

Cycling Club Database

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Table of Contents

TABLE OF CONTENTS	1
INTRODUCTION.....	2
CONSTRAINTS	3
FOREIGN KEYS.....	3
VIEWS	3
TRIGGERS.....	3
NORMALISATION	3
ENTITY RELATIONSHIP DIAGRAM	4
RELATIONAL SCHEMA DIAGRAM	5
FUNCTIONAL DEPENDENCY	6
APPENDIX	7

Introduction

For this project I am going to model and design an SQL database on a cycling club. I've been a keen cyclist from a young age so I felt it was something I could model in a effective way. I have made 6 relational tables, they are : Members, Coaches, Races, Training, Equipment and Registration. Within each relation, each one has a primary key. For each of my relational tables I decided to have 5 attributes for each relation as I felt like it accurately displayed the relational table

Members contains the attributes Members_ID, Members_Name, Email, Speciality and Phone_Number. The primary key is the members Email as it is unique to the member, no two members can have the same email.

Coach contains the attributes Coaches_ID, Coaches_Name, Email, Position and Phone_Number. Once again the primary key is the Email as it is unique to each coach, no two coaches can have the same email.

Races contains the attributes Race_ID, Race_Name, Distance_KM, Terrain and Race_Organisers. The primary keep in this table is the Race_ID as it is unique to each race.

Training contain the attributes Date, Location, Training_Distance, Terrain, Coaches_ID and id each training session has to have one coach on it and each coach has a coach ID. The primary key for this is the id as each training sessions has its own id unique to that training

Equipment contains the attributes Name, On_Loan, Value, How_Old_Years and Equipment_ID. The primary keep for this table is the Equipment_ID as it is unique to each piece of Equipment.

Registration contains the attributes Member_Name, Previous_Member, Registration_Fee, Members_Age and Members_ID and id. The primary key is the id as its unique to each registration.

Constraints

For this I added two constraints they were an email checker and a phone number checker, these check to make sure that they are normal phone numbers or email address:

```
CONSTRAINT email_checker CHECK (email LIKE '%____@____%');
```

```
CONSTRAINT phone_Number_checker CHECK (phone LIKE '08____');
```

Foreign Keys

I have added in four foreign keys they are:

```
ALTER TABLE registration ADD FOREIGN KEY (Member_Name) REFERENCES  
Members(Member_Name);
```

```
ALTER TABLE registration ADD FOREIGN KEY (Members_ID) REFERENCES  
Members(Member_ID);
```

```
ALTER TABLE training ADD FOREIGN KEY (Coaches_ID) REFERENCES coach(Coaches_ID);
```

```
ALTER TABLE races ADD FOREIGN KEY (Terrain) REFERENCES Members(Speciality);
```

Views

I have also added two views that will show which equipment is out on loan and what members have paid their membership:

```
CREATE VIEW Equipment_Loaded AS  
SELECT Equipment_ID,Name  
FROM equipment  
WHERE onLoan = 1;
```

```
CREATE VIEW Previous_Member AS  
SELECT Member_Name  
FROM registration  
WHERE Previous_Member = 1;
```

Triggers

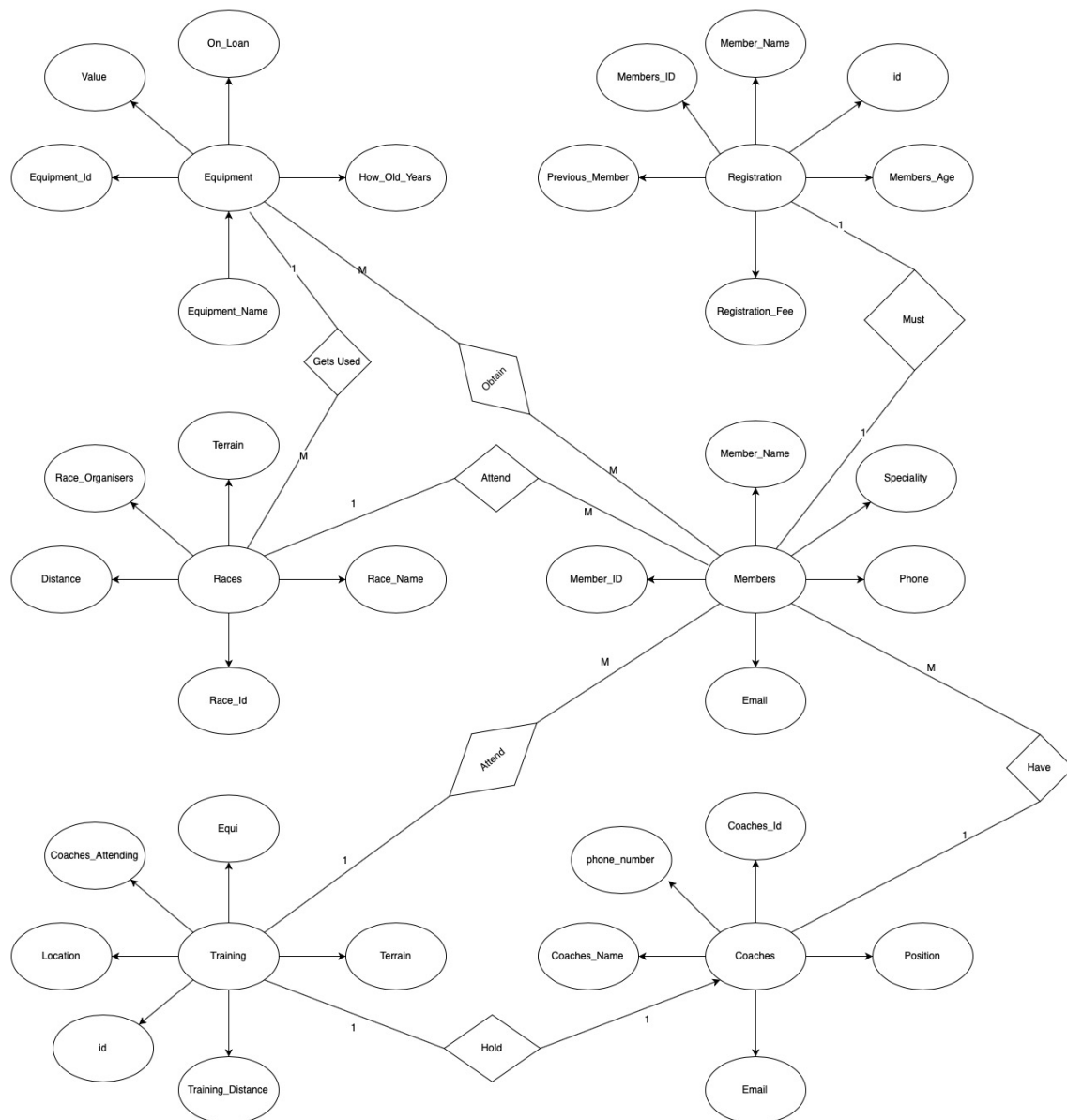
I have added one trigger that sets the date to null once the training has occurred

```
CREATE TRIGGER completedTraining  
AFTER INSERT ON training  
FOR EACH ROW UPDATE date  
SET date = NULL;
```

Normalisation

All of my tables are already fully normalized

Entity Relationship Diagram



Relational Schema Diagram

Members

<u>Members_ID</u>	Members_Name	Email	Speciality	Phone_Number
-------------------	--------------	-------	------------	--------------

Coach

<u>Coaches_ID</u>	Coaches_Name	Email	Position	Phone_Number
-------------------	--------------	-------	----------	--------------

Races

<u>Race_ID</u>	Race_Name	Distance_KM	Terrain	Race_Organisers
----------------	-----------	-------------	---------	-----------------

Training

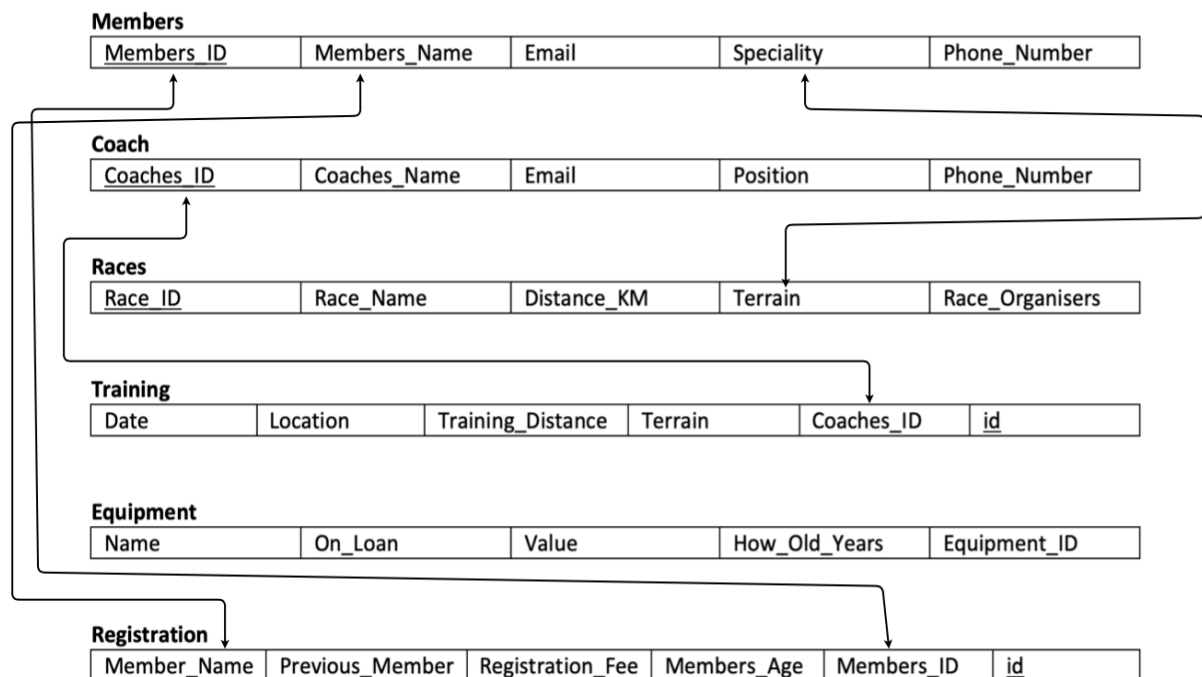
Date	Location	Training_Distance	Terrain	Coaches_ID	<u>id</u>
------	----------	-------------------	---------	------------	-----------

Equipment

Name	On_Loan	Value	How_Old_Years	Equipment_ID
------	---------	-------	---------------	--------------

Registration

Member_Name	Previous_Member	Registration_Fee	Members_Age	Members_ID	<u>id</u>
-------------	-----------------	------------------	-------------	------------	-----------



Functional Dependency

Members

<u>Members_ID</u>	Members_Name	Email	Speciality	Phone_Number
	↑	↑	↑	↑

Coach

<u>Coaches_ID</u>	Coaches_Name	Email	Position	Phone_Number
	↑	↑	↑	↑

Races

<u>Race_ID</u>	Race_Name	Distance_KM	Terrain	Race_Organisers
	↑	↑	↑	↑

Training

Date	Location	Training_Distance	Terrain	Coaches_ID	<u>id</u>
↑	↑	↑	↑	↑	↑

Equipment

Name	On_Loan	Value	How_Old_Years	<u>Equipment_ID</u>
↑	↑	↑	↑	↑

Registration

Member_Name	Previous_Member	Registration_Fee	Members_Age	Members_ID	<u>id</u>
↑	↑	↑	↑	↑	↑

Appendix

```
CREATE TABLE IF NOT EXISTS Members (  
  Member_ID int(8) NOT NULL,  
  Member_Name varchar(30) NOT NULL,  
  Email varchar(50) NOT NULL,  
  Speciality varchar(50) NOT NULL,  
  Phone_Number int(10) NOT NULL
```

```
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
INSERT INTO Members (Member_ID, Member_Name, Email, Speciality, Phone_Number)  
VALUES  
( '7192857', 'Sean Paul', 'seanpaul@cycling.com', 'Climbing', '0873456555'),  
( '7167445', 'John Cena', 'JohnCena@cycling.com', 'Sprint', '0872574365'),  
( '7101938', 'Ray Misterio', 'RayMisterio@cycling.com', 'TT', '0875457890'),  
( '7119385', 'Barry Seans', 'BarrySeans@cycling.com', 'Sprint', '0873546644'),  
( '7101834', 'Conor Jupe', 'ConorJupe@cycling.com', 'Climb', '0874788764'),  
( '7138647', 'Liam Manning', 'LiamManning@cycling.com', 'Punch', '0875867594');
```

```
CREATE TABLE IF NOT EXISTS Coach (  
  Coaches_ID int(6) NOT NULL,  
  Coaches_Name varchar(30) NOT NULL,  
  Email varchar(50) NOT NULL,  
  Position varchar(50) NOT NULL,  
  Phone_Number int(13) NOT NULL  
) ENGINE=InnoDB DEFAULT CHARSET=latin1;
```

```
INSERT INTO Coach (Coaches_ID, Coaches_Name, Email, Position, Phone_Number) VALUES  
( '173423', 'John Smith', 'johnsmith@cyclingcoaching.com', 'Endurance Coach',  
'0877654321'),  
( '177233', 'Shane Wall', 'ShaneWall@cyclingcoaching.com', 'Sprint Coach', '0877123456'),  
( '172344', 'Caolan Foley', 'CaolanFoley@cyclingcoaching.com', 'Hill Coach', '0875363686'),  
( '178654', 'Stephen Roche', 'StephenRoche@cyclingcoaching.com', 'Sprint Coach',  
'0871236549'),  
( '179874', 'Sean Kinsella', 'SeanKinsella@cyclingcoaching.com', 'Endurance Coach',  
'0879574263'),  
( '171233', 'Patrick Fenning', 'PatrickFenning@cyclingcoaching.com', 'Hill Coach',  
'0871947556');
```

```
CREATE TABLE Races (  
  RaceID INT(6) NOT NULL,  
  RaceName varchar(30) NOT NULL,  
  DistanceKM int(50) NOT NULL,  
  Terrain varchar(50) NOT NULL,  
  RaceOrganisers varchar(30) NOT NULL  
);
```

```

INSERT INTO Races (RaceID, RaceName, DistanceKM, Terrain, RaceOrganisers) VALUES
('87654', 'EastSideRR', '120', 'Climbing', 'EastSideCC'),
('34553', 'OverTheHill', '145', 'Sprint', 'KidareCC'),
('34654', 'FlatOut', '180', 'TT', 'LeinsterCC'),
('54543', 'Rás', '200', 'Sprint', 'NorthWestCC'),
('34565', 'Combe_Connors', '130', 'Climb', 'DublinCC'),
('66544', 'SheepsLeg', '80', 'Punch', 'WestRoadCC');

```

```

CREATE TABLE IF NOT EXISTS Training (
  id int NOT NULL AUTO_INCREMENT,
  Date date NOT NULL,
  Location varchar(30) NOT NULL,
  Training_Distance int(50) NOT NULL,
  Terrain varchar(50) NOT NULL,
  Coaches_ID int(6) NOT NULL,
  PRIMARY KEY (id)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

```

INSERT INTO Training (Date, Location, Training_Distance, Terrain, Coaches_ID) VALUES
('2019-04-18', 'Kildare', '90', 'Hilly', '173423'),
('2019-04-27', 'Dublin', '130', 'Flat', '177233'),
('2019-05-01', 'Kildare', '110', 'Rolly', '172344'),
('2019-05-08', 'Dublin', '80', 'Mountainous', '178654'),
('2019-05-16', 'Dublin', '105', 'Hilly', '179874'),
('2019-05-27', 'Kildare', '140', 'Flat', '171233');

```

```

CREATE TABLE IF NOT EXISTS Equipment (
  Name varchar(50) NOT NULL,
  OnLoan boolean NOT NULL,
  Value int(7) NOT NULL,
  How_Old_Years int(2) NOT NULL,
  Equipment_ID int(6) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```



```

INSERT INTO Equipment (Name, onLoan, Value, How_Old_Years, Equipment_ID) VALUES
('Race_Wheels', '1', '800', '1', '432343'),
('Lightweight_Wheels', '1', '500', '3', '433443'),
('Turbo_Trainer', '0', '250', '0', '128593'),
('Skinsuit', '1', '420', '4', '448258'),
('Race_Shoes', '1', '300', '2', '456534'),
('Jersey', '1', '50', '4', '468234'),
('Tyres', '1', '130', '2', '439902');

```

```

CREATE TABLE IF NOT EXISTS Registration (
  id int NOT NULL AUTO_INCREMENT,
  Member_Name varchar(50) NOT NULL,
  Previous_Member boolean NOT NULL,
  Registration_Fee int(7) NOT NULL,
  Members_Age int(4) NOT NULL,
  Members_ID int(7) NOT NULL,
  PRIMARY KEY (id)
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

```

```

INSERT INTO Registration (Member_Name, Previous_Member, Registration_Fee,
Members_Age, Members_ID) VALUES
('Sean_Micheals', '1', '80', '22', '7192857'),
('AJ_Tracey', '1', '120', '34', '7167445'),
('Chris_Jericho', '0', '120', '28', '7101938'),
('Randy_Orton', '1', '30', '14', '7119385'),
('David_Finlay', '0', '120', '42', '7101834'),
('Jeff_Hardy', '0', '80', '19', '7138647');

```

```

ALTER TABLE Coach
ADD primary key (Coaches_ID);

```

```

ALTER TABLE Members
ADD primary key (Member_ID);

```

```

ALTER TABLE Races
ADD primary key (RaceID);

```

```

ALTER TABLE Equipment
ADD primary key (Equipment_ID);

```

```
ALTER TABLE registration ADD FOREIGN KEY (Member_Name) REFERENCES  
Members(Member_Name);
```

```
ALTER TABLE registration ADD FOREIGN KEY (Members_ID) REFERENCES  
Members(Member_ID);
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ALTER TABLE training ADD FOREIGN KEY (Coaches_ID) REFERENCES coach(Coaches_ID);
```

```
ALTER TABLE races ADD FOREIGN KEY (Terrain) REFERENCES Members(Speciality);
```

```
CREATE VIEW Equipment_Loaded AS  
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```

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```
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