

# SQL Assignment Solutions

CMSC 424 - Database Design  
Fall 2007

## Part A

1. List the names of all the players in the database.

```
select Player.name
from Player
```

2. List the names of all players who have ever been assigned a seed for any tournament (doubles or singles).

```
select distinct p.name
from Player p, Registration r, PlayedIn pi
where p.pid = r.pid AND r.registrnum = pi.registrnum AND pi.seed is not null
```

3. List the pairs of players who played doubles tennis at Wimbledon in 2007. Do not include duplicate entries (ex:  $\langle personA, personB \rangle$  as well as  $\langle personB, personA \rangle$ ).

```
select p1.name, p2.name
from player p1, player p2, registration r1, registration r2, playedin pi
where p1.pid = r1.pid AND p2.pid = r2.pid AND r1.registrnum = r2.registrnum AND
      r1.registrnum = pi.registrnum AND r1.pid != r2.pid AND p1.pid < p2.pid AND
      pi.tid in (select tid
                 from tournament t
                 where to_char(t.startdate, 'YYYY') = '2007' AND
                       t.ttype = 'Doubles' AND t.name = 'Wimbledon')
```

4. List the names of all players who have lost to Roger Federer in the finals of any tournament, as well as the name of the tournament they lost in. Include results only for singles tennis.

```
select p.name, t.name
from registration rroger, registration r, match m, matchresults mr,
  (select p.pid pid
   from Player p
   where name='Roger Federer') roger, tournament t, player p
where rroger.pid = roger.pid AND m.mid = mr.mid AND
      mr.winner = rroger.registrnum AND
      ( (rroger.registrnum = m.registrnum1 AND r.registrnum = m.registrnum2) OR
        (rroger.registrnum = m.registrnum2 AND r.registrnum = m.registrnum1) ) AND
      t.tid = m.tid AND t.numrounds = m.round AND t.ttype = 'Singles' AND
      p.pid = r.pid
```

\*\*\* Note that we do not have to actually check for `rroger.registrnum` equal to one of the match registration numbers, because we assume the winner is always one of the registration numbers, but we do it here for good practice. If we chose to omit the check, we would need to constrain `rroger.registrnum != r.registrnum`

- For all final round single matches, list the winner and loser of matches that were between two seeded players, as well as their seeds. Modify the titles of the columns to be something useful, like `WinnerName`, `WinnerSeed`, `LoserName`, `LoserSeed`.

```
select winner.playername winnername, winner.seed winnerseed,
       loser.playername losername, loser.seed loserseed
from match m, tournament t, matchresults mr,
     (select r.registrnum, pi.seed seed, p.name playerName
      from player p, registration r, playedin pi
      where p.pid = r.pid AND r.registrnum = pi.registrnum AND
            pi.seed is not null) winner,
     (select r.registrnum, pi.seed seed, p.name playerName
      from player p, registration r, playedin pi
      where p.pid = r.pid AND r.registrnum = pi.registrnum AND
            pi.seed is not null) loser
where m.tid = t.tid AND t.ttype = 'Singles' AND m.round = t.numrounds AND
      m.mid = mr.mid AND
      (m.registrnum1 = winner.registrnum OR m.registrnum2 = winner.registrnum) AND
      (m.registrnum1 = loser.registrnum OR m.registrnum2 = loser.registrnum) AND
      winner.registrnum != loser.registrnum AND mr.winner = winner.registrnum
```

\*\*\* See note for question 4, similarly here for the two registration relations.

- List the names of all US players who have participated in at least two tournaments in 2007. Do not use any aggregating functions for this problem.

```
select distinct usplayers.name
from tournament t1, tournament t2, registration r1, registration r2,
     playedin pi1, playedin pi2,
     (select p.pid pid, p.name
      from Player p, CountryCodes cc
      where p.ccode = cc.code AND cc.country = 'United States') usplayers
where t1.tid = pi1.tid AND pi1.registrnum = r1.registrnum AND
      t2.tid = pi2.tid AND pi2.registrnum = r2.registrnum AND
      r1.pid = usplayers.pid AND r2.pid = usplayers.pid AND
      r1.registrnum != r2.registrnum AND
      to_char(t1.startdate, 'YYYY') = '2007' AND
      to_char(t2.startdate, 'YYYY') = '2007'
```

- List all tournaments having more than 5 rounds. Print the name of the tournament, the tournament type, the start and end dates, and the number of rounds.

```
select t.name, t.startdate, t.enddate, t.ttype, t.numrounds
from tournament t
where t.numrounds > 5
```

8. List all doubles matches that were won because one of the teams retired. Include the winner's names, the loser's names, the tournament name, the year of the tournament, and the round number of the match.

```
select p1.name winner1, p2.name winner2, p3.name loser1, p4.name loser2,
       matchinfo.name tournament_name, matchinfo.year, matchinfo.round roundnum
from player p1, registration r1, playedin pi1,
     player p2, registration r2, playedin pi2,
     player p3, registration r3, playedin pi3,
     player p4, registration r4, playedin pi4,
     (select t.name, to_char(t.startdate, 'YYYY') year, m.round round,
          m.registrnum1 rn1, m.registrnum2 rn2, mr.winner winner
      from tournament t, match m, retiredmatch rm, matchresults mr
      where t.tid = m.tid AND m.mid = rm.mid AND t.ttype = 'Doubles' AND
            mr.mid = m.mid) matchinfo
where p1.pid < p2.pid AND p3.pid < p4.pid AND
     p1.pid = r1.pid AND r1.registrnum = pi1.registrnum AND
       r1.registrnum = matchinfo.winner AND
     p2.pid = r2.pid AND r2.registrnum = pi2.registrnum AND
       r2.registrnum = matchinfo.winner AND
     p3.pid = r3.pid AND r3.registrnum = pi3.registrnum AND
       r3.registrnum != matchinfo.winner AND
     (r3.registrnum = matchinfo.rn1 OR r3.registrnum = matchinfo.rn2) AND
     p4.pid = r4.pid AND r4.registrnum = pi4.registrnum AND
       r4.registrnum != matchinfo.winner AND
     (r4.registrnum = matchinfo.rn1 OR r4.registrnum = matchinfo.rn2)
```

\*\*\* Following the notes from questions 4 and 5, we do the suggested alternative in this question.

9. Find all singles matches where the loser retired after playing at least one complete set. Include the winner's name, the loser's name, the tournament name, the year of the tournament, and the round number of the match.

```
select p1.name winner, p2.name loser, matchinfo.tname,
       matchinfo.year, matchinfo.roundnum
from player p1, registration r1,
     player p2, registration r2,
     (select t.name tname, to_char(t.startdate, 'YYYY') year, m.round roundnum,
          m.registrnum1 rn1, m.registrnum2 rn2, mr.winner winner
      from match m, tournament t, retiredmatch rm, matchresults mr
      where m.tid = t.tid AND rm.mid = m.mid AND t.ttype = 'Singles' AND
            mr.mid = m.mid AND mr.numsets > 1) matchinfo
where p1.pid = r1.pid AND r1.registrnum = matchinfo.winner AND
     p2.pid = r2.pid AND r2.registrnum != matchinfo.winner AND
     (r2.registrnum = matchinfo.rn1 OR r2.registrnum = matchinfo.rn2)
```

10. For all tournaments in the database, list the name, tournament type, surface type, and the number of rounds it has. Sort the results in descending order by the number of rounds.