

Irish Tennis Clubs

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Description

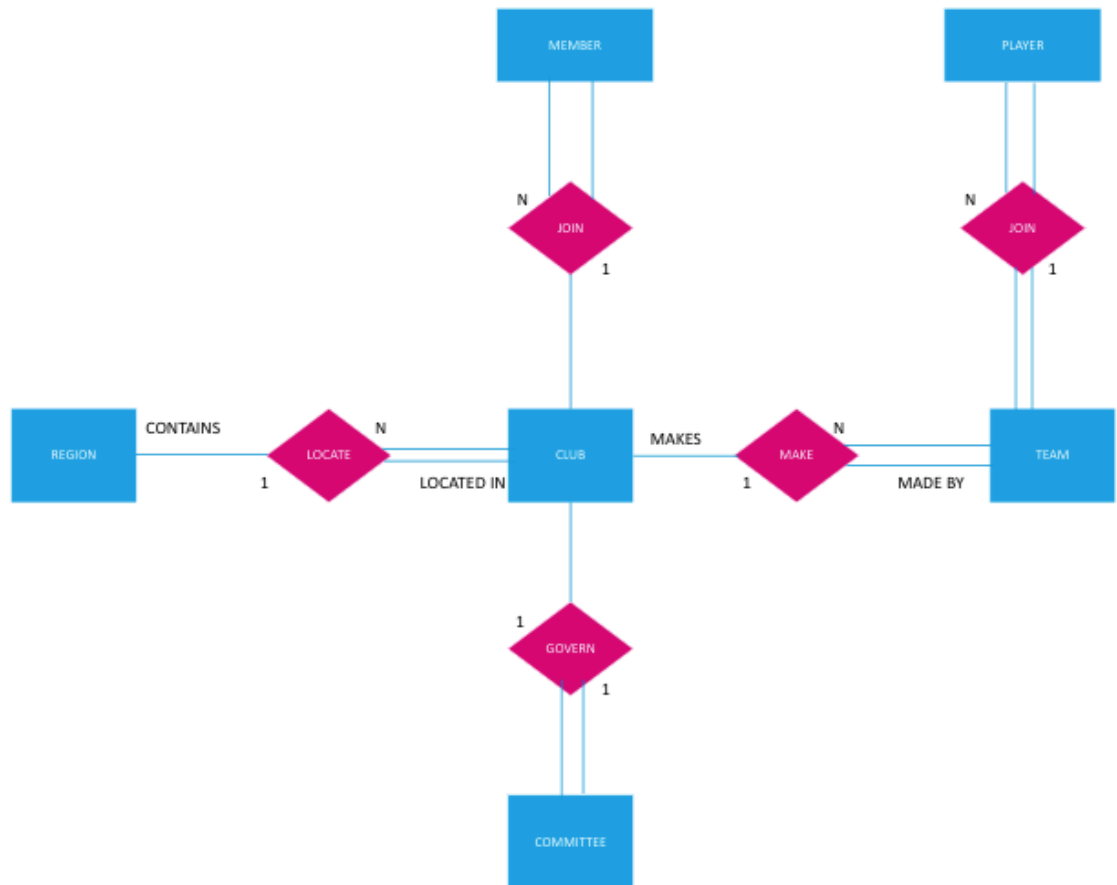
Having a keen interest in tennis, the database that I designed was one for tennis clubs around Ireland.

I have separated tennis clubs around Ireland into 'regions' rather than provinces due to the population difference between Dublin and the rest of the country. Therefore, the regions I have allocated to this database are Dublin, The Greater Leinster Area, Munster, Ulster, Connacht. There are many tennis clubs in each of these regions made up of members. Each member does NOT have to be a player to join a club but you cannot play for a team without being a member of a club. Each club is governed by a president who again, must be a member and also a committee who deal with internal matters of the club as well as being contacted with external matters.

The teams of the clubs are made up of two players either male or female as they only play friendly matches. The popularity of tennis in a region is decided by how many players play for clubs within that region. It is incredibly important that clubs have access to the addresses and emails of players in order to be able to schedule matches and send out general information about the club.

This database is a convenient way to not only have contact details for all clubs around Ireland, but to measure the change in popularity of tennis over time as well!

Entity Relationship Diagram



Relational Schema

member

<u>tennis ireland id</u>	first_name	last_name	club_id	email
--------------------------	------------	-----------	----------------	-------

player

<u>tennis ireland id</u>	position	team_id
--------------------------	----------	----------------

team

team_name	<u>team id</u>	club_id
-----------	----------------	----------------

region

<u>region name</u>	popularity	no_clubs
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club

club_name	<u>club id</u>	address	president_id	region	phone_no
-----------	----------------	---------	---------------------	---------------	----------


committee

<u>club id</u>	committee_email
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Functional Dependency Diagram

member

<u>tennis ireland id</u>	first_name	last_name	email	club_id
--------------------------	------------	-----------	-------	---------




player

<u>tennis ireland id</u>	position	team_id
--------------------------	----------	---------



team

team_id	<u>team name</u>	club_id
---------	------------------	---------




region

<u>region_name</u>	no_clubs	popularity
--------------------	----------	------------



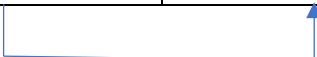
club

<u>club_id</u>	club_name	address	president_id	region	phone_no
----------------	-----------	---------	--------------	--------	----------



committee

<u>club_id</u>	committee_email
----------------	-----------------



Semantic Constraints

I have included a number of semantic constraints in my database. These include:

- The club_id has to be a 7-digit number between 1000000 and 9999999.
Implemented by a CHECK constraint

```
ALTER TABLE club ADD CHECK (club_id > 1000000 AND club_id < 9999999);
```

- A team can only have two positions, 1 or 2

```
ALTER TABLE team ADD CHECK (position = 1 OR position = 2);
```

- A tennis_ireland_id is a 5-digit number between 10000 and 99999

```
ALTER TABLE member ADD CHECK (tennis_ireland_id > 10000 AND tennis_ireland_id < 100000);
```

I also attempted to include a triggers for multiple scenarios but I was getting syntax errors even though I felt my code was correct. They were as follows:

- When a row is added to club, increment no_clubs in region
 - When a row is deleted from club, decrement no_clubs in region
 - If the no_clubs is:
 - between 0 and 2, make the popularity = 3
 - between 3 and 6, make the popularity = 6
 - between 7 and 9, make the popularity = 8
 - greater than 9, make the popularity = 10
- NOTE: obviously, I would have had larger numbers of clubs but for testing purposes I wanted to keep the number low.

An example of the code for such triggers were:

```
DELIMITER //
mysql> CREATE OR REPLACE TRIGGER increment_no_club
-> AFTER INSERT ON club
-> FOR EACH ROW
-> BEGIN
-> UPDATE region r
-> SET r.no_clubs = r.no_clubs+1
-> WHERE r.region_name =: NEW.region;
-> END;
-> //
```

Security:

Security constraints could be implemented in the clubs for the president of each tennis club. For example, assuming that the no.1 position on the no.1 team is the club captain, he/she could be granted the privileges required to remove players from a team. For example, this user would require SELECT privileges to be able to look at all of the current teams, DELETE privileges to remove players from teams, UPDATE privileges to change teams.

Example:

```
CREATE ROLE player;
// this will allow us to grant privileges to the president_id
GRANT player TO 10000; // 1st player in malahide

GRANT DELETE ON player TO player;
```

Some problems could arise here on players from other clubs changing the wrong teams and so this could be solved by only allowing them to delete players with their club_id.

Views:

I created three views for this database:

- One view for the club that showed its name, address and email for its committee.
This would be useful for other clubs or region boards to get in contact with the clubs.

```
CREATE VIEW club_contact_view AS SELECT club.club_name, club.street,
club.city, committee.committee_email FROM club, committee WHERE
club.club_id = committee.club_id;
```

- Another was a list with members' names and emails for the use of the club when contacting them

```
CREATE VIEW member_view AS
-> SELECT member.first_name, member.last_name, member.email
-> FROM member;
```

- Lastly, a player view was created. This describes the name, team and position held on a team by a player.

```
mysql> CREATE VIEW player_view AS
-> SELECT member.first_name, member.last_name, team.team_name,
-> player.position
-> FROM member, team, player
-> WHERE member.tennis_ireland_id = player.tennis_ireland_id
-> AND player.team_id = team.team_id
```

Appendix:

CREATE TABLE:

```
CREATE TABLE `team` (  
  `team_name` varchar(45) DEFAULT NULL,  
  `team_id` int(11) NOT NULL,  
  `club_id` int(11) NOT NULL,  
  PRIMARY KEY (`team_id`),  
  KEY `club_id` (`club_id`),  
  CONSTRAINT `team_ibfk_1` FOREIGN KEY (`club_id`) REFERENCES `club`  
  (`club_id`)  
);
```

```
CREATE TABLE `region` (  
  `region_name` varchar(40) NOT NULL,  
  `popularity` int(11) NOT NULL,  
  `no_clubs` int(11) NOT NULL,  
  PRIMARY KEY (`region_name`)  
);
```

```
CREATE TABLE `player` (  
  `tennis_ireland_id` int(11) NOT NULL,  
  `position` int(11) NOT NULL,  
  `team_id` int(11) NOT NULL,  
  PRIMARY KEY (`tennis_ireland_id`),  
  KEY `team_id` (`team_id`),  
  CONSTRAINT `player_ibfk_1` FOREIGN KEY (`team_id`) REFERENCES `team`  
  (`team_id`)  
);
```

```
CREATE TABLE `member` (  
  `tennis_ireland_id` int(11) NOT NULL,  
  `first_name` varchar(25) DEFAULT NULL,  
  `last_name` varchar(30) DEFAULT NULL,  
  `club_id` int(11) NOT NULL,  
  `email` varchar(40) DEFAULT NULL,  
  PRIMARY KEY (`tennis_ireland_id`),  
  KEY `club_id` (`club_id`),  
  CONSTRAINT `member_ibfk_1` FOREIGN KEY (`club_id`) REFERENCES `club`  
  (`club_id`)  
);
```

```

CREATE TABLE `club` (
  `club_name` varchar(40) DEFAULT NULL,
  `club_id` int(11) NOT NULL,
  `street` varchar(40) DEFAULT NULL,
  `city` varchar(40) DEFAULT NULL,
  `president_id` int(11) DEFAULT NULL,
  `region_name` varchar(40) DEFAULT NULL,
  `phone_no` int(11) NOT NULL,
  PRIMARY KEY (`club_id`),
  KEY `region_name` (`region_name`),
  KEY `president_id` (`president_id`),
  CONSTRAINT `club_ibfk_1` FOREIGN KEY (`region_name`) REFERENCES
`region` (`region_name`),
  CONSTRAINT `club_ibfk_2` FOREIGN KEY (`president_id`) REFERENCES
`member` (`tennis_ireland_id`),
  CONSTRAINT `club_ibfk_3` FOREIGN KEY (`president_id`) REFERENCES
`member` (`tennis_ireland_id`)
);

```

```

CREATE TABLE `committee` (
  `club_id` int(11) NOT NULL,
  `committee_email` varchar(40) DEFAULT NULL,
  PRIMARY KEY (`club_id`),
  CONSTRAINT `fk_club` FOREIGN KEY (`club_id`) REFERENCES `club`
(`club_id`)
);

```

INSERT:

```

INSERT INTO region VALUES ('Greater Leinster Area', 0, 0);
INSERT INTO region VALUES ('Ulster', 0, 0);
INSERT INTO region VALUES ('Dublin', 0, 0);
INSERT INTO region VALUES ('Munster', 0, 0);
INSERT INTO region VALUES ('Connacht', 0, 0);

INSERT INTO club VALUE ('Malahide LTC', 1000000, 'coast road',
'dublin', NULL, 'Dublin', 018450000);
INSERT INTO club VALUE ('Sutton LTC', 2000000, 'strand road',
'dublin', NULL, 'Dublin', 018450001);
INSERT INTO club VALUE ('Clontarf LTC', 3000000, 'sea road',
'dublin', NULL, 'Dublin', 018450002);
INSERT INTO club VALUE ('Howth LTC', 4000000, 'water road',
'dublin', NULL, 'Dublin', 018450003);
INSERT INTO club VALUE ('Carrickmines LTC', 5000000, 'fir street',
'dublin', NULL, 'Dublin', 018450004);

```



```

INSERT INTO club VALUE ('Leopardstown LTC', 6000000, 'brewery road',
'dublin', NULL, 'Dublin', 018450005);
INSERT INTO club VALUE ('Kilkenny LTC', 7000000, 'knock road',
'kilkenny', NULL, 'Greater Leinster Area', 018450006);
INSERT INTO club VALUE ('Naas LTC', 8000000, 'naas road', 'kildare',
NULL, 'Greater Leinster Area', 018450007);
INSERT INTO club VALUE ('Slane LTC', 9000000, 'slane road', 'meath',
NULL, 'Greater Leinster Area', 018450008);
INSERT INTO club VALUE ('Slane LTC', 9000000, 'slane road', 'meath',
NULL, 'Munster', 018450009);
INSERT INTO club VALUE ('Rushbrooke LTC', 9000001, 'cobh road',
'cork', NULL, 'Munster', 018450009);
INSERT INTO club VALUE ('Cobh LTC', 9000002, 'rushbrooke road',
'cork', NULL, 'Munster', 018450010);
INSERT INTO club VALUE ('Sandy LTC', 9000003, 'waterford road',
'waterford', NULL, 'Munster', 018450011);
INSERT INTO club VALUE ('Salthill LTC', 9000004, 'salthill road',
'galway', NULL, 'Connacht', 018450012);
INSERT INTO club VALUE ('Castlebar LTC', 9000005, 'castlebar road',
'mayo', NULL, 'Connacht', 018450013);
INSERT INTO club VALUE ('Nordie LTC', 9000006, 'dublin road',
'armagh', NULL, 'Ulster', 018450014);
INSERT INTO club VALUE ('Right Left LTC', 9000007, 'up road',
'down', NULL, 'Ulster', 018450015);
INSERT INTO club VALUE ('Belfast Boat Club ', 9000008, 'wind road',
'belfast', NULL, 'Ulster', 018450016);

```

```

INSERT INTO committee VALUES (2000000, 'sutton@tennis.ie');
INSERT INTO committee VALUES (3000000, 'clontarf@tennis.ie');
INSERT INTO committee VALUES (4000000, 'howth@tennis.ie');
INSERT INTO committee VALUES (5000000, 'carrickmines@tennis.ie');
INSERT INTO committee VALUES (6000000, 'leopardstown@tennis.ie');
INSERT INTO committee VALUES (7000000, 'kilkenny@tennis.ie');
INSERT INTO committee VALUES (8000000, 'naas@tennis.ie');
INSERT INTO committee VALUES (9000000, 'slane@tennis.ie');
INSERT INTO committee VALUES (9000001, 'rushnrooke@tennis.ie');
INSERT INTO committee VALUES (9000002, 'cobh@tennis.ie');
INSERT INTO committee VALUES (9000003, 'sandy@tennis.ie');
INSERT INTO committee VALUES (9000004, 'salthill@tennis.ie');
INSERT INTO committee VALUES (9000005, 'castlebar@tennis.ie');
INSERT INTO committee VALUES (9000006, 'nordie@tennis.ie');
INSERT INTO committee VALUES (9000007, 'rl@tennis.ie');
INSERT INTO committee VALUES (9000008, 'bb@tennis.ie')

```

```

INSERT INTO member VALUES (10000, 'bob', 'ryan', 1000000,
'bob@tennis.ie');
INSERT INTO member VALUES (10001, 'tim', 'ryan', 1000000,
'tim@tennis.ie');
INSERT INTO member VALUES (10002, 'jim', 'ryan', 1000000,
'jim@tennis.ie');

```

```

INSERT INTO member VALUES (10003, 'sally', 'o brien', 2000000,
'sally@tennis.ie');
INSERT INTO member VALUES (10004, 'dec', 'o brien', 2000000,
'dec@tennis.ie');
INSERT INTO member VALUES (10005, 'james', 'o connor', 3000000,
'j@tennis.ie');
INSERT INTO member VALUES (10006, 'rob', 'o connor', 3000000,
'r@tennis.ie');
INSERT INTO member VALUES (10007, 'eoin', 'fitz', 4000000,
't@tennis.ie');
INSERT INTO member VALUES (10008, 'lily', 'byrne', 4000000,
'lb@tennis.ie');
INSERT INTO member VALUES (10009, 'quintin', 'talin', 4000000,
'qt@tennis.ie');
INSERT INTO member VALUES (10010, 'grant', 'jennings', 5000000,
'grant@tennis.ie');
INSERT INTO member VALUES (10011, 'gill', 'jennings', 5000000,
'gill@tennis.ie');
INSERT INTO member VALUES (10012, 'fred', 'marks', 6000000,
'fred@tennis.ie');
INSERT INTO member VALUES (10013, 'harry', 'marks', 6000000,
'harry@tennis.ie');
INSERT INTO member VALUES (10014, 'sara', 'marks', 6000000,
'sara@tennis.ie');
INSERT INTO member VALUES (10015, 'jane', 'marks', 6000000,
'jane@tennis.ie');
INSERT INTO member VALUES (10016, 'ron', 'howard', 7000000,
'ron@tennis.ie');
INSERT INTO member VALUES (10017, 'tim', 'howard', 7000000,
'tim@tennis.ie');
INSERT INTO member VALUES (10018, 'nuno', 'howard', 7000000,
'nuno@tennis.ie');
INSERT INTO member VALUES (10019, 'rita', 'howard', 7000000,
'rita@tennis.ie');
INSERT INTO member VALUES (10020, 'holly', 'crossan', 8000000,
'hols@tennis.ie');
INSERT INTO member VALUES (10021, 'jerome', 'crossan', 8000000,
'jerome@tennis.ie');
INSERT INTO member VALUES (10022, 'rex', 'crossan', 8000000,
'rex@tennis.ie');
INSERT INTO member VALUES (10023, 'angus', 'lloyd', 9000000,
'angus@tennis.ie');
INSERT INTO member VALUES (10024, 'kate', 'lloyd', 9000000,
'kate@tennis.ie');
INSERT INTO member VALUES (10025, 'bernie', 'lloyd', 9000000,
'bernie@tennis.ie');
INSERT INTO member VALUES (10026, 'pete', 'loucher', 9000001,
'hello@tennis.ie');
INSERT INTO member VALUES (10027, 'tadhg', 'loucher', 9000001,
'hello@tennis.ie');
INSERT INTO member VALUES (10028, 'rob', 'loucher', 9000001,
'hello@tennis.ie');

```

```

INSERT INTO member VALUES (10029, 'tadhg', 'lambe', 9000002,
'lambe@tennis.ie');
INSERT INTO member VALUES (10030, 'brett', 'lambe', 9000002,
'blambe@tennis.ie');
INSERT INTO member VALUES (10031, 'bennon', 'lambe', 9000002,
'blambe@tennis.ie');
INSERT INTO member VALUES (10031, 'victor', 'drummy', 9000003,
'drummy@tennis.ie');
INSERT INTO member VALUES (10032, 'victor', 'drummy', 9000003,
'drummy@tennis.ie');
INSERT INTO member VALUES (10033, 'aisling', 'drummy', 9000003,
'drummy@tennis.ie');
INSERT INTO member VALUES (10034, 'nicola', 'drummy', 9000003,
'drummy@tennis.ie');
INSERT INTO member VALUES (10035, 'tim', 'cahill', 9000004,
'cahill@tennis.ie');
INSERT INTO member VALUES (10036, 'caoimhe', 'cahill', 9000004,
'cahill@tennis.ie');
INSERT INTO member VALUES (10037, 'cathal', 'cahill', 9000005,
'cahill@tennis.ie');
INSERT INTO member VALUES (10038, 'ciara', 'cahill', 9000005,
'cahill@tennis.ie');
INSERT INTO member VALUES (10039, 'conor', 'clancy', 9000006,
'clancy@tennis.ie');
INSERT INTO member VALUES (10040, 'claire', 'clancy', 9000006,
'clancy@tennis.ie');
INSERT INTO member VALUES (10041, 'clancy', 'clancy', 9000006,
'clancy@tennis.ie');
INSERT INTO member VALUES (10042, 'niall', 'gahan', 9000007,
'gahan@tennis.ie');
INSERT INTO member VALUES (10043, 'vron', 'gahan', 9000007,
'gahan@tennis.ie');
INSERT INTO member VALUES (10044, 'dec', 'gahan', 9000007,
'gahan@tennis.ie');
INSERT INTO member VALUES (10045, 'bro', 'gahan', 9000007,
'gahan@tennis.ie');
INSERT INTO member VALUES (10046, 'daniel', 'daniels', 9000008,
'daniels@tennis.ie');
INSERT INTO member VALUES (10047, 'stormy', 'daniels', 9000008,
'daniels@tennis.ie');
INSERT INTO member VALUES (10048, 'stormy', 'danieless', 1000000,
'danielles@tennis.ie');

```

```

INSERT INTO team VALUES ('malahide 1', 1, 1000000);
INSERT INTO team VALUES ('malahide 2', 2, 1000000);
INSERT INTO team VALUES ('sutton 1', 3, 2000000);
INSERT INTO team VALUES ('sutton 2', 4, 2000000);
INSERT INTO team VALUES ('clontarf 1', 5, 3000000);
INSERT INTO team VALUES ('howth 1', 6, 4000000);
INSERT INTO team VALUES ('carrickmines 1', 7, 5000000);
INSERT INTO team VALUES ('leopardstown 1', 8, 6000000);
INSERT INTO team VALUES ('kilkenny 1', 9, 7000000);

```

```
INSERT INTO team VALUES ('naas 1', 10, 8000000);
INSERT INTO team VALUES ('slane 1', 11, 9000000);
INSERT INTO team VALUES ('rushbrooke 1', 12, 9000001);
INSERT INTO team VALUES ('cobh 1', 13, 9000002);
INSERT INTO team VALUES ('sandy 1', 14, 9000003);
INSERT INTO team VALUES ('salthill 1', 15, 9000004);
INSERT INTO team VALUES ('castlebar 1', 16, 9000005);
INSERT INTO team VALUES ('nordie 1', 17, 9000006);
INSERT INTO team VALUES ('right left 1', 18, 9000007);
INSERT INTO team VALUES ('BB 1', 19, 9000008);
```

```
INSERT INTO player VALUES (10000, 1, 1);
INSERT INTO player VALUES (10048, 2, 2);
INSERT INTO player VALUES (10003, 1, 3);
INSERT INTO player VALUES (10004, 2, 3);
INSERT INTO player VALUES (10005, 1, 4);
INSERT INTO player VALUES (10006, 2, 4);
INSERT INTO player VALUES (10007, 1, 5);
INSERT INTO player VALUES (10008, 2, 5);
INSERT INTO player VALUES (10010, 1, 6);
INSERT INTO player VALUES (10011, 2, 6);
INSERT INTO player VALUES (10012, 1, 7);
INSERT INTO player VALUES (10013, 2, 7);
INSERT INTO player VALUES (10014, 1, 8);
INSERT INTO player VALUES (10015, 2, 8);
INSERT INTO player VALUES (10016, 1, 9);
INSERT INTO player VALUES (10017, 2, 9);
```