String Patterns, Sorting & Grouping

The practice problems will provide hands on experience with string patterns, sorting result sets and grouping result sets.

HR Database

We will be working on a sample HR database. This HR database schema consists of 5 tables called EMPLOYEES, JOB_HISTORY, JOBS, DEPARTMENTS and LOCATIONS. Each table has a few rows of sample data. The following diagram shows the tables for the HR database.

SAMPLE HR DATABASE TABLES

EMPLOYEES EMP_ID F_NAME L_NAME **B_DATE ADDRESS** JOB_ID SALARY MANAGER_ID DEP_ID 5631 Rice, OakPark,IL 100 E1001 John 123456 1976-01-09 100000 30001 2 980 Berry In, Elgin,IL E1002 Alice James 123457 1972-07-31 200 80000 30002 5 291 Springs, Gary,IL 300 123458 1980-08-10 E1003 Steve Wells 50000 30002

JOB_HISTO	DRY		JOBS			
EMPL_ID	START_DATE	JOBS_ID	DEPT_ID	JOB_IDENT	JOB_TITLE	MIN_SAL
E1001	2000-01-30	100	2	100	Sr. Architect	60000
E1002	2010-08-16	200	5	200	Sr.SoftwareDeveloper	60000
E1003	2016-08-10	300	5	300	Jr.SoftwareDeveloper	40000

DEPARTMEN	TS	LOCATIONS			
DEPT_ID_DEP	DEP_NAME	MANAGER_ID	LOC_ID	LOCT_ID	DEP_ID_LOC
2	Architect Group	30001	L0001	L0001	2
5	Software Development	30002	L0002	L0002	5
7	Design Team	30003	L0003	L0003	7
5	Software	30004	L0004		

All these data is loaded through CSV files.

100000 80000 60000

COMPOSING AND RUNNING QUERIES

Query 1:

Retrieve all employees whose address is in Elgin, IL.

Query 2:

Retrieve all employees who were born during the 1970's.

Query 3:

Retrieve all employees in department 5 whose salary is between 60000 and 70000.

Query 4:

Retrieve a list of employees ordered by department ID.

Query 5:

Retrieve a list of employees ordered in descending order by department ID and within each department ordered alphabetically in descending order by last name.

Query 6:

For each department ID retrieve the number of employees in the department.

Query 7:

For each department retrieve the number of employees in the department, and the average employees salary in the department.

Query 8:

In Query 7 order the result set by Average Salary.

<u>Query 9:</u>

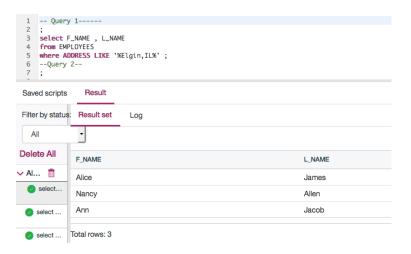
In Query 8 limit the result to departments with fewer than 4 employees.

Query 10:

Similar to 4 but instead of department ID use department name. Retrieve a list of employees ordered by department name, and within each department ordered alphabetically in descending order by last name.

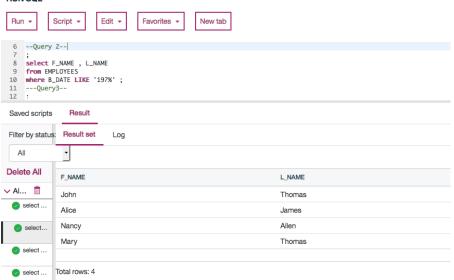
SOLUTIONS

Query 1: Output



Query 2: Output

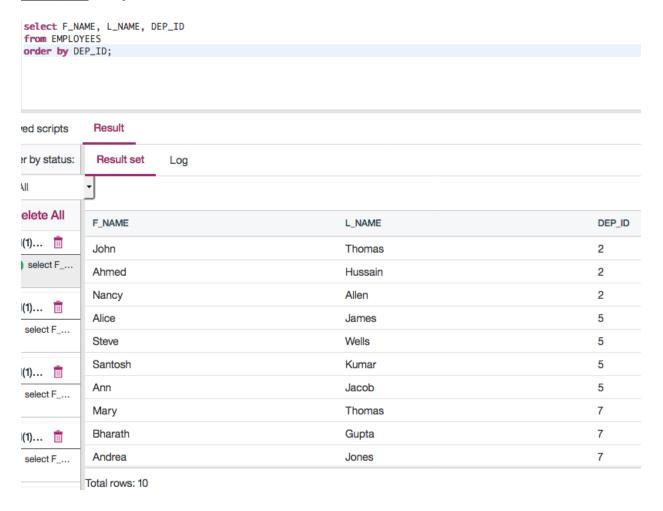
RUN SQL



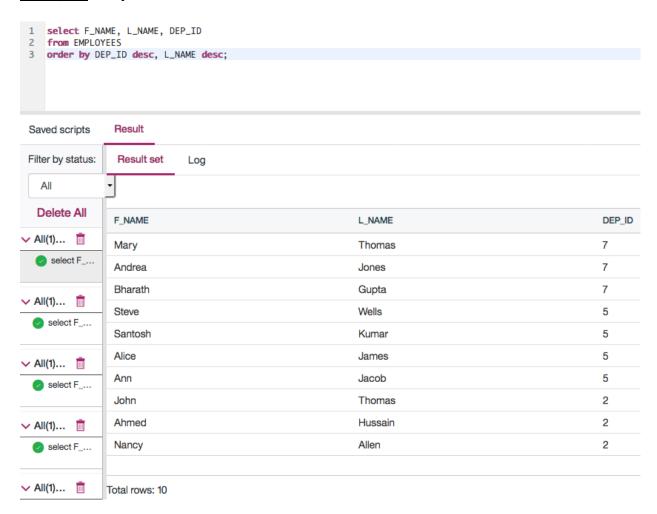
Query 3: Output



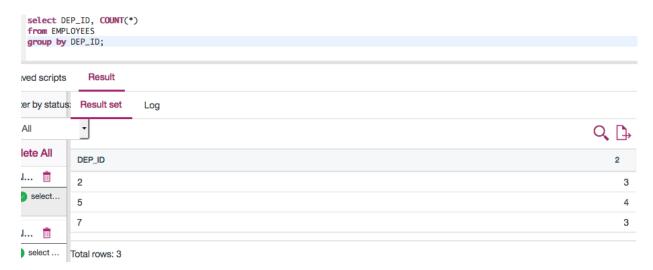
Query 4: Output



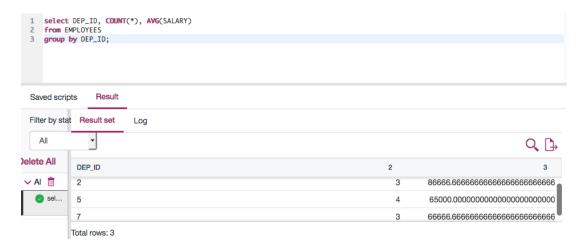
Query 5: Output



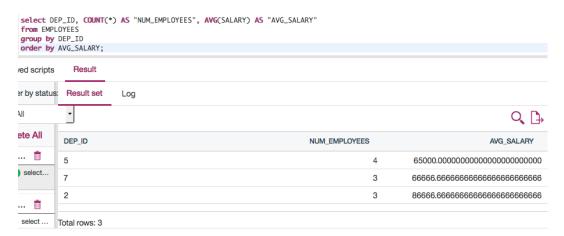
Query 6: Output



Query 7: Output



Query 8: Output



Query 9: Output



Query 10: Output

