
101	Kochhar	AD_VP	17000
102	De Haan	AD_VP	17000

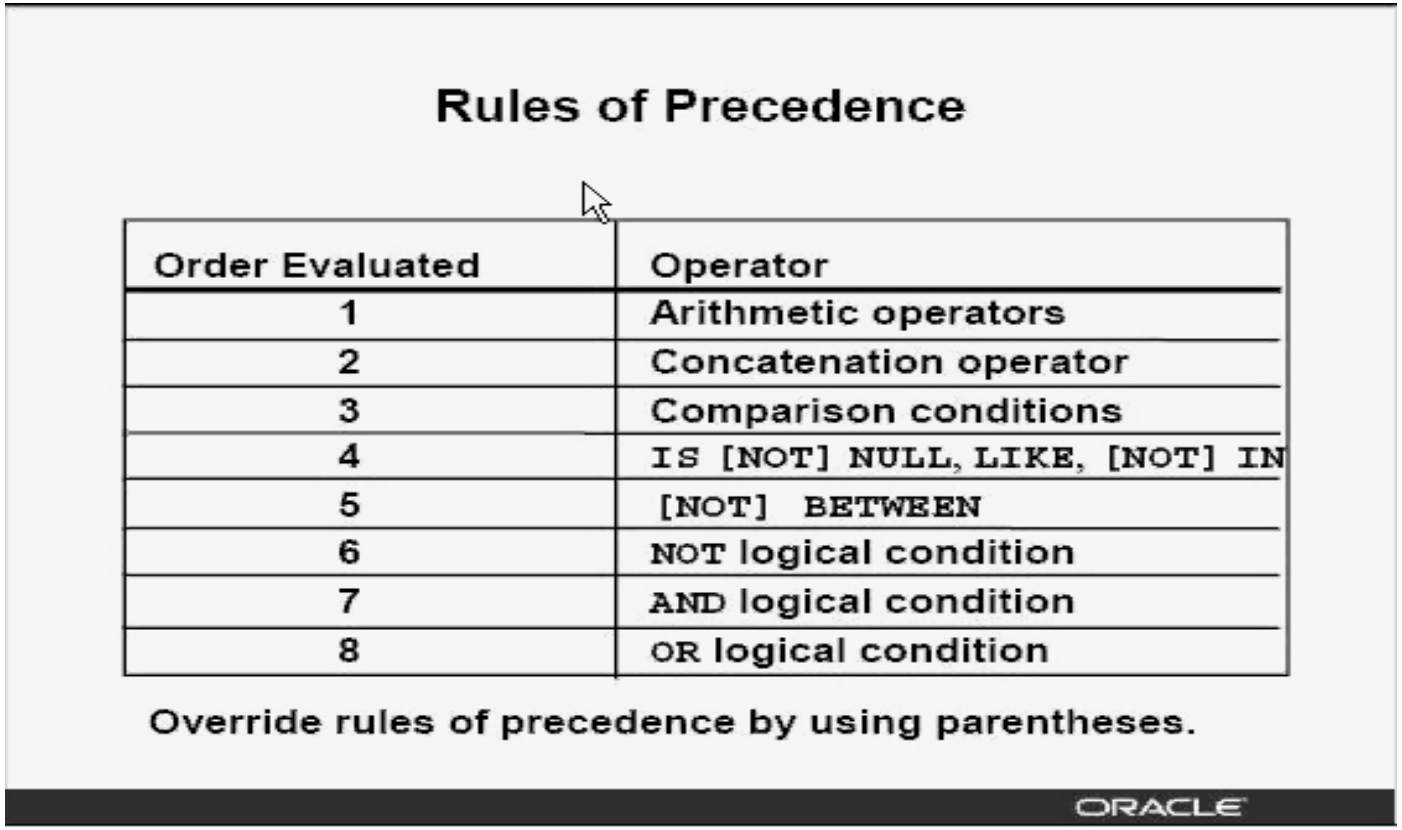
LOGICAL PARAMETERS

SELECT last_name,job_id FROM employees where job_id NOT IN ('IT_PROG')

- NOT can be used with BETWEEN and IS NULL

LAST_NAME	JOB_ID
King	AD_PRES
Kochhar	AD_VP
De Haan	AD_VP

Rules of Precedence



LOGICAL PARAMETERS

SELECT employee_id,last_name,job_id,salary FROM employees WHERE job_id='SA_REP' OR job_id='SA_PRES' AND salary>1500

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
100	King	AD_PRES	24000
150	Tucker	SA_REP	10000
151	Bernstein	SA_REP	9500

SELECT employee_id,last_name,job_id,salary FROM employees WHERE (job_id='SA_REP' OR job_id='AD_PRES') AND salary>15000

EMPLOYEE_ID	LAST_NAME	JOB_ID	SALARY
100	King	AD_PRES	24000

ORDER BY

SELECT last_name,job_id,department_id,hire_date FROM employees ORDER BY hire_date

LAST_NAME	JOB_ID	DEPARTMENT_ID	HIRE_DATE
King	AD_PRES	90	87-06-17
Whalen	AD_ASST	10	87-09-17
Kochhar	AD_VP	90	89-09-21

SELECT last_name,job_id,department_id,hire_date FROM employees ORDER BY hire_date DESC

LAST_NAME	JOB_ID	DEPARTMENT_ID	HIRE_DATE
Kumar	SA_REP	80	00-04-21
Banda	SA_REP	80	00-04-21
Ande	SA_REP	80	00-03-24

ORDER BY

SELECT last_name,salary FROM employees ORDER BY 2 DESC

LAST_NAME	SALARY
King	24000
Kochhar	17000
De Haan	17000

SELECT employee_id,last_name,salary*12 as annual FROM employees ORDER BY annual

EMPLOYEE_ID	LAST_NAME	ANNUAL
132	Olson	25200
128	Markle	26400
136	Philtanker	26400

ORDER BY

SELECT last_name,department_id,salary FROM employees ORDER BY department_id, salary

LAST_NAME	DEPARTMENT_ID	SALARY
Whalen	10	4400
Fay	20	6000
Hartstein	20	13000

SELECT last_name,department_id,salary FROM employees ORDER BY department_id,salary DESC

LAST_NAME	DEPARTMENT_ID	SALARY
Whalen	10	4400
Hartstein	20	13000
Fay	20	6000

EXERCISE

SELECT last_name,salary FROM employees WHERE salary NOT BETWEEN 5000 and 12000

SELECT last_name,job_id,hire_date FROM employees WHERE hire_date BETWEEN '1998/02/20' AND '1998/05/01‘

SELECT last_name,department_id,salary FROM employees WHERE department_id IN (20,50) AND salary BETWEEN 5000 AND 12000

ORDER BY last_name

SELECT last_name,hire_date FROM employees WHERE hire_date LIKE '95%'

EXERCISE

SELECT last_name,job_id FROM employees WHERE manager_id IS NULL

SELECT last_name,salary,commission_pct FROM employees WHERE commission_pct is NOT NULL ORDER BY commission_pct DESC,salary DESC

SELECT last_name FROM employees WHERE last_name LIKE '__a%'

SELECT last_name FROM employees WHERE last_name LIKE '%a%' AND last_name LIKE '%e%'

SELECT last_name,job_id,salary FROM employees WHERE job_id IN ('SA_REP','ST_CLERK') AND salary NOT IN (2500,3500,7000)

Any Question ?