--1-8 Tennis queries

select PLAYERNO, NAME from PLAYERS where YEAR\_OF\_BIRTH > 1960

select PLAYERNO, NAME, TOWN from PLAYERS where SEX = 'F' AND TOWN != 'Stratford'

select PLAYERNO from PLAYERS where YEAR\_JOINED between 1970 and 1980

select PLAYERNO, NAME, YEAR\_OF\_BIRTH from PLAYERS where (*MOD*(YEAR\_OF\_BIRTH, 4) = 0) AND  
 (*MOD*(YEAR\_OF\_BIRTH, 100) != 0)  
 OR  
 (*MOD*(YEAR\_OF\_BIRTH, 400) = 0);

select AMOUNT from PENALTIES where AMOUNT between 50 and 100

select PLAYERNO, NAME from PLAYERS where TOWN != 'Stratford' and TOWN != 'Douglas'

select PLAYERNO, NAME from PLAYERS where NAME like '%is%'

select NAME from PLAYERS where LEAGUENO IS NULL

--9-21 EmpDeptQueries

select ENAME from EMP where COMM > SAL

select ENAME from EMP where DEPTNO = 30 and SAL >= 1500

select ENAME from EMP where EMP.JOB = 'MANAGER' and DEPTNO != 30

select ENAME from EMP where DEPTNO = 10 and EMP.JOB != 'MANAGER' and EMP.JOB != 'CLERK'

select ENAME from EMP where SAL between 1200 and 1300

select ENAME from EMP where ENAME LIKE 'ALL%' and *length*(ENAME) = 5

select ENAME, SAL + *coalesce*(COMM,0) as total\_sal from EMP

select ENAME from EMP where COMM > (SAL \* 0.25)

select *round*(*avg*(SAL)) from EMP

select *count*(\*) as numberofemps from EMP where COMM is not null and COMM != 0

select *count*(distinct JOB) from EMP where DEPTNO = 30

select *count*(EMPNO) from EMP where DEPTNO = 30

select ENAME from EMP where HIREDATE between *to\_date*('1981-01-04','YYYY-MM-DD') and *to\_date*('1981-04-15','YYYY-MM-DD')

--1-6 Tennisquery

select TEAMNO from TEAMS where PLAYERNO != 27

select PLAYERS.PLAYERNO, NAME, INITIALS, WON from PLAYERS join PGERSTL.MATCHES on MATCHES.PLAYERNO = PLAYERS.PLAYERNO where WON > 0

select distinct NAME from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where PLAYERS.PLAYERNO = PENALTIES.PLAYERNO

select distinct NAME from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where AMOUNT > 50

select distinct NAME from PLAYERS where YEAR\_OF\_BIRTH = (Select YEAR\_OF\_BIRTH from PLAYERS where NAME = 'Parmenter' and INITIALS = 'R')

select NAME from PLAYERS where TOWN = 'Stratford' order by YEAR\_OF\_BIRTH fetch first row only

--7-12 EmpDeptQuery

select dept.DEPTNO, DNAME from DEPT left join emp on dept.DEPTNO = EMP.DEPTNO where emp.DEPTNO is null

select ENAME from EMP where EMP.JOB = (select job from EMP where ENAME = 'JONES')

select ENAME from EMP where DEPTNO != 30 and SAL > (select *avg*(SAL) from EMP where DEPTNO = 30)

select ENAME from EMP where DEPTNO != 30 and SAL > any (select SAL from EMP where DEPTNO = 30)

select ENAME from EMP where DEPTNO = 10 and EMP.JOB not in (select EMP.JOB from EMP where DEPTNO = 30)

select EMPNO, ENAME, JOB, SAL from EMP order by SAL desc fetch first row only

--1-11 TennisQuery

select YEAR\_JOINED, *count*(\*) as JoinedPerYear from PLAYERS group by YEAR\_JOINED order by YEAR\_JOINED

select *avg*(AMOUNT) from PENALTIES join PLAYERS on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO

select *count*(AMOUNT) from PENALTIES where PEN\_DATE < *to\_date*('1983-01-01', 'YYYY-MM-DD')

select distinct TOWN from PLAYERS group by TOWN having *count*(\*) > 4

select PLAYERNO from PENALTIES group by PLAYERNO having *sum*(AMOUNT) > 150

select NAME, INITIALS from PLAYERS where PLAYERNO in (select PLAYERNO from PENALTIES group by PLAYERNO having *count*(\*) > 1)

select *extract*(Year from PEN\_DATE) as penalty\_year from PENALTIES group by *extract*(Year from PEN\_DATE) having *count*(\*) > 1

select NAME, INITIALS from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where AMOUNT > 40 group by NAME, INITIALS having *count*(PENALTIES.PLAYERNO) >= 2

select NAME, INITIALS from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where AMOUNT = (Select *max*(AMOUNT) from PENALTIES)

select *extract*(year from PEN\_DATE) as penalty\_year, *count*(\*) as total\_penalties from PENALTIES group by *extract*(year from PEN\_DATE) order by total\_penalties desc fetch first row only

select PLAYERS.PLAYERNO, TEAMNO, WON, LOST from PLAYERS join Matches on PLAYERS.PLAYERNO = MATCHES.PLAYERNO order by MATCHNO desc

--12-19 EmpDepte query

select ENAME, SAL from EMP where DEPTNO = 30 order by SAL desc

select ENAME, JOB, SAL from EMP order by JOB, SAL desc

select ENAME, *extract*(year from HIREDATE) from EMP order by *extract*(year from HIREDATE) desc, ENAME asc

select ENAME, SAL, COMM, case when SAL > 0 then COMM / SAL else Null end as comm\_sal\_ratio from EMP where EMP.JOB = 'SALESMAN' order by comm\_sal\_ratio

select DEPTNO, *round*(*avg*(SAL),2) as average\_sal from EMP group by DEPTNO order by DEPTNO

select EMP.JOB, *round*(*avg*(SAL \* 14)) as annual\_sal from EMP where EMP.JOB in (select EMP.JOB from EMP group by EMP.JOB having *count*(\*) > 2) group by EMP.JOB

select distinct DEPTNO from EMP where DEPTNO in (select DEPTNO from EMP group by DEPTNO having *count*(\*) > 2)

select *round*(*avg*(SAL)), *round*(*avg*(COMM)) from EMP where DEPTNO = 30

--1-5 Tennisquery

SELECT NAME, INITIALS,  
 (SELECT *SUM*(WON)  
 FROM PGERSTL.MATCHES  
 WHERE MATCHES.PLAYERNO = PLAYERS.PLAYERNO) AS matcheswon  
FROM PLAYERS  
ORDER BY matcheswon DESC;  
  
SELECT NAME,  
 (SELECT PEN\_DATE  
 FROM PENALTIES  
 WHERE PENALTIES.PLAYERNO = PLAYERS.PLAYERNO  
 ORDER BY AMOUNT DESC FETCH FIRST 1 ROWS ONLY) AS PEN\_DATE,  
 (SELECT AMOUNT  
 FROM PENALTIES  
 WHERE PENALTIES.PLAYERNO = PLAYERS.PLAYERNO  
 ORDER BY AMOUNT DESC FETCH FIRST 1 ROWS ONLY) AS AMOUNT  
FROM PLAYERS  
ORDER BY AMOUNT DESC;  
  
SELECT  
 (SELECT TEAMNO  
 FROM TEAMS  
 WHERE TEAMS.PLAYERNO = PLAYERS.PLAYERNO) AS TEAMNO,  
 NAME  
FROM PLAYERS;  
  
select WON, LOST, (  
 select NAME  
 from PLAYERS  
 where PLAYERS.PLAYERNO = MATCHES.PLAYERNO  
 ) as Name  
from MATCHES where WON > LOST;  
  
SELECT PLAYERNO, NAME,  
 *COALESCE*((SELECT AMOUNT  
 FROM PENALTIES  
 WHERE PENALTIES.PLAYERNO = PLAYERS.PLAYERNO  
 ORDER BY AMOUNT ASC FETCH FIRST 1 ROWS ONLY), 0) AS AMOUNT  
FROM PLAYERS  
WHERE *EXISTS* (SELECT 1  
 FROM MATCHES  
 WHERE MATCHES.PLAYERNO = PLAYERS.PLAYERNO)  
ORDER BY AMOUNT ASC;

--6-9 EmpDeptquery

select LOC from DEPT where DEPT.DEPTNO = (select EMP.DEPTNO from EMP where ENAME = 'ALLEN');

select ENAME from EMP where DEPTNO = 10 and SAL > (select SAL from EMP where EMP.JOB = 'MANAGER' and DEPTNO = 10);  
select ENAME from EMP where DEPTNO = 20 and SAL > (select SAL from EMP where EMP.JOB = 'MANAGER' and DEPTNO = 20);  
select ENAME from EMP where DEPTNO = 30 and SAL > (select SAL from EMP where EMP.JOB = 'MANAGER' and DEPTNO = 30);

select *extract*(year from HIREDATE) as hire\_year, *count*(\*) as hire\_count from EMP group by *extract*(year from HIREDATE) order by hire\_year

--1-4 Tennisquery

select distinct PLAYERNO from PGERSTL.MATCHES where TEAMNO = 1 and PLAYERNO in (Select PLAYERNO from PGERSTL.MATCHES where TEAMNO = 2)  
select distinct NAME, INITIALS from PLAYERS where not *exists*(Select 1 from PENALTIES where PLAYERS.PLAYERNO = PENALTIES.PLAYERNO and PEN\_DATE between *to\_date*('1980-01-01', 'YYYY-MM-DD') and *to\_date*('1980-12-31', 'YYYY-MM-DD'))

SELECT NAME, INITIALS  
FROM PLAYERS  
WHERE PLAYERNO IN (  
 SELECT PLAYERNO  
 FROM PENALTIES  
 WHERE AMOUNT > 80  
 GROUP BY PLAYERNO  
 HAVING *COUNT*(PLAYERNO) >= 1  
);  
SELECT NAME, INITIALS  
FROM PLAYERS  
WHERE PLAYERNO IN (  
 SELECT PLAYERNO  
 FROM PENALTIES  
 WHERE AMOUNT > 80  
);

--5-8 EmpDeptquery

select ENAME from EMP where DEPTNO = 30 and SAL > (select *avg*(SAL) from EMP where DEPTNO = 30);  
select ENAME from EMP where DEPTNO = 20 and SAL > (select *avg*(SAL) from EMP where DEPTNO = 20);  
select ENAME from EMP where DEPTNO = 10 and SAL > (select *avg*(SAL) from EMP where DEPTNO = 10);

--SQL Exercise 8

select sub from PARTS start with (SUPER = 'P3') connect by (SUPER = SUB);  
select sub from PARTS start with (SUPER = 'P9') connect by (SUPER = SUB);

SELECT SUB, LEVEL AS hierarchy\_level FROM PARTS START WITH SUB = 'P12' CONNECT BY PRIOR SUPER = SUB;

select *COUNT*(\*) as parts\_count from PARTS where PRICE > 20 start with SUB = 'P1' connect by Prior SUB = SUPER

select ENAME from EMP start with MGR = 7566 connect by EMPNO = MGR

select ENAME from EMP start with MGR = 7902 connect by prior MGR = EMPNO

select LEVEL as hierarchy\_level, *ROUND*(*AVG*(SAL), 2) as avg\_salary from EMP start with MGR is null connect by prior EMPNO = MGR GROUP BY LEVEL order by hierarchy\_level

**Exercise 6 using joins**

--1-5 Tennisquery

select NAME,INITIALS, *Sum*(WON) as matcheswon from PLAYERS join PGERSTL.MATCHES on players.PLAYERNO = matches.PLAYERNO group by NAME, INITIALS order by matcheswon desc;  
select NAME, PEN\_DATE, AMOUNT from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO order by AMOUNT desc;  
select TEAMNO, NAME from PLAYERS join TEAMS on PLAYERS.PLAYERNO = TEAMS.PLAYERNO;  
select NAME, *sum*(WON), *sum*(LOST) from MATCHES join PLAYERS on PLAYERS.PLAYERNO = MATCHES.PLAYERNO group by NAME;  
select PLAYERS.PLAYERNO, NAME, *coalesce*(AMOUNT, 0) from PLAYERS join MATCHES on MATCHES.PLAYERNO = PLAYERS.PLAYERNO left join PENALTIES on PENALTIES.PLAYERNO = PLAYERS.PLAYERNO order by AMOUNT asc;

--6-9 EmpDeptquery  
select LOC from DEPT join EMP on DEPT.DEPTNO = EMP.DEPTNO where ENAME = 'ALLEN';  
SELECT e1.ENAME FROM EMP e1 JOIN EMP e2 ON e1.DEPTNO = e2.DEPTNO AND e2.JOB = 'MANAGER' WHERE e1.DEPTNO = 10 AND e1.SAL > e2.SAL;  
SELECT e1.ENAME FROM EMP e1 JOIN EMP e2 ON e1.DEPTNO = e2.DEPTNO AND e2.JOB = 'MANAGER' WHERE e1.DEPTNO = 20 AND e1.SAL > e2.SAL;  
SELECT e1.ENAME FROM EMP e1 JOIN EMP e2 ON e1.DEPTNO = e2.DEPTNO AND e2.JOB = 'MANAGER' WHERE e1.DEPTNO = 30 AND e1.SAL > e2.SAL;  
select *extract*(year from HIREDATE) as hire\_year, *count*(\*) as hire\_count from EMP group by *extract*(year from HIREDATE) order by hire\_year;

**Exercise 7 using joins**

SELECT DISTINCT m1.PLAYERNO  
FROM PGERSTL.MATCHES m1  
JOIN PGERSTL.MATCHES m2  
 ON m1.PLAYERNO = m2.PLAYERNO  
WHERE m1.TEAMNO = 1  
 AND m2.TEAMNO = 2;  
SELECT DISTINCT p.NAME, p.INITIALS  
FROM PLAYERS p  
LEFT JOIN PENALTIES pe  
 ON p.PLAYERNO = pe.PLAYERNO  
 AND pe.PEN\_DATE BETWEEN *TO\_DATE*('1980-01-01', 'YYYY-MM-DD') AND *TO\_DATE*('1980-12-31', 'YYYY-MM-DD')  
WHERE pe.PLAYERNO IS NULL;

select NAME, INITIALS from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where AMOUNT > 80 group by NAME, INITIALS having *count*(PENALTIES.PLAYERNO) >= 1  
select NAME, INITIALS from PLAYERS join PENALTIES on PLAYERS.PLAYERNO = PENALTIES.PLAYERNO where AMOUNT > 80

SELECT e.ENAME  
FROM EMP e  
JOIN (  
 SELECT DEPTNO, *AVG*(SAL) AS avg\_sal  
 FROM EMP  
 GROUP BY DEPTNO  
) avg\_salaries  
 ON e.DEPTNO = avg\_salaries.DEPTNO  
WHERE e.DEPTNO = 30  
 AND e.SAL > avg\_salaries.avg\_sal;  
SELECT e.ENAME  
FROM EMP e  
JOIN (  
 SELECT DEPTNO, *AVG*(SAL) AS avg\_sal  
 FROM EMP  
 GROUP BY DEPTNO  
) avg\_salaries  
 ON e.DEPTNO = avg\_salaries.DEPTNO  
WHERE e.DEPTNO = 20  
 AND e.SAL > avg\_salaries.avg\_sal;  
SELECT e.ENAME  
FROM EMP e  
JOIN (  
 SELECT DEPTNO, *AVG*(SAL) AS avg\_sal  
 FROM EMP  
 GROUP BY DEPTNO  
) avg\_salaries  
 ON e.DEPTNO = avg\_salaries.DEPTNO  
WHERE e.DEPTNO = 10  
 AND e.SAL > avg\_salaries.avg\_sal;

SELECT DNAME  
FROM DEPT  
WHERE DEPTNO IN (  
 SELECT DEPTNO  
 FROM EMP  
 GROUP BY DEPTNO  
 HAVING *COUNT*(ENAME) > 0  
);  
SELECT DISTINCT DNAME  
FROM DEPT  
WHERE DEPTNO IN (  
 SELECT DEPTNO  
 FROM EMP  
 WHERE SAL > 1000  
);  
SELECT DEPTNO, DNAME  
FROM DEPT  
WHERE DEPTNO IN (  
 SELECT DEPTNO  
 FROM EMP  
 GROUP BY DEPTNO  
 HAVING *MIN*(SAL) >= 1000  
)  
ORDER BY DEPTNO;

--Competence Check

create table regions (  
 region\_id int,  
 region\_name varchar(25)  
)

create table countries (  
 country\_id char(2),  
 country\_name varchar(40),  
 region\_id int  
)

create table locations (  
 location\_id int,  
 street\_address varchar(40),  
 postal\_code varchar(12),  
 city varchar(30),  
 state\_province varchar(25),  
 country\_id char(2)  
)

create table departments (  
 department\_id int,  
 department\_name varchar(30),  
 manager\_id int,  
 location\_id int  
)

create table jobs (  
 job\_id varchar(20),  
 job\_title varchar(35),  
 min\_salary int,  
 max\_salary int  
)

create table employees (  
 employee\_id int,  
 first\_name varchar(20),  
 last\_name varchar(20),  
 email varchar(25),  
 phone\_number varchar(20),  
 hire\_date date,  
 job\_id varchar(10),  
 salary decimal(8,2),  
 commission\_pct decimal(2,2),  
 manager\_id int,  
 department\_id int  
)

create table job\_history (  
 employee\_id int,  
 start\_date date,  
 end\_date date,  
 job\_id varchar(10),  
 department\_id int  
)

alter table REGIONS add primary key (REGION\_ID)

alter table COUNTRIES add primary key (COUNTRY\_ID)

alter table LOCATIONS add primary key (LOCATION\_ID)

alter table DEPARTMENTS add primary key (DEPARTMENT\_ID)

alter table JOBS add primary key (JOB\_ID)

alter table EMPLOYEES add primary key (EMPLOYEE\_ID)

alter table COUNTRIES add foreign key (REGION\_ID) references REGIONS (REGION\_ID)

alter table LOCATIONS add foreign key (COUNTRY\_ID) references COUNTRIES (COUNTRY\_ID)

alter table DEPARTMENTS add foreign key (LOCATION\_ID) references LOCATIONS (LOCATION\_ID)

alter table EMPLOYEES add foreign key (JOB\_ID) references JOBS (JOB\_ID);

alter table EMPLOYEES add foreign key (DEPARTMENT\_ID) references DEPARTMENTS (DEPARTMENT\_ID);

alter table JOB\_HISTORY add foreign key (JOB\_ID) references JOBS (JOB\_ID)

alter table JOB\_HISTORY add foreign key (DEPARTMENT\_ID) references DEPARTMENTS (DEPARTMENT\_ID)

alter table EMPLOYEES add foreign key (MANAGER\_ID) references EMPLOYEES (EMPLOYEE\_ID)

alter table JOB\_HISTORY add foreign key (EMPLOYEE\_ID) references EMPLOYEES (EMPLOYEE\_ID)

select distinct JOB\_ID, *count*(SALARY) as Salary\_Sum from EMPLOYEES group by JOB\_ID order by Salary\_Sum desc

select *avg*(SALARY) as AVG\_Sal from EMPLOYEES

select FIRST\_NAME, LAST\_NAME, DEPARTMENT\_NAME from EMPLOYEES join DEPARTMENTS on EMPLOYEES.DEPARTMENT\_ID = DEPARTMENTS.DEPARTMENT\_ID

select DEPARTMENT\_NAME, POSTAL\_CODE, CITY, STATE\_PROVINCE, STREET\_ADDRESS from DEPARTMENTS  
join LOCATIONS  
on DEPARTMENTS.LOCATION\_ID = LOCATIONS.LOCATION\_ID

select DEPARTMENT\_NAME, POSTAL\_CODE, CITY, STATE\_PROVINCE, STREET\_ADDRESS, Country\_Name from DEPARTMENTS  
join LOCATIONS  
on DEPARTMENTS.LOCATION\_ID = LOCATIONS.LOCATION\_ID  
join COUNTRIES  
on COUNTRIES.COUNTRY\_ID = LOCATIONS.COUNTRY\_ID

select DEPARTMENT\_NAME, POSTAL\_CODE, CITY, STATE\_PROVINCE, STREET\_ADDRESS, Country\_Name, FIRST\_NAME || ' ' || LAST\_NAME as Manager from DEPARTMENTS  
join LOCATIONS  
on DEPARTMENTS.LOCATION\_ID = LOCATIONS.LOCATION\_ID  
join COUNTRIES  
on COUNTRIES.COUNTRY\_ID = LOCATIONS.COUNTRY\_ID  
join EMPLOYEES  
on EMPLOYEES.MANAGER\_ID = DEPARTMENTS.MANAGER\_ID

select FIRST\_NAME || ' ' || LAST\_NAME as Name, JOB\_TITLE as Job, SALARY, DEPARTMENT\_NAME from EMPLOYEES  
join JOBS  
on EMPLOYEES.JOB\_ID = JOBS.JOB\_ID  
join DEPARTMENTS  
on EMPLOYEES.DEPARTMENT\_ID = DEPARTMENTS.DEPARTMENT\_ID

select EMPLOYEE\_ID, FIRST\_NAME || ' ' || LAST\_NAME as Name, MANAGER\_ID from EMPLOYEES  
start with MANAGER\_ID is null connect by prior EMPLOYEES.EMPLOYEE\_ID = MANAGER\_ID