

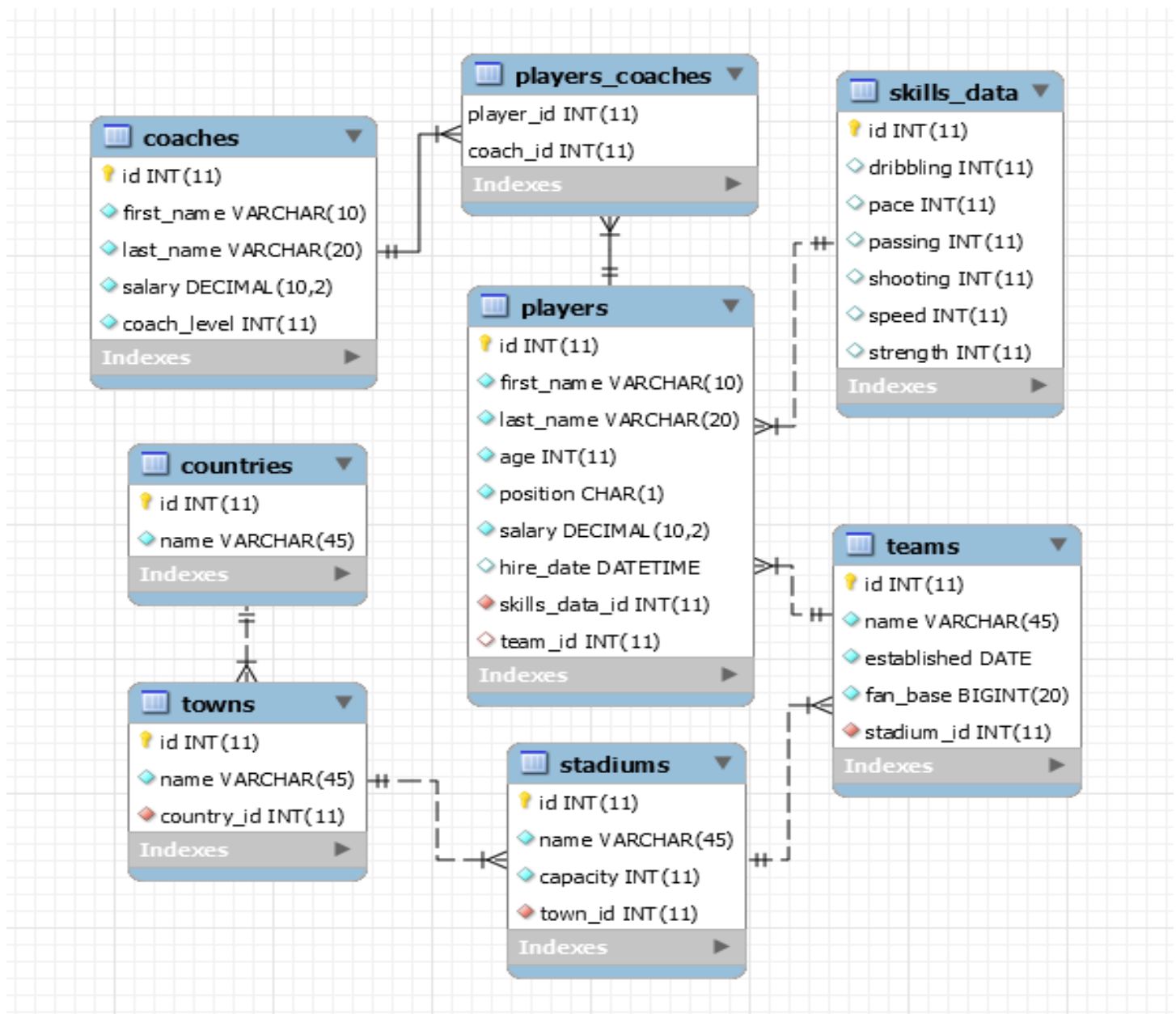
MySQL Exam

Football Scout Database

In a parallel reality, you have been selected to help the most famous football coaches to select the best players for their teams. Thanks to your knowledge of databases, you have been selected to create the structure of a brand new database, tailored to the requirements of your employers, and to fill it in with a huge amount of data collected for you by the most experienced football scouts. Once the base is ready, you will be able to respond without any problems to any information request from the coaches on the basis of certain criteria. As with other databases, it is most important first to become familiar with the structure you need to build, and then fill it with given data.

Section 0: Database Overview

You have been given an Entity / Relationship Diagram of the Football Scout Database:



The **Football Scout Database (FSD)** needs to hold information about **players, skill, coaches, teams, stadiums, towns, countries**.

Your task is to create a database called **fsd (Football Scout Database)**. Then you will have to create several **tables**.

- **players** – contains information about the **players**.
 - Each player has a **skills data**, **team** and **coach**.
- **coaches** – contains information about the **coaches**.
 - One coach can train **many players**
- **players_coaches** – a **many to many mapping** table between the **players** and the **coaches**.
 - Have composite primary key from **player_id** and **coach_id**
- **skill data** – contains information about the **current player skills**.
- **teams** – contains information about the **teams**.
 - Each **team** has a **stadium**.
- **stadiums** – contains information about the **stadiums**.
 - Each **stadium** has a **city**.
- **towns** - contains information about the **towns**.
 - Each **town** has a **country**
- **countries** – contains information about current country.

Section 1: Data Definition Language (DDL) – 40 pts

Make sure you implement the whole database correctly on your local machine, so that you could work with it.

The instructions you'll be given will be the minimal required for you to implement the database.

01. Table Design

You have been tasked to create the tables in the database by the following models:

players

Column Name	Data Type	Constraints
id	Integer , from 1 to 2,147,483,647 .	Primary Key AUTO_INCREMENT
first_name	A string containing a maximum of 10 characters . Unicode is NOT needed.	NULL is NOT permitted.
last_name	A string containing a maximum of 20 characters . Unicode is NOT needed.	NULL is NOT permitted.
age	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0 . NULL is NOT permitted.
position	Exactly 1 character – A or M or D	NULL is NOT permitted.
salary	DECIMAL , up to 10 digits , 2 of which after the decimal point .	DEFAULT value is 0 . NULL is NOT permitted.
hire_date	The exact time and date of conclusion of the contract	NULL is permitted .

skills_data_id	Integer , from 1 to 2,147,483,647 .	Relationship with table skill_datas . NULL is NOT permitted.
team_id	Integer , from 1 to 2,147,483,647 .	Relationship with table teams . NULL is permitted.

players_coaches

Column Name	Data Type	Constraints
player_id	Integer , from 1 to 2,147,483,647 .	Relationship with table players .
coach_id	Integer , from 1 to 2,147,483,647 .	Relationship with table coaches .

coaches

Column Name	Data Type	Constraints
id	Integer , from 1 to 2,147,483,647 .	Primary Key AUTO_INCREMENT
first_name	A string containing a maximum of 10 characters . Unicode is NOT needed.	NULL is NOT permitted.
last_name	A string containing a maximum of 20 characters . Unicode is NOT needed.	NULL is NOT permitted.
salary	DECIMAL , up to 10 digits , 2 of which after the decimal point .	DEFAULT value is 0 . NULL is NOT permitted.
coach_level	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0 . NULL is NOT permitted.

skills_data

Column Name	Data Type	Constraints
id	Integer , from 1 to 2,147,483,647 .	Primary Key AUTO_INCREMENT
dribbling	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0
pace	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0
passing	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0
shooting	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0
speed	Integer , from 1 to 2,147,483,647 .	DEFAULT value is 0

strength	Integer, from 1 to 2,147,483,647.	DEFAULT value is 0
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teams

Column Name	Data Type	Constraints
id	Integer, from 1 to 2,147,483,647.	Primary Key AUTO_INCREMENT
name	A string containing a maximum of 45 characters . Unicode is NOT needed.	NULL is NOT permitted.
established	The year and date the club was founded	NULL is NOT permitted.
fan_base	Very big Integer, from 1 to 2⁶⁴-1.	NOT is NULL permitted, DEFAULT value is 0
stadium_id	Integer, from 1 to 2,147,483,647.	Relationship with table stadiums . NULL is NOT permitted.

stadiums

Column Name	Data Type	Constraints
id	Integer, from 1 to 2,147,483,647.	Primary Key AUTO_INCREMENT
name	A string containing a maximum of 45 characters . Unicode is NOT needed.	NULL is NOT permitted.
capacity	Integer, from 1 to 2,147,483,647.	NULL is NOT permitted.
town_id	Integer, from 1 to 2,147,483,647.	Relationship with table towns . NULL is NOT permitted.

towns

Column Name	Data Type	Constraints
id	Integer, from 1 to 2,147,483,647.	Primary Key AUTO_INCREMENT
name	A string containing a maximum of 45 characters . Unicode is NOT needed.	NULL is NOT permitted.
country_id	Integer, from 1 to 2,147,483,647.	Relationship with table countries . NULL is NOT permitted.

countries

Column Name	Data Type	Constraints
id	Integer, from 1 to 2,147,483,647.	Primary Key AUTO_INCREMENT
name	A string containing a maximum of 45 characters. Unicode is NOT needed.	NULL is NOT permitted.

Submit your solutions in Judge on the first task. Submit **all** SQL table creation statements.

You will also be given a **data.sql** file. It will contain a **dataset** with random data which you will need to **store** in your **local database**. This data will be given to you so you don't have to imagine it and lose precious time in the process. The data is in the form of **INSERT** statement queries.

Section 2: Data Manipulation Language (DML) – 30 pts

Here we need to do several manipulations in the database, like changing data, adding data etc.

02. Insert

You will have to **insert** records of data into the **coaches** table, based on the **players** table.

For **players** with age **over 45 (inclusive)**, **insert data** in the **coaches** table with the **following values**:

- **first_name** – set it to **first name** of the **player**
- **last_name** – set it to **last name** of the **player**.
- **salary** – set it to **double** as **player's** salary.
- **coach_level** – set it to be equals to **count of the characters** in player's **first_name**.

03. Update

Update all **coaches**, who train **one or more** players **and** their **first_name** starts with '**A**'. **Increase** their **level** with **1**.

04. Delete

As you remember at the beginning of our work, we **promoted** several football **players** to **coaches**. Now you need to **remove all of them** from the table of **players** in order for our database to be updated accordingly.

Delete all **players** from table **players**, which are already added in table **coaches**.

Section 3: Querying – 50 pts

And now we need to do some data extraction. **Note** that the **example results** from **this section** use a **fresh database**. It is **highly recommended** that you **clear** the **database** that has been **manipulated** by the **previous problems** from the **DML section** and **insert again** the **dataset** you've been given, to ensure **maximum consistency** with the **examples** given in this section.

05. Players

Extract from the Football Scout Database (fsd) database, info about all of the **players**.

Order the results by **players - salary descending**.

Required Columns

- **first_name**
- **age**
- **salary**

Example

first_name	age	salary
Renault	24	984113.71
Akim	31	982188.88
Mollie	24	966079.07
...

06. Young offense players without contract

One of the coaches wants to know more about all the **young players** (under age of **20**) who can strengthen his team in the offensive (played on **position 'A'**). As he is not paying a transfer amount, he is looking only for those who have **not signed** a contract so far (haven't **hire_date**) and have **strength of** more than **50**. Order the results **ascending** by **salary**, then by **age**.

Required Columns

- **id (player)**
- **full_name**
- **age**
- **position**
- **hire_date**

Example

id	full_name	age	position	hire_date
40	Carlen Hadny	18	A	NULL
23	Kalvin Bewley	19	A	NULL
..

07. Detail info for all teams

Extract from the database all of the **teams** and the **count** of the **players** that they have.

Order the results **descending by count of players**, then by **fan_base descending**.

Required Columns

- **team_name**
- **established**
- **fan_base**
- **count_of_players**

Example

team_name	established	fan_base	players_count
Ailane	1963-08-20	6711237100133852778	10
Ntags	1981-06-05	3508984270641351110	9
Skyble	1953-11-14	5381600486852672412	8
...
Miboo	1971-08-02	30087062078800256	0

08. The fastest player by towns

Extract from the database, the **fastest player (having max speed)**, in terms of **towns** where their team played.

Order players by **speed descending**, then by **town name**.

Skip players that played in team **‘Devify’**

Required Columns

- **max_speed**
- **town_name**

Example

max_speed	town_name
97	Smolensk
92	Bromma
92	Lühua
...	...
NULL	Zavolzh’ye

09. Total salaries and players by country

And like everything else in this world, everything is ultimately about finances. Now you need to extract detailed information on the amount of **all salaries** given to football players by the **criteria of the country in which they played**.

If there are no players in a country, display **NULL**. Order the results by **total count of players** in **descending** order, then by **country name** alphabetically.

Required Columns

- **name (country)**
- **total_sum_of_salaries**
- **total_count_of_players**

Example

name	total_count_of_players	total_sum_of_salaries
Sweden	28	14968947.79
Brazil	18	8352732.65
China	13	7042890.51
Russia	7	2230759.71
...
Thailand	0	NULL
United States	0	NULL

Section 4: Programmability – 30 pts

The time has come for you to prove that you can be a little more dynamic on the database. So, you will have to write several procedures.

10. Find all players that play on stadium

Create a **user defined function** with the name **udf_stadium_players_count** (**stadium_name** **VARCHAR(30)**) that receives a **stadium's name** and returns the number of players that play home matches there.

Example

Query
<code>SELECT udf_stadium_players_count ('Jaxworks') as `count`;</code>
count
14

Query
<code>SELECT udf_stadium_players_count ('Linklinks') as `count`;</code>
count
0

11. Find good playmaker by teams

Create a stored procedure `udp_find_playmaker` which accepts the following parameters:

- `min_dribble_points`
- `team_name` (with max length 45)

And extracts data about the **players** with the given **skill stats (more than min_dribble_points)**, played for **given team** (`team_name`) and have **more than average speed** for **all players**. **Order** players by **speed** descending. Select **only the best one**.

Show all needed info for this player: `full_name`, `age`, `salary`, `dribbling`, `speed`, `team name`.

CALL `udp_find_playmaker (20, 'Skyble');`

Result

full_name	age	salary	dribbling	speed	team_name
Royal Deakes	19	49162.77	33	92	Skyble