**Queries on University database**

**Simple queries**:

1. Write a query to retrieve the names of all instructors.
2. Write a query to retrieve the department names of all instructors.
3. Write a query to retrieve the unique department names of all instructors.
4. Write a query to show resulting salaries if each instructor is given a 10 percent raise.
5. Write a query to retrieve the names of all instructors in the Computer Science department who have salary more than $70,000.

**Queries on multiple relations**:

1. Write a query to retrieve the name of all instructors along with their department names and department building name.
2. Write a query to retrieve name of the instructors and course id that he/she teaches the courses.
3. Write a query to retrieve name of the instructors and courses who taught Biology department courses.
4. Write a query to retrieve the names of instructors, and title of the courses that they teach.
5. Write a query to retrieve the names of all instructors whose salary is greater than at least one instructor in the Biology department.
6. Write a query to retrieve names of all departments whose building name includes 'Watson'.
7. Write a query to retrieve the names of the Physics department instructors in ascending order.
8. Write a query to retrieve the name and salary of instructors order by salary in descending order and if more than one instructor have the same salary, order by names in ascending order.
9. Write a query to retrieve the names of instructors whose salary amounts in the range $90,000 and $100,000.
10. Write a query to retrieve all the courses taught in the Fall 2009 semester.
11. Write a query to retrieve all the courses taught in the Spring 2010 semester.
12. Write a query to retrieve all the courses taught either in Fall 2009 or in Spring 2010 or both.
13. Write a query to retrieve all the courses taught in the Fall 2009 as well as in Spring 2010.
14. Write a query to retrieve all courses taught in the Fall 2009 semester but not in the Spring 2010 semester.
15. Write a query to retrieve the average salary of all instructors.
16. Write a query to retrieve the average salary of instructors in the Computer Science department.
17. Write a query to retrieve the average salary in each department.
18. Write a query to retrieve the number of instructors in each department who teach a course in the Spring 2010 semester.
19. Write a query to retrieve the average salary of the instructors in those departments where the average salary is more than $80000.
20. Write a query to retrieve the names of all instructors that have a salary value greater than of each instructor in the Computer Science department.
21. Write a query to retrieve the names of all instructors that have a salary value greater than at least one instructor in the Comp. Sci. department.
22. Write a query to retrieve the departments that have the highest average salary.

\*)TOP 3 SAL

SQL> SELECT SAL,E.ENAME FROM EMPLOYEE E WHERE 3>= (SELECT COUNT(DISTINCT SAL) FROM EMPLOYEE WHERE E.

SAL<=SAL);

SAL ENAME

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2975 JONES

3000 SCOTT

5000 KING

3000 FORD

\*)LEAST 3 SAL

1\* SELECT SAL,E.ENAME FROM EMPLOYEE E WHERE 3>= (SELECT COUNT(DISTINCT SAL) FROM EMPLOYEE WHERE E.

SQL> /

SAL ENAME

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800 SMITH

1100 ADAMS

950 JAMES

12) SQL> SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Spring') AND (S.YEAR = 2010) AND (C

.COURSE\_ID=S.COURSE\_ID)

2 UNION (SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Fall') AND (S.YEAR = 2009) A

ND (C.COURSE\_ID=S.COURSE\_ID));

TITLE

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Database System Concepts

Image Processing

Intro.to Computer Science

Investment Banking

Music Video Production

Physical Principles

Robotics

World History

13) SQL> SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Spring') AND (S.YEAR = 2010) AND (C

.COURSE\_ID=S.COURSE\_ID)

2 INTERSECT (SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Fall') AND (S.YEAR = 200

9) AND (C.COURSE\_ID=S.COURSE\_ID));

TITLE

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Intro.to Computer Science

14) SQL> SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Fall') AND (S.YEAR = 2009) AND (C.C

OURSE\_ID=S.COURSE\_ID)

2 MINUS (SELECT C.TITLE FROM SECTION S,COURSE C WHERE (S.SEMESTER = 'Spring') AND (S.YEAR = 2010)

AND (C.COURSE\_ID=S.COURSE\_ID))

3 ;

TITLE

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Database System Concepts

Physical Principles

15) SQL> SELECT AVG(SALARY) FROM INSTRUCTOR;

AVG(SALARY)

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74833.3333

16) SQL> SELECT AVG(SALARY) FROM INSTRUCTOR WHERE DEPT\_NAME = 'Comp.Sci.';

AVG(SALARY)

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77333.3333

17) SQL> SELECT DEPT\_NAME,AVG(SALARY) FROM INSTRUCTOR GROUP BY DEPT\_NAME;

DEPT\_NAME AVG(SALARY)

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Biology 72000

Comp.Sci. 77333.3333

Elec.Eng. 80000

Finance 85000

History 61000

Music 40000

Physics 91000

18) SQL> SELECT COUNT(\*) FROM INSTRUCTOR WHERE ID IN (SELECT ID FROM TEACHES WHERE (SEMESTER = 'Spring')

AND (YEAR = 2010));

COUNT(\*)

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6

19) SQL> SELECT DEPT\_NAME,AVG(SALARY) FROM INSTRUCTOR GROUP BY DEPT\_NAME HAVING AVG(SALARY) > 80000;

DEPT\_NAME AVG(SALARY)

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Finance 85000

Physics 91000

20) SQL> SELECT NAME FROM INSTRUCTOR WHERE SALARY > ALL(SELECT SALARY FROM INSTRUCTOR WHERE DEPT\_NAME =

'Comp.Sci.');

NAME

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Einstein

21) SQL> SELECT NAME FROM INSTRUCTOR WHERE SALARY > ANY(SELECT SALARY FROM INSTRUCTOR WHERE DEPT\_NAME =

'Comp.Sci.');

NAME

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Wu

Einstein

Gold

Katz

Singh

Crick

Brandt

Kim

22) SQL> SELECT DEPT\_NAME FROM INSTRUCTOR GROUP BY DEPT\_NAME HAVING AVG(SALARY) = (SELECT MAX(AVG(SALARY

)) FROM INSTRUCTOR GROUP BY DEPT\_NAME);

DEPT\_NAME

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Physics