A database of a swimming club

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I represented the information for a swimming club using tables for the coaches, members, training sessions, competitions, personal bests and races.

The coach table contains the name of the coach as well as their unique ID and their phone number which he/she coaches (not unique). As the coaches here are volunteers, they do not need a PPS number or any bank details.

The members table contains their unique ID as well as their names and age. They are entered into races by their ID and age. They also have an emergency telephone number in case of getting sick at training or other emergencies.

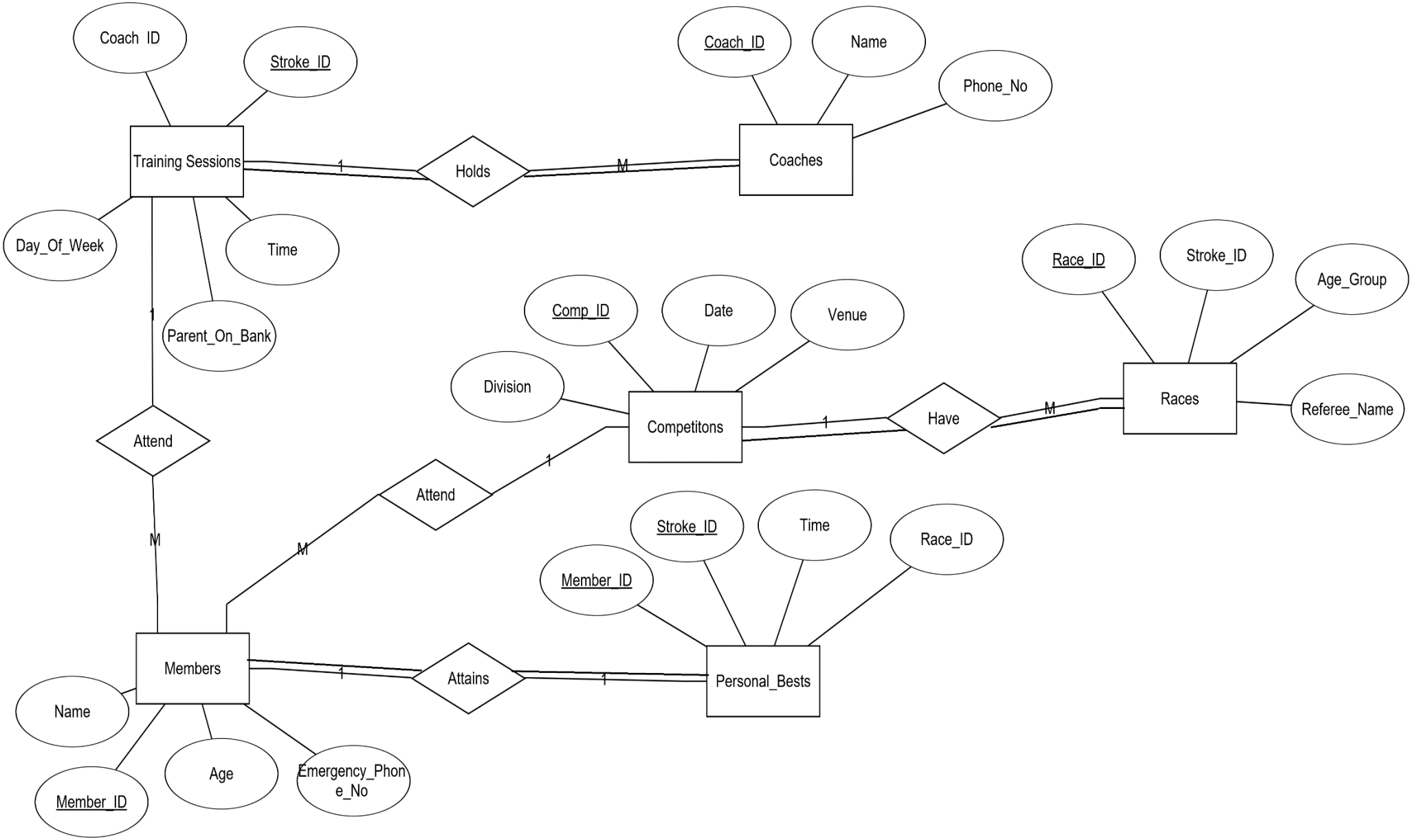
A training session is uniquely indetified by the combination of stroke and distance emphasised in the training, this is found in the primary key stroke ID. It also contains the coach who is performing the training session along with the time and day of the week. Training sessions can be run concurrently that's why the day and time cannot be the primary key. This also contains the name of the parent on the bank, which takes an internal attendance sheet and looks after sick children.

Personal bests contains a composite primary key as it depends on both Member ID and Stroke ID. It also contains the time as a VARCHAR as the time has to be stored precise to the millisecond. It also contains the race ID of the race where they achieved the personal best in order to have a reference of this happening.

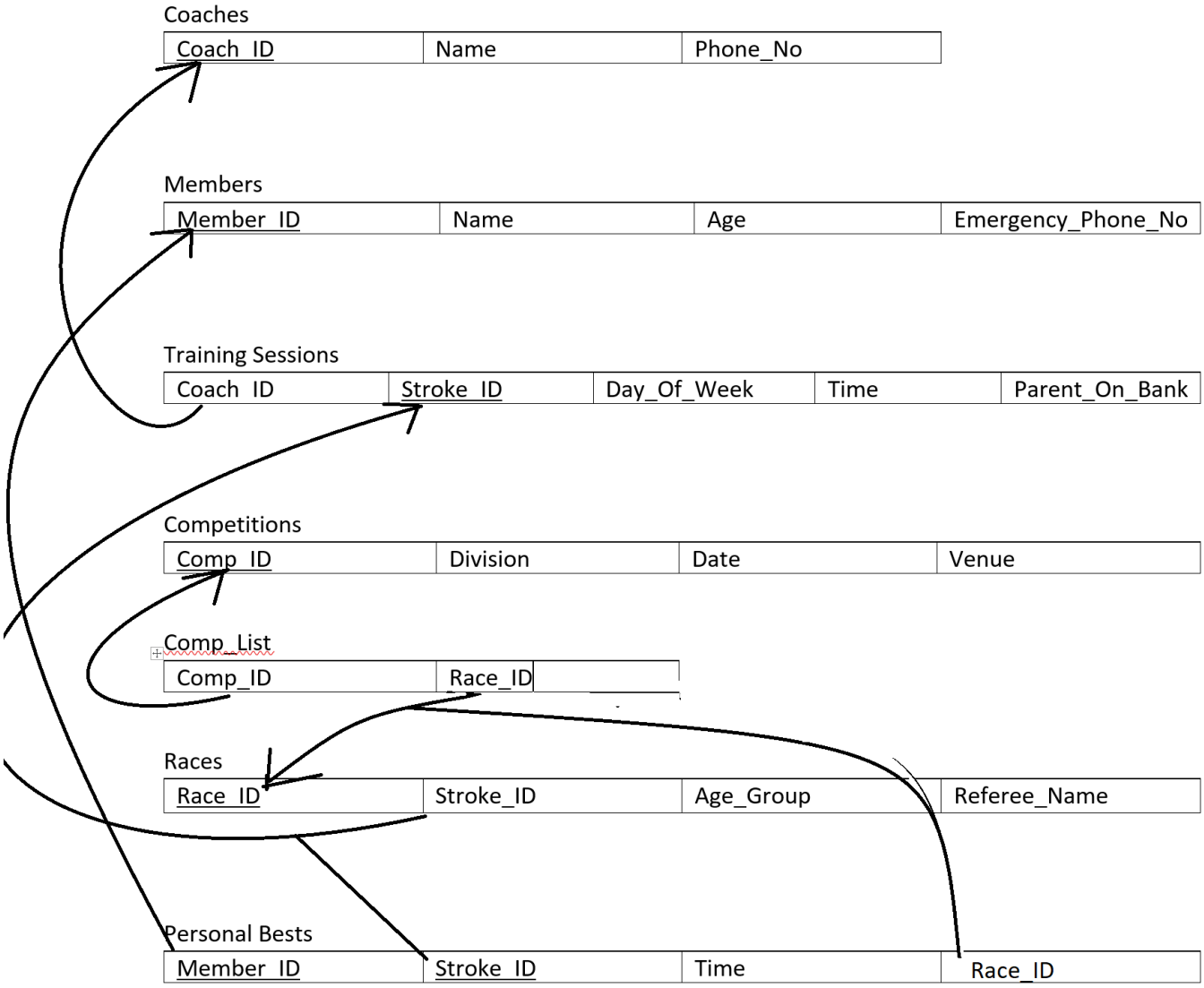
A competitions table holds a lot if data, including the date, venue and the division. It is uniquely identified by the competition ID.

A race contains a unique race ID along with stroke ID and age category along with the name of the referee. One competitions may have many races. Age groups possible for a race <14, 15, 16, 17+

Entity Relational diagram on next page

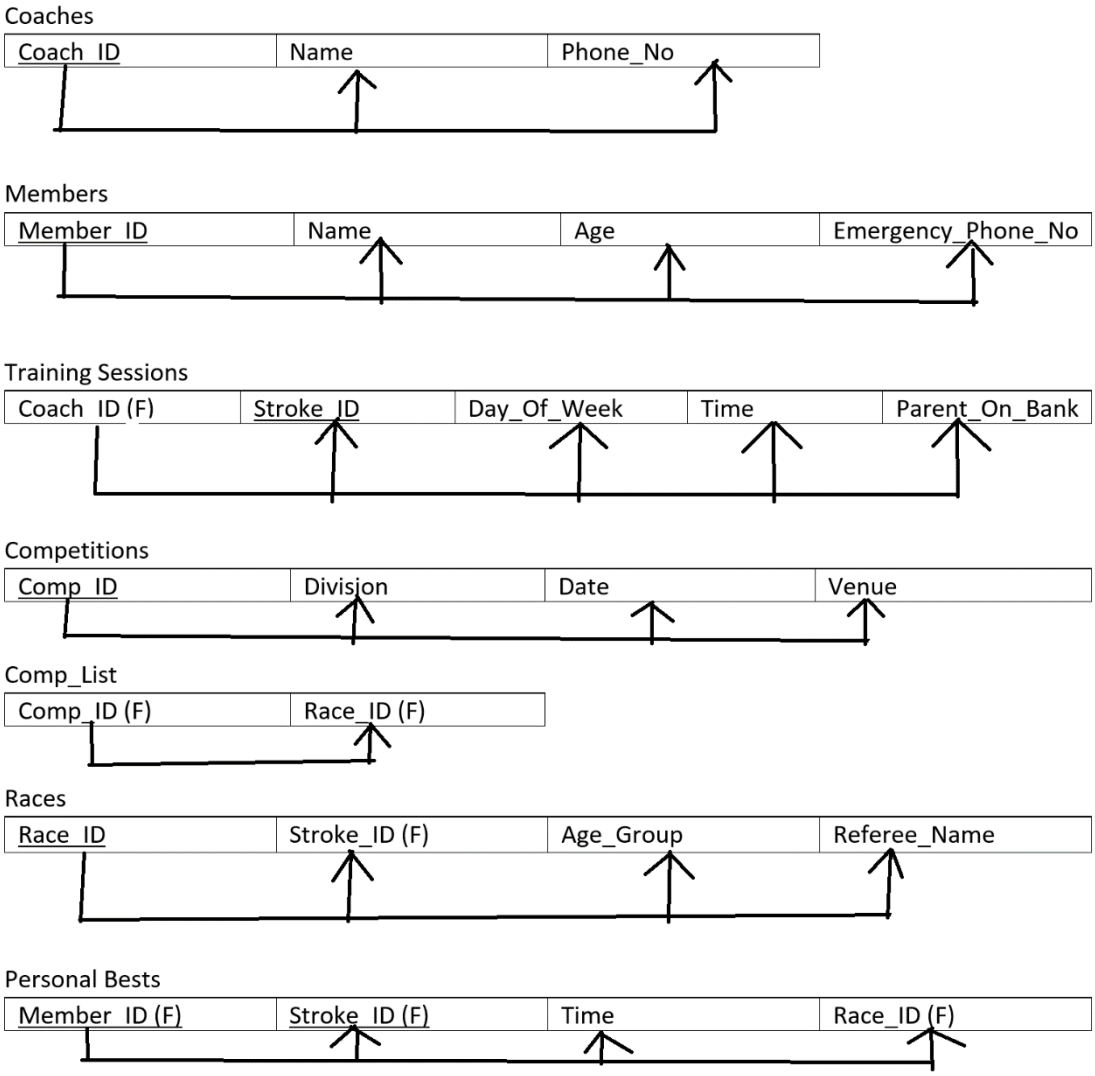

Coach_ID
Stroke_ID
Training Sessions
1
Holds
M
Coach_ID
Name
Phone_No
Coaches
Day_Of_Week
Time
1
Parent_On_Bank
Attend
M
Comp_ID
Date
Venue
Division
Competitons
1
Attend
M
1
Have
M
Race_ID
Stroke_ID
Age_Group
Races
Referee_Name
Stroke_ID
Time
Race_ID
Member_ID
Members
1
Attains
1
Personal_Bests
Name
Member_ID
Age
Emergency_Phone_No

Relational Schema:



Underlined attributes are the primary keys.

Functional dependencies



(F) is a foreign key

Semantic constraints:

The constraint that I put into my database was:

CONSTRAINT check_age CHECK (Age>=12);

This made sure that there are no members younger than 12 in the swimming club.

Trigger:

The trigger that I included, changes the division number of a competition to 2 if you set it to more than the second division. This is because your swimming club only attends the first and second division competitions or Galas.

DELIMITER $$

```
Create Trigger comp_div BEFORE INSERT ON Competitions FOR EACH ROW
BEGIN
IF NEW.Division > 2 THEN SET NEW.Division = 2;
END IF;
END$$
DELIMITER ;
```

Views:

I made 2 views for my database:

```
CREATE VIEW Training_Sessions_Available AS
SELECT Day_Of_The_Week,Training_Time
FROM Training_Sessions
```

Shows all training sessions at all times that are available to attend.

This view displays all the training sessions that are on, including the day of week and time, so members can go to as many as they choose.

```
CREATE VIEW All_Times_50_Free AS
SELECT Member_ID, Time
FROM Personal_Bests
WHERE Stroke_ID = '50_Free';
```

Shows the personal bests for 50 metres freestyle for every member in club with a personal best in that distance and stroke.

All SQL:

This an SQL dump from phpMyAdmin, It is the entire exported sql file copied into the report.

```
-- phpMyAdmin SQL Dump
-- version 4.2.12deb2+deb8u3
-- http://www.phpmyadmin.net
--
-- Host: localhost
-- Generation Time: Nov 26, 2018 at 11:00 AM
-- Server version: 5.5.62-0+deb8u1
-- PHP Version: 5.6.38-0+deb8u1

SET SQL_MODE = "NO_AUTO_VALUE_ON_ZERO";
SET time_zone = "+00:00";
```

```
/*!40101 SET @OLD_CHARACTER_SET_CLIENT=@@CHARACTER_SET_CLIENT
*/;
/*!40101 SET
@OLD_CHARACTER_SET_RESULTS=@@CHARACTER_SET_RESULTS */;
/*!40101 SET @OLD_COLLATION_CONNECTION=@@COLLATION_CONNECTION
*/;
/*!40101 SET NAMES utf8 */;

--
-- Database: `slowinsj_db`
--

-- --------------------------------------------------------

--
-- Stand-in structure for view `All_Times_50_Free`
--
CREATE TABLE IF NOT EXISTS `All_Times_50_Free` (
`Member_ID` int(11)
,`Time` varchar(20)
);
-- --------------------------------------------------------

--
-- Table structure for table `Coaches`
--

CREATE TABLE IF NOT EXISTS `Coaches` (
  `Coach_ID` int(11) NOT NULL,
  `NAME` varchar(50) NOT NULL,
  `Phone_No` varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Coaches`
--

INSERT INTO `Coaches` (`Coach_ID`, `NAME`, `Phone_No`) VALUES
(1, 'Dylan Murphy', '0861233333'),
(2, 'Tony King', '0876716969'),
(3, 'Sinead Murphy', '0851234567'),
(4, 'Stephen Gordy', '0854058790'),
(5, 'Dylan Lyons', '0894358791');

-- --------------------------------------------------------
```

```
--
-- Table structure for table `Competitions`
--

CREATE TABLE IF NOT EXISTS `Competitions` (
  `Date` date NOT NULL,
  `Venue` varchar(30) NOT NULL,
  `Comp_ID` int(11) NOT NULL,
  `Division` int(11) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Competitions`
--

INSERT INTO `Competitions` (`Date`, `Venue`, `Comp_ID`, `Division`) VALUES
('2018-12-08', 'National Aquatic Centre', 1, 1),
('2018-12-15', 'National Aquatic Centre', 2, 2),
('2019-01-25', 'Sportsco', 3, 2),
('2019-02-21', 'Tallaght Swimming Pool', 4, 1),
('2018-03-15', 'Templeogue College Swimming Po', 5, 2),
('2019-08-23', 'National Aquatic Centre - Corm', 6, 2),
('2019-08-15', 'National Aquatic Centre - Corm', 7, 1);

--
-- Triggers `Competitions`
--
DELIMITER //
CREATE TRIGGER `comp_div` BEFORE INSERT ON `Competitions`
 FOR EACH ROW BEGIN
IF NEW.Division > 2 THEN SET NEW.Division = 2;
END IF;
END
//
DELIMITER ;

-- --------------------------------------------------------

--
-- Table structure for table `Members`
--

CREATE TABLE IF NOT EXISTS `Members` (
  `Member_ID` int(11) NOT NULL,
  `Age` int(11) NOT NULL,
  `Name` varchar(50) NOT NULL,
```

```
  `Emergency_Phone_No` varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Members`
--

INSERT INTO `Members` (`Member_ID`, `Age`, `Name`, `Emergency_Phone_No`)
VALUES
(1, 16, 'Eoin Morgan', '0861111111'),
(2, 17, 'Eoaghan Trinity', '0861123111'),
(3, 16, 'Blessing Omamo', '0861123311'),
(4, 19, 'Darragh Smelly', '0861223311'),
(5, 13, 'Nicolas Dumonts', '0881223311'),
(6, 16, 'Michael Dumonts', '0881223311'),
(7, 17, 'Nikolas Moran', '0831523311'),
(8, 15, 'Brona Nike', '0861223313'),
(9, 19, 'Sarah Cowell', '0881223981'),
(10, 15, 'Mary Mooney', '0861761116'),
(11, 17, 'Connor Gormlet', '0861123161'),
(12, 14, 'Sarah Polanski', '0881223981'),
(13, 14, 'Blessing Omamo', '0861123311'),
(14, 20, 'Darren Glynn', '0861223311'),
(15, 14, 'Nichola Morgan', '0881233323'),
(16, 19, 'Mike Durban', '0881224211'),
(17, 17, 'Sean Daly', '0831528911'),
(18, 15, 'Fionn Daly', '0861273313'),
(19, 19, 'Simon Dole', '0881241981');

-- --------------------------------------------------------

--
-- Table structure for table `Personal_Bests`
--

CREATE TABLE IF NOT EXISTS `Personal_Bests` (
  `Time` varchar(20) NOT NULL,
  `Stroke_ID` varchar(11) NOT NULL,
  `Race_ID` int(11) NOT NULL,
  `Member_ID` int(11) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Personal_Bests`
--
```

```
INSERT INTO `Personal_Bests` (`Time`, `Stroke_ID`, `Race_ID`, `Member_ID`) VALUES
('24.8', '50_Free', 3, 2),
('1.10.62', '100_Free', 26, 3),
('1.02.15', '100_Free', 5, 6),
('1.03.62', '100_Free', 5, 8),
('1.17.62', '100_Free', 21, 9),
('1.23.78', '50_Back', 30, 9),
('1.03.62', '50_Breast', 7, 10),
('1.01.03', '100_Free', 21, 14),
('1.06.41', '50_Back', 15, 14),
('1.05.5', '100_Back', 15, 17),
('29.62', '50_Free', 16, 18),
('1.08.3', '100_Free', 21, 19);

-- --------------------------------------------------------

--
-- Table structure for table `Races`
--

CREATE TABLE IF NOT EXISTS `Races` (
  `Race_ID` int(11) NOT NULL,
  `Stroke_ID` varchar(11) NOT NULL,
  `Comp_ID` int(11) NOT NULL,
  `Age_Group` int(11) NOT NULL,
  `Referee_Name` varchar(50) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Races`
--

INSERT INTO `Races` (`Race_ID`, `Stroke_ID`, `Comp_ID`, `Age_Group`,
`Referee_Name`) VALUES
(1, '50_Free', 1, 15, 'Cian Norton'),
(2, '50_Free', 1, 16, 'Cian Norton'),
(3, '50_Free', 1, 17, 'Cian Norton'),
(4, '100_Free', 1, 15, 'Cian Norton'),
(5, '100_Free', 1, 16, 'Cian Norton'),
(6, '100_Free', 1, 17, 'Cian Norton'),
(7, '50_Breast', 1, 15, 'Cian Norton'),
(8, '100_Breast', 1, 16, 'Cian Norton'),
(9, '50_Back', 1, 17, 'Cian Norton'),
(10, '100_Back', 1, 15, 'Cian Norton'),
(11, '100_Free', 1, 16, 'Cian Norton'),
(12, '100_Free', 1, 17, 'Cian Norton'),
```

```
(13, '100_Breast', 1, 15, 'Cian Norton'),
(14, '100_Breast', 1, 16, 'Cian Norton'),
(15, '50_Back', 1, 17, 'Cian Norton'),
(16, '50_Free', 3, 15, 'Mike Brady'),
(17, '50_Free', 3, 16, 'Mike Brady'),
(18, '50_Free', 4, 17, 'Cian Norton'),
(19, '100_Free', 7, 15, 'Declan Rice'),
(20, '100_Free', 2, 16, 'Tony Martin'),
(21, '100_Free', 3, 17, 'Mike Brady'),
(22, '50_Breast', 3, 15, 'Mike Brady'),
(23, '100_Breast', 3, 16, 'Mike Brady'),
(24, '50_Back', 3, 17, 'Mike Brady'),
(25, '100_Back', 3, 15, 'Mike Brady'),
(26, '100_Free', 3, 16, 'Mike Brady'),
(27, '100_Free', 6, 17, 'Cian Norton'),
(28, '100_Breast', 3, 15, 'Mike Brady'),
(29, '100_Breast', 3, 16, 'Mike Brady'),
(30, '50_Back', 3, 17, 'Mike Brady');

-- --------------------------------------------------------

--
-- Table structure for table `Training_Sessions`
--

CREATE TABLE IF NOT EXISTS `Training_Sessions` (
  `Coach_ID` int(11) NOT NULL,
  `Stroke_ID` varchar(11) NOT NULL,
  `Day_Of_The_Week` varchar(3) NOT NULL,
  `Training_Time` time NOT NULL,
  `Parent_On_Bank` varchar(50) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table `Training_Sessions`
--

INSERT INTO `Training_Sessions` (`Coach_ID`, `Stroke_ID`, `Day_Of_The_Week`,
`Training_Time`, `Parent_On_Bank`) VALUES
(4, '100_Back', 'Mon', '21:00:00', 'Connor Mor'),
(2, '100_Breast', 'Mon', '19:00:00', 'Steph Moran'),
(2, '100_Fly', 'Fri', '19:00:00', 'Mary OKeefe'),
(1, '100_Free', 'Sat', '18:00:00', 'Brain Gormlet'),
(1, '200_Back', 'Tue', '19:00:00', 'Kate Glynn'),
(4, '200_Breast', 'Fri', '06:00:00', 'Sean Gill'),
(1, '200_Fly', 'Mon', '21:00:00', 'Connor Dole'),
```

```
(3, '200_Free', 'Wed', '06:15:00', 'Colm Polanski'),
(5, '200_IM', 'Sat', '10:00:00', 'Declan Dorman'),
(4, '400_Free', 'Wed', '19:15:00', 'Alan Glynn'),
(3, '50_Back', 'Thu', '21:00:00', 'Siobhan Daly'),
(1, '50_Breast', 'Sun', '09:30:00', 'Burto Hash'),
(2, '50_Fly', 'Sat', '09:00:00', 'Cian OMeara'),
(1, '50_Free', 'Mon', '06:25:00', 'Michael Mooney');

-- --------------------------------------------------------

--
-- Stand-in structure for view `Training_Sessions_Available`
--
CREATE TABLE IF NOT EXISTS `Training_Sessions_Available` (
`Day_Of_The_Week` varchar(3)
,`Training_Time` time
);
-- --------------------------------------------------------

--
-- Structure for view `All_Times_50_Free`
--
DROP TABLE IF EXISTS `All_Times_50_Free`;

CREATE ALGORITHM=UNDEFINED DEFINER=`slowinsj`@`localhost` SQL
SECURITY DEFINER VIEW `All_Times_50_Free` AS select
`Personal_Bests`.`Member_ID` AS `Member_ID`,`Personal_Bests`.`Time` AS `Time` from
`Personal_Bests` where (`Personal_Bests`.`Stroke_ID` = '50_Free');

-- --------------------------------------------------------

--
-- Structure for view `Training_Sessions_Available`
--
DROP TABLE IF EXISTS `Training_Sessions_Available`;

CREATE ALGORITHM=UNDEFINED DEFINER=`slowinsj`@`localhost` SQL
SECURITY DEFINER VIEW `Training_Sessions_Available` AS select
`Training_Sessions`.`Day_Of_The_Week` AS
`Day_Of_The_Week`,`Training_Sessions`.`Training_Time` AS `Training_Time` from
`Training_Sessions`;

--
-- Indexes for dumped tables
--
```

```
--
-- Indexes for table `Coaches`
--
ALTER TABLE `Coaches`
 ADD PRIMARY KEY (`Coach_ID`);

--
-- Indexes for table `Competitions`
--
ALTER TABLE `Competitions`
 ADD PRIMARY KEY (`Comp_ID`);

--
-- Indexes for table `Members`
--
ALTER TABLE `Members`
 ADD PRIMARY KEY (`Member_ID`);

--
-- Indexes for table `Personal_Bests`
--
ALTER TABLE `Personal_Bests`
 ADD PRIMARY KEY (`Member_ID`,`Stroke_ID`), ADD KEY `Race_ID` (`Race_ID`),
ADD KEY `Stroke_ID` (`Stroke_ID`);

--
-- Indexes for table `Races`
--
ALTER TABLE `Races`
 ADD PRIMARY KEY (`Race_ID`), ADD KEY `Stroke_ID` (`Stroke_ID`), ADD KEY
`Comp_ID` (`Comp_ID`);

--
-- Indexes for table `Training_Sessions`
--
ALTER TABLE `Training_Sessions`
 ADD PRIMARY KEY (`Stroke_ID`), ADD KEY `Coach_ID` (`Coach_ID`);

--
-- Constraints for dumped tables
--

--
-- Constraints for table `Personal_Bests`
--
ALTER TABLE `Personal_Bests`
```

```
ADD CONSTRAINT `Personal_Bests_ibfk_1` FOREIGN KEY (`Member_ID`)
REFERENCES `Members` (`Member_ID`),
ADD CONSTRAINT `Personal_Bests_ibfk_2` FOREIGN KEY (`Race_ID`) REFERENCES
`Races` (`Race_ID`),
ADD CONSTRAINT `Personal_Bests_ibfk_3` FOREIGN KEY (`Stroke_ID`)
REFERENCES `Training_Sessions` (`Stroke_ID`);

--
-- Constraints for table `Races`
--
ALTER TABLE `Races`
ADD CONSTRAINT `Races_ibfk_2` FOREIGN KEY (`Comp_ID`) REFERENCES
`Competitions` (`Comp_ID`),
ADD CONSTRAINT `Races_ibfk_1` FOREIGN KEY (`Stroke_ID`) REFERENCES
`Training_Sessions` (`Stroke_ID`);

--
-- Constraints for table `Training_Sessions`
--
ALTER TABLE `Training_Sessions`
ADD CONSTRAINT `Training_Sessions_ibfk_1` FOREIGN KEY (`Coach_ID`)
REFERENCES `Coaches` (`Coach_ID`);

/*!40101 SET CHARACTER_SET_CLIENT=@OLD_CHARACTER_SET_CLIENT */;
/*!40101 SET CHARACTER_SET_RESULTS=@OLD_CHARACTER_SET_RESULTS */;
/*!40101 SET COLLATION_CONNECTION=@OLD_COLLATION_CONNECTION */;
```