CS301 Fall 2020
HW#3 SQL

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// 1a (10)
select ssn, salary
from employee, department
where dno=dnumber and (salary < 30000 or dname = 'Administration');

//1b (4)
select ssn, salary
from employee join department on dno=dnumber
where salary < 30000 or dname='Administration';

//1c (3)
select ssn, salary
from employee where dno in (select dnumber from department
where salary < 30000 or dname='Administration');

//1d(3)
select ssn, salary
from employee where dno = any (select dnumber from department
where salary < 30000 or dname='Administration');

//1e (5)
select ssn, salary
from employee where exists (select * from department
where dno=dnumber and (salary < 30000 or dname='Administration'));

//1f (8)
select ssn, salary
from (select * from employee, department where dno=dnumber)
where salary < 30000 or dname='Administration';

//2 (10)
Select pnumber, dnum, lname, address, bdate
From project, department, employee
Where dnum=dnumber and mgrssn=ssn and plocation = 'Stafford';

//3a (10)
select dname, dlocation, plocation, pnumber
from department d, dept_locations dl, project
where d.dnumber=dl.dnumber and dl.dnumber=dnum and plocation = dlocation;

//3b (7)
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```sql
select dname, dlocation, plocation, pnumber
from department natural join dept_locations join project on dnumber=dnum
where plocation = dlocation;


//4a (10)
select essn from works_on where hours < 10
intersect
select essn from works_on where hours > 30;

//4b (10)
select w1.essn from works_on w1, works_on w2
where w1.hours < 10 and w2.hours > 30 and w1.essn=w2.essn;

//4c (8)
select essn from works_on where hours < 10
union
select essn from works_on where hours > 30;

//4d (8)
select essn from works_on where hours < 10 or hours > 30;

//5a (12)
select ssn, fname, lname from employee
minus
select ssn, fname, lname from employee, dependent
where ssn=essn and relationship='Spouse';

//5b (7)
select ssn, fname, lname from employee
where ssn not in (select essn from dependent where relationship='Spouse');

//6 (8)
select fname, lname, ((SYSDATE - TO_DATE(bdate, 'yyyy-mm-dd'))/365) AS AGE
from employee
order by age desc;

//7 (8)
select avg ((SYSDATE - TO_DATE(bdate, 'yyyy-mm-dd'))/365) AS Avg_Age
from employee;

//8a (12)
select fname, lname, count(*) from employee, works_on
where ssn=essn group by fname, lname;
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//8b (6)
select fname, lname, count(*) from employee, works_on
where ssn=essn group by fname, lname
having count(*) > 2;

//8c (6)
select fname, lname, count(essn) from employee left join works_on on ssn=essn
group by fname, lname;

//9a (12)
select essn, pname, hours from works_on, project
where pno=pnumber and hours > (select avg(hours) from works_on);
//or
select essn, pname, hours from works_on, project
where pno=pnumber and hours > (select avg(COALESCE (hours, 0)) from works_on);

//9b (10)
select pname, avg(hours)
from works_on, project
where pno=pnumber group by pname;
//or
select pname, avg(COALESCE (hours, 0))
from works_on, project
where pno=pnumber group by pname;

//9c (14)
select pname, avg(hours) from works_on right outer join project on pno=pnumber
group by pname
having avg(COALESCE (hours, 0)) < (select avg(hours) from works_on);
//or
select pname, avg(hours) from works_on right outer join project on pno=pnumber
group by pname
having avg(COALESCE (hours, 0)) < (select avg(COALESCE (hours, 0)) from works_on);

//10  (12)
select fname, lname, (select count(*) from works_on where ssn=essn)
from employee;
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