i2i Systems
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i2i Academy

Training Document

Topic	Oracle SQL Language Fundamentals I
Document Name	SQL03-EX-01-05

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Exercise SQL03-EX-01:

Definiton : Write followig SQL queries:

- Add a colum to employees table named MAX_SALARY. +
- Update MAX_SALARY with maximum salary amount with subquery.
- Delete employee who have minimum salary using subquery.

SQL:

```
ALTER TABLE NEW_EMP ADD MAX_SALARY INT;

UPDATE NEW_EMP SET MAX_SALARY = (SELECT MAX(SALARY) FROM NEW_EMP);

DELETE FROM NEW_EMP WHERE SALARY = (SELECT MIN(SALARY) FROM NEW_EMP);
```

Screenshot:

```
Table altered.
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID	MAX_SALARY
100	Steven	King	SKING	515.123.4567	17-JUN-03	AD_PRES	24000	-	-	90	-
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-05	AD_VP	17000	-	100	90	-
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-01	AD_VP	17000	-	100	90	-
103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-06	IT_PROG	9000	-	102	60	-
104	Bruce	Ernst	BERNST	590.423.4568	21-MAY-07	IT_PROG	6000	-	103	60	-
105	David	Austin	DAUSTIN	590.423.4569	25-JUN-05	IT_PROG	4800		103	60	

```
107 row(s) updated.
```

EMPLOYEE_ID	FIRST_NAME	LAST_NAME	EMAIL	PHONE_NUMBER	HIRE_DATE	JOB_ID	SALARY	COMMISSION_PCT	MANAGER_ID	DEPARTMENT_ID	MAX_SALARY
100	Steven	King	SKING	515.123.4567	17-JUN-03	AD_PRES	24000	-	-	90	24000
101	Neena	Kochhar	NKOCHHAR	515.123.4568	21-SEP-05	AD_VP	17000	-	100	90	24000
102	Lex	De Haan	LDEHAAN	515.123.4569	13-JAN-01	AD_VP	17000	-	100	90	24000
103	Alexander	Hunold	AHUNOLD	590.423.4567	03-JAN-06	IT_PROG	9000	-	102	60	24000
104	Bruce	Ernst	BERNST	590.423.4568	21-MAY-07	IT_PROG	6000	-	103	60	24000

```
1 row(s) deleted.
```

Exercise SQL03-EX-02:

Definiton : Write followig SQL queries:

- Define index (named DPR_NAME_IDX) on DEPARTMENT_NAME column of DEPARTMENTS table.+
- Define constraint (named CNSTR_SALARY) on employee salary. (Salary must be between 1000$ and 100.000$)
- Drop defined index.
- Enable, disable, drop defined constraint.

SQL:

```
CREATE INDEX DPR_NAME_IDX ON NEW_DEP(DEPARTMENT_NAME);

ALTER TABLE NEW_EMP  ADD CONSTRAINT CNSTR_SALARY CHECK(SALARY BETWEEN 1000 AND 100000);

DROP INDEX DPR_NAME_IDX;

ALTER TABLE NEW_EMP ENABLE CONSTRAINT CNSTR_SALARY;

ALTER TABLE NEW_EMP DISABLE CONSTRAINT CNSTR_SALARY;

ALTER TABLE NEW_EMP DROP CONSTRAINT CNSTR_SALARY;
```

Screenshot:

```
Index created. Table altered. Index dropped. Table altered.
Table altered. Table altered.
```

Exercise SQL03-EX-03:

Definiton : Create a table from EMPLOYEES with **distinct department_id** column. +

Add **department_name** to that table. +

With DEPARTMENTS table, update **department_name** for included department_ids

and

insert department_id and department_name values for not included rows.

Use MERGE keyword.

SQL:

```
CREATE TABLE NEW_TABLE AS
   SELECT DISTINCT DEPARTMENT_ID FROM HR.EMPLOYEES;

ALTER TABLE NEW_TABLE ADD DEPARTMENT_NAME VARCHAR(25);

MERGE INTO NEW_TABLE T
USING HR.DEPARTMENTS D
ON (T.DEPARTMENT_ID = D.DEPARTMENT_ID)
WHEN MATCHED THEN
   UPDATE SET  T.DEPARTMENT_NAME = D.DEPARTMENT_NAME;
```

Screenshot:

DEPARTMENT_ID	DEPARTMENT_NAME
50	-
40	-
110	-
90	-
30	-
70	-

DEPARTMENT_ID	DEPARTMENT_NAME
50	Shipping
40	Human Resources
110	Accounting
90	Executive
30	Purchasing
70	Public Relations
-	-
10	Administration
20	Marketing
60	IT
100	Finance
80	Sales

Exercise SQL03-EX-04:

Definiton : Using **WITH** keyword, do following jobs:

- Firstly select first_name, last_name, job_id, department_id from employees table whose job_id starts with 'S'. +
- Additionally select job_title and min-max salary amount. +
- Add department_name to that query.

- Lastly concat first_name and last_name with space as full_name alias
- and list with other selected columns.

SQL:

```
WITH EMPLOYEES_STARTING_WITH_S AS ( SELECT FIRST_NAME, LAST_NAME, JOB_ID,
DEPARTMENT_ID FROM HR.EMPLOYEES WHERE JOB_ID LIKE 'S%'),

   JOB_TABLE AS (SELECT JOB_ID, JOB_TITLE, MIN_SALARY, MAX_SALARY FROM HR.JOBS),

   DEP_TABLE AS (SELECT DEPARTMENT_ID,DEPARTMENT_NAME FROM HR.DEPARTMENTS)

SELECT e.FIRST_NAME|| ' ' ||e.LAST_NAME AS full_name , e.JOB_ID, e.DEPARTMENT_ID, j.JOB_TITLE,
j.MIN_SALARY, j.MAX_SALARY,

  d.DEPARTMENT_NAME

FROM EMPLOYEES_STARTING_WITH_S e

  JOIN JOB_TABLE j ON e.JOB_ID = j.JOB_ID

  JOIN DEP_TABLE d ON e.DEPARTMENT_ID = d.DEPARTMENT_ID
```

Screenshot:

FULL_NAME	JOB_ID	DEPARTMENT_ID	JOB_TITLE	MIN_SALARY	MAX_SALARY	DEPARTMENT_NAME
John Russell	SA_MAN	80	Sales Manager	10000	20080	Sales
Alberto Errazuriz	SA_MAN	80	Sales Manager	10000	20080	Sales
Gerald Cambrault	SA_MAN	80	Sales Manager	10000	20080	Sales
Eleni Zlotkey	SA_MAN	80	Sales Manager	10000	20080	Sales
Karen Partners	SA_MAN	80	Sales Manager	10000	20080	Sales
Charles Johnson	SA_REP	80	Sales Representative	6000	12008	Sales
Peter Tucker	SA_REP	80	Sales Representative	6000	12008	Sales
David Bernstein	SA_REP	80	Sales Representative	6000	12008	Sales

Exercise SQL03-EX-05:

Definiton : Search for COMMIT and ROLLBACK keywords and explain them.

-COMMIT in SQL is a transaction control language that is used to permanently save the changes done in the transaction in tables/databases. The database cannot regain its previous state after its execution of commit.

-ROLLBACK in SQL is a transactional control language that is used to undo the transactions that have not been saved in the database. The command is only been used to undo changes since the last COMMIT.