16…..

SELECT i.ID, i.name, COUNT(a.s\_id) AS total\_students\_advised

FROM instructor i

LEFT JOIN advisor a ON i.ID = a.i\_id

GROUP BY i.ID, i.name

ORDER BY total\_students\_advised DESC;

17….

SELECT \*

FROM section

WHERE building IS NULL OR room\_number IS NULL;

18….

SELECT DISTINCT s.name

FROM student s

JOIN takes t ON s.id = t.id

JOIN course c ON t.course\_id = c.course\_id

WHERE c.credits = (SELECT MAX(credits) FROM course);

19….

WITH dept\_avg AS (

SELECT dept\_name, AVG(salary) AS avg\_salary

FROM instructor

GROUP BY dept\_name

)

SELECT dept\_name, avg\_salary

FROM dept\_avg

WHERE avg\_salary = (SELECT MAX(avg\_salary) FROM dept\_avg);

20……

SELECT course\_id

FROM teaches

GROUP BY course\_id

HAVING COUNT(DISTINCT ID) > 1;

21….

SELECT DISTINCT s.id, s.name

FROM student s

JOIN takes t ON s.id = t.id

WHERE t.grade = 'A'

AND t.semester = 'Fall'

AND t.year = 2006;

22…..

SELECT DISTINCT i.name

FROM instructor i

JOIN teaches t ON i.ID = t.ID

WHERE t.semester = 'Spring'

AND t.year = 2003;

23……

SELECT c.course\_id, c.title, AVG(enrollment\_count) AS avg\_enrollment

FROM course c

JOIN (

SELECT course\_id, COUNT(DISTINCT id) AS enrollment\_count

FROM takes

GROUP BY course\_id

) t ON c.course\_id = t.course\_id

GROUP BY c.course\_id, c.title;

25…..

SELECT DISTINCT s.name

FROM student s

JOIN takes t ON s.id = t.id

JOIN section sec ON t.course\_id = sec.course\_id

    AND t.sec\_id = sec.sec\_id

    AND t.semester = sec.semester

    AND t.year = sec.year

  WHERE sec.building in ('Alumni', 'Packard');

26…..

SELECT i.ID, i.name, COUNT(t.sec\_id) AS total\_sections\_taught

FROM instructor i

JOIN teaches t ON i.ID = t.ID

GROUP BY i.ID, i.name

ORDER BY total\_sections\_taught DESC;

27….

 SELECT sec.course\_id, sec.sec\_id, sec.semester, sec.year, sec.building, sec.room\_number

FROM section sec

JOIN classroom c ON sec.building = c.building AND sec.room\_number = c.room\_number

WHERE c.capacity < 50;

28….

SELECT DISTINCT s.name

FROM student s

JOIN takes t ON s.id = t.id

JOIN course c ON t.course\_id = c.course\_id

WHERE c.credits = (SELECT MIN(credits) FROM course);

29…..

WITH dept\_avg AS (

SELECT dept\_name, AVG(salary) AS avg\_salary

FROM instructor

GROUP BY dept\_name

)

SELECT dept\_name, avg\_salary

FROM dept\_avg

WHERE avg\_salary = (SELECT MIN(avg\_salary) FROM dept\_avg);

30….

SELECT course\_id

FROM teaches

GROUP BY course\_id

HAVING COUNT(DISTINCT ID) = 1;

31….

SELECT s.id, s.name

FROM student s

JOIN takes t ON s.id = t.id

JOIN teaches te ON t.course\_id = te.course\_id

AND t.sec\_id = te.sec\_id

AND t.semester = te.semester

AND t.year = te.year

GROUP BY s.id, s.name

HAVING COUNT(DISTINCT te.ID) = (SELECT COUNT(DISTINCT ID) FROM instructor);

32…

SELECT i.name

FROM instructor i

JOIN teaches t ON i.ID = t.ID

GROUP BY i.ID, i.name

HAVING COUNT(DISTINCT t.semester) = (SELECT COUNT(DISTINCT semester) FROM teaches);

33…

SELECT c.course\_id, c.title

FROM course c

JOIN section s ON c.course\_id = s.course\_id

GROUP BY c.course\_id, c.title

HAVING COUNT(DISTINCT s.building) = (SELECT COUNT(DISTINCT building) FROM classroom);

34….

WITH student\_course\_count AS (

SELECT id, year, COUNT(course\_id) AS course\_count

FROM takes

GROUP BY id, year

),

max\_course\_count AS (

SELECT MAX(course\_count) AS max\_count

FROM student\_course\_count

)

SELECT s.id, s.name, sc.year, sc.course\_count

FROM student s

JOIN student\_course\_count sc ON s.id = sc.id

JOIN max\_course\_count mc ON sc.course\_count = mc.max\_count;

35…

SELECT DISTINCT s.name

FROM student s

JOIN takes t1 ON s.id = t1.id

JOIN takes t2 ON s.id = t2.id

AND t1.course\_id <> t2.course\_id

AND t1.sec\_id <> t2.sec\_id

AND t1.semester = t2.semester

AND t1.year = t2.year

JOIN section sec1 ON t1.course\_id = sec1.course\_id

AND t1.sec\_id = sec1.sec\_id

AND t1.semester = sec1.semester

AND t1.year = sec1.year

JOIN section sec2 ON t2.course\_id = sec2.course\_id

AND t2.sec\_id = sec2.sec\_id

AND t2.semester = sec2.semester

AND t2.year = sec2.year

AND (sec1.building <> sec2.building OR sec1.room\_number <> sec2.room\_number)

JOIN time\_slot ts1 ON sec1.time\_slot\_id = ts1.time\_slot\_id

JOIN time\_slot ts2 ON sec2.time\_slot\_id = ts2.time\_slot\_id

WHERE (ts1.day = ts2.day)

AND (

(ts1.start\_hr < ts2.end\_hr AND ts1.end\_hr > ts2.start\_hr)

OR (ts1.start\_hr = ts2.start\_hr AND ts1.start\_min < ts2.end\_min)

);