

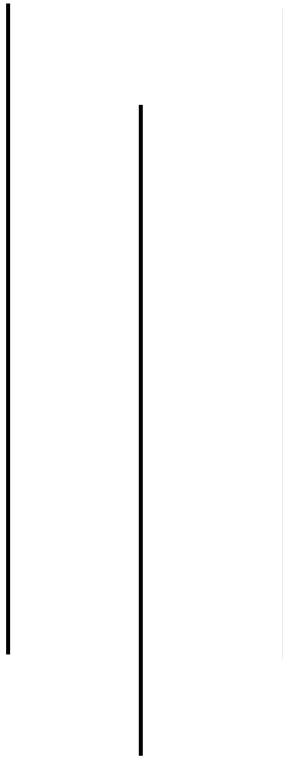
Submitted by:

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PROJECT 1

PHASE 2

DATABASE AND FILE STRUCTURES



HONOR CODE

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or that I contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

A handwritten signature in black ink, located at the bottom right of the page.

Design Description

For the design, I divided the entities as Stadium, MATCH, PLAYERS and Teams/Countries based on the design ideas and they had their attributes clearly mentioned. For relationships, I chose three special relationships such as goal, card and substitutes.

goal – As we need to connect players that scored goal in a match

card – As we need to connect players that got disciplinary card in the match

Goal and Card both are weak entities as they are totally dependent on player entity.

Substitutes: I made a recursive relationship for players as players were substituted by players.

Player was not divided into subclass as it was a weak entity.

Attributes with unique property were underlined to determine key attributes and one shorter attribute was chosen among the candidates for primary key.

For Example:

For Country entity, I chose CNAME as the primary attribute for relational table.

For Players entity, I did not have any primary key as player was a weak entity. But for its representation I chose Player Number (P No) as a partial key.

For Match entity, I chose GID as the primary attribute for relational table as it was the only key attribute.

For stadium entity, I chose Stadium ID as the main attribute as it was the only key attribute.

The EER diagram for description above is given in fig 1. below.

Conceptual Schema(EER Diagram)

V

Figure Continued below in next page.....

V

V

V

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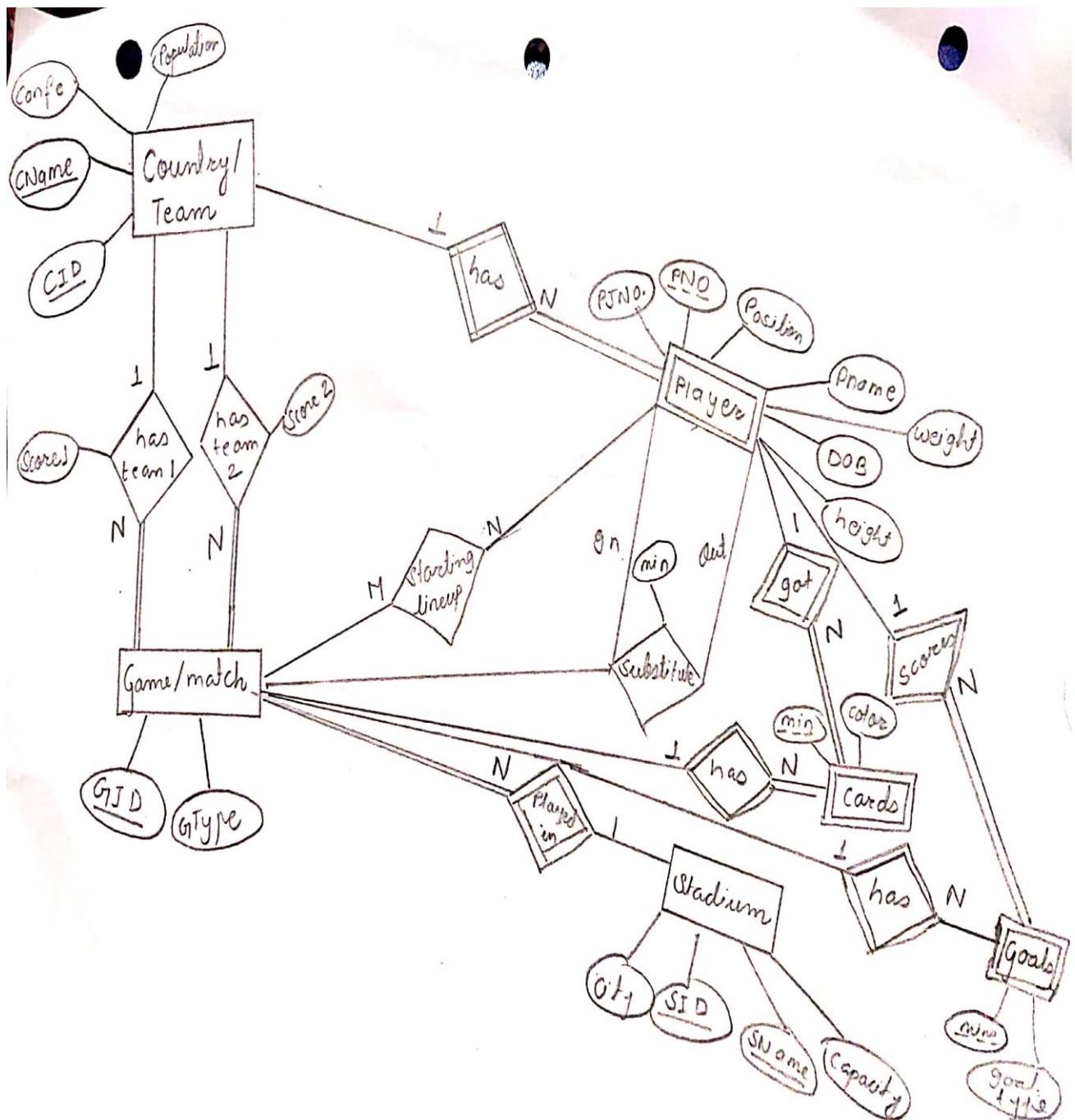
V

V

V

V

V



SOCCER WORLD CUP
CONCEPTUAL SCHEMA

Fig: EER diagram representing conceptual schema for soccer world cup database

Relational Model Description (Mapping from conceptual to relation)

In the conceptual schema, there are different relationships established between the entities. Based on the relationship, they are mapped to the relational schema along with some relationship themselves.

We have,

Match(1)—played in -- Stadium(N)

Players(N)----starting lineup -- Match(M)

Players(1)—Scored goal--Match(N)

Players(1)- Got Card---Match(N)

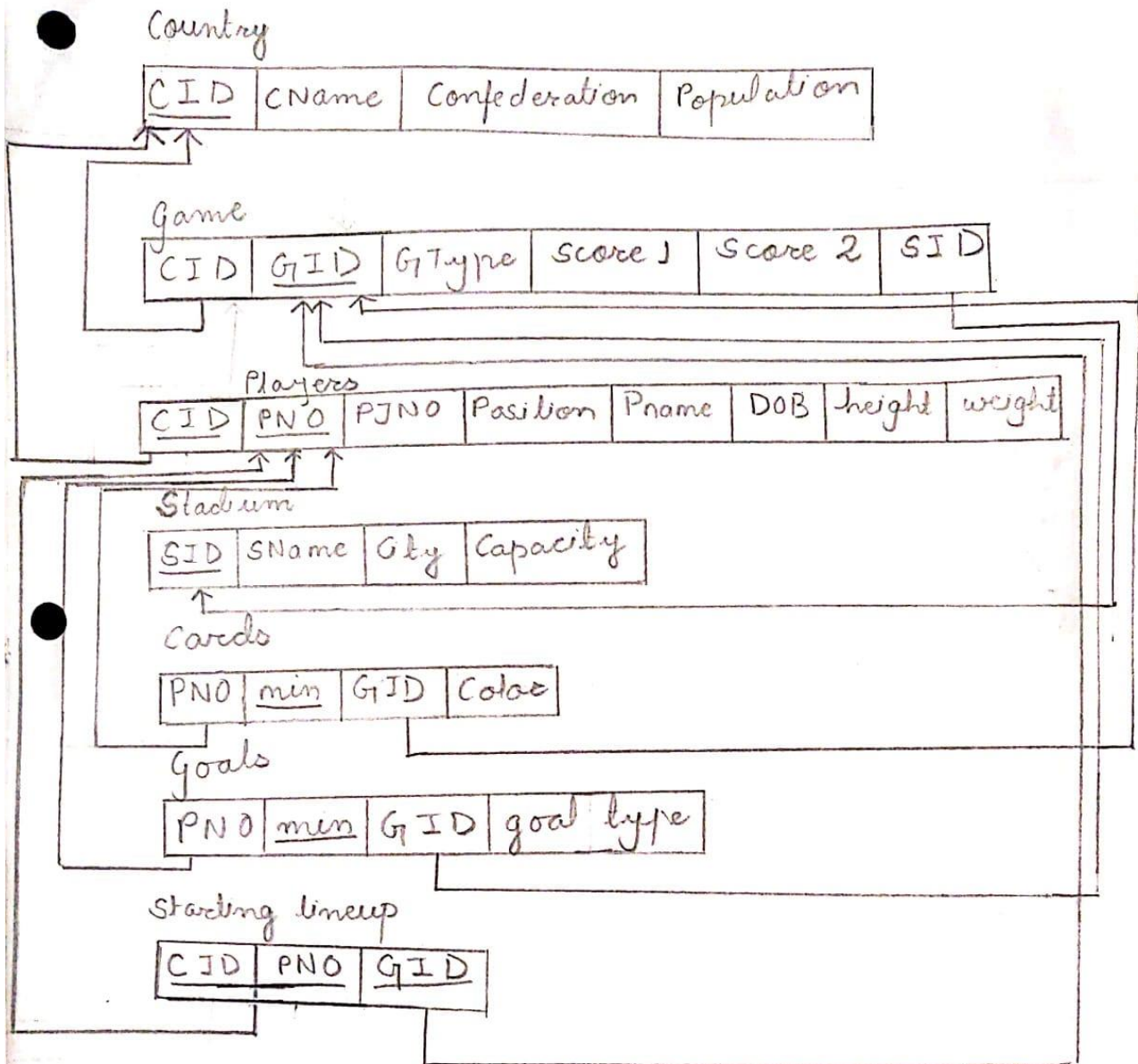
Players{In}()---Substitutes----Player {Out}()

Match(N)-- has---Teams(N)

Countries/Teams(1)---has---Players(N)

We build a different relationship for starting lineup as it has M:N relation with player and games.

This relationship is mapped out in a relational schema given in fig.2 below



Relational Schema

Fig 2: Figure representing relational database schema

Proof of Executing Create Statement along with figure for table in Xampp

connect to my sql server

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0071 seconds.)

```
CREATE DATABASE project1_2
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

⚠ Error: #1046 No database selected

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.0007 seconds.)

```
USE project1_2
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 1.2604 seconds.)

```
CREATE TABLE country ( confederation VARCHAR (20) NOT NULL, cname VARCHAR (20) NOT NULL, CONSTRAINT CTYSK UNIQUE(cname), continent VARCHAR (15), population INT (20), cid CHAR (9) NOT NULL DEFAULT "123456789", CONSTRAINT CTYPK PRIMARY KEY(cid))
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.7097 seconds.)

```
CREATE TABLE players ( pname VARCHAR (20) NOT NULL, pname VARCHAR (20), club VARCHAR (15), pno INT (20) NOT NULL DEFAULT 1, CONSTRAINT PLYRPK PRIMARY KEY(pno), birthdate DATE, height DECIMAL (5,2), weight DECIMAL (5,2), cid CHAR (9) , CONSTRAINT PLYRFK FOREIGN KEY(cid) REFERENCES country(cid) ON DELETE SET NULL ON UPDATE CASCADE)
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.4760 seconds.)

```
CREATE TABLE game ( gid CHAR (9) NOT NULL DEFAULT "123456789", CONSTRAINT HTCHPK PRIMARY KEY(gid), gtype VARCHAR(20), gdate DATE, score1 INT (3) NOT NULL, score2 INT(3) NOT NULL, cid CHAR (9))
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.2784 seconds.)

```
CREATE TABLE stadium (sid CHAR (9) NOT NULL DEFAULT "123456789", CONSTRAINT STDHPK PRIMARY KEY(sid), sname VARCHAR(20) NOT NULL, CONSTRAINT STDMSK UNIQUE(sname), city VARCHAR(25), capacity INT(20))
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.4435 seconds.)

```
CREATE TABLE cards (color CHAR (20), mins TIME NOT NULL, pno INT (20), CONSTRAINT CRDIFK FOREIGN KEY(pno) REFERENCES players(pno) ON DELETE SET NULL ON UPDATE CASCADE , gid CHAR (9) , CONSTRAINT CRDGFK FOREIGN KEY(gid) REFERENCES game(gid))
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

✔ MySQL returned an empty result set (i.e. zero rows). (Query took 0.6468 seconds.)

```
CREATE TABLE goals (goaltype CHAR (20), mins TIME NOT NULL, pno INT (20), CONSTRAINT GLNFK FOREIGN KEY(pno) REFERENCES players(pno), gid CHAR (9) , CONSTRAINT GLGFK FOREIGN KEY(gid) REFERENCES game(gid) ON DELETE SET NULL ON UPDATE CASCADE)
```

[\[Edit inline\]](#) [\[Edit\]](#) [\[Create PHP code\]](#)

Console

localhost/phpmyadmin/server_sql.php

phpMyAdmin

Recent Favorites

New

information_schema

mysql

performance_schema

phpmyadmin

project1

project1_2

project1_axk

project1_b

project1_phase

project1_phase1

project1_phase2

project1_shuvi

project1_sxs

project1_sxs3653

project1phase2

test

Server: 127.0.0.1

DatabasesSQLStatusUser accountsExportImportSettingsReplicationVariablesCharsetsEnginesPlugins

MySQL returned an empty result set (i.e. zero rows). (Query took 0.4435 seconds.)

CREATE TABLE cards (color CHAR (20) , mins TIME NOT NULL, pno INT (20) , CONSTRAINT CROHFK FOREIGN KEY(pno) REFERENCES players(pno) ON DELETE SET NULL ON UPDATE CASCADE , gid CHAR (9) , CONSTRAINT CROGFK FOREIGN KEY(gid) REFERENCES game(gid))

MySQL returned an empty result set (i.e. zero rows). (Query took 0.6468 seconds.)

CREATE TABLE goals (goaltype CHAR (20) , mins TIME NOT NULL, pno INT (20) , CONSTRAINT GLNFK FOREIGN KEY(pno) REFERENCES players(pno), gid CHAR (9) , CONSTRAINT GLGFK FOREIGN KEY(gid) REFERENCES game(gid) ON DELETE SET NULL ON UPDATE CASCADE)

MySQL returned an empty result set (i.e. zero rows). (Query took 0.6001 seconds.)

CREATE TABLE startinglineup (pno INT (10) , CONSTRAINT SLNFK FOREIGN KEY(pno) REFERENCES players(pno) ON DELETE SET NULL ON UPDATE CASCADE, gid CHAR (9) , CONSTRAINT SLNGFK FOREIGN KEY(gid) REFERENCES game(gid) ON DELETE SET NULL ON UPDATE CASCADE)

Your SQL query has been executed successfully.

SHOW TABLES

+ Options

Tables in project_2

cards

country

game

goals

players

stadium

startinglineup

Query results operations

PrintCopy to clipboardCreate view

Bookmark this SQL query

Label:

Let every user access this bookmark

Bookmark this SQL

Console

Windows Taskbar

SQL code attached:

```
CREATE DATABASE project1_sxs2;
```

```
USE project1_sxs2;
```

```
CREATE TABLE country
(
    confederation VARCHAR (20) NOT NULL,
    cname          VARCHAR (20) NOT NULL,
    CONSTRAINT ctysk
    UNIQUE(cname),
    continent      VARCHAR (15),
    population     INT (20),
    cid CHAR (9) NOT NULL DEFAULT "123456789",
    CONSTRAINT ctypk
    PRIMARY KEY(cid)
);
```

```
CREATE TABLE players
(
    pname  VARCHAR (20) NOT NULL,
    pname  VARCHAR (20),
    club   VARCHAR (15),
    pno    INT (20) NOT NULL DEFAULT 1,
    CONSTRAINT plyrpk
    PRIMARY KEY(pno),
    birthdate DATE,
    height  DECIMAL (5, 2),
    weight  DECIMAL (5, 2),
    cid     CHAR (9),
    CONSTRAINT plyrfk
    FOREIGN KEY(cid) REFERENCES country(cid)
    ON DELETE SET NULL ON UPDATE CASCADE
);
```

```
CREATE TABLE game
(
    gid CHAR (9) NOT NULL DEFAULT "123456789",
    CONSTRAINT mtchpk
    PRIMARY KEY(gid),
    gtype VARCHAR(20),
    gdate DATE,
```

```
score1 INT (3) NOT NULL,  
score2 INT(3) NOT NULL ,  
cid CHAR (9),  
CONSTRAINT gmcfk  
FOREIGN KEY(cid) REFERENCES country(cid)  
ON DELETE SET NULL ON UPDATE CASCADE ,  
sid CHAR (9),  
CONSTRAINT gmsfk  
FOREIGN KEY(sid) REFERENCES stadium(sid)  
ON DELETE SET NULL ON UPDATE CASCADE );
```

```
CREATE TABLE stadium  
(  
    sid CHAR (9) NOT NULL DEFAULT "123456789",  
    CONSTRAINT stdmpk PRIMARY KEY(sid),  
    sname VARCHAR(20) NOT NULL,  
    CONSTRAINT stdmsk UNIQUE(sname),  
    city VARCHAR(25),  
    capacity INT(20)  
);
```

```
CREATE TABLE cards  
(  
    color CHAR (20),  
    mins TIME NOT NULL,  
    pno INT (20),  
    CONSTRAINT crdnfk FOREIGN KEY(pno) REFERENCES players(pno)  
    ON DELETE SET NULL ON UPDATE CASCADE,  
    gid CHAR (9),  
    CONSTRAINT crdgfk FOREIGN KEY(gid) REFERENCES game(gid)  
);
```

```
CREATE TABLE goals  
(  
    goaltpe CHAR (20),  
    mins TIME NOT NULL,  
    pno INT (20),  
    CONSTRAINT glnfk FOREIGN KEY(pno) REFERENCES players(pno),  
    gid CHAR (9),  
    CONSTRAINT glgfk FOREIGN KEY(gid) REFERENCES game(gid)  
    ON DELETE SET NULL ON UPDATE CASCADE  
);
```

CREATE TABLE startinglineup

```
(  
    pno INT (10),  
    CONSTRAINT slnprfk FOREIGN KEY(pno) REFERENCES players(pno)  
    ON DELETE SET NULL ON UPDATE CASCADE,  
    gid CHAR (9),  
    CONSTRAINT slngfk FOREIGN KEY(gid) REFERENCES game(gid)  
    ON DELETE SET NULL ON UPDATE CASCADE  
);
```

SHOW tables;

All the figures obtained from create statement in Xampp is listed below along with create statements' screenshot.

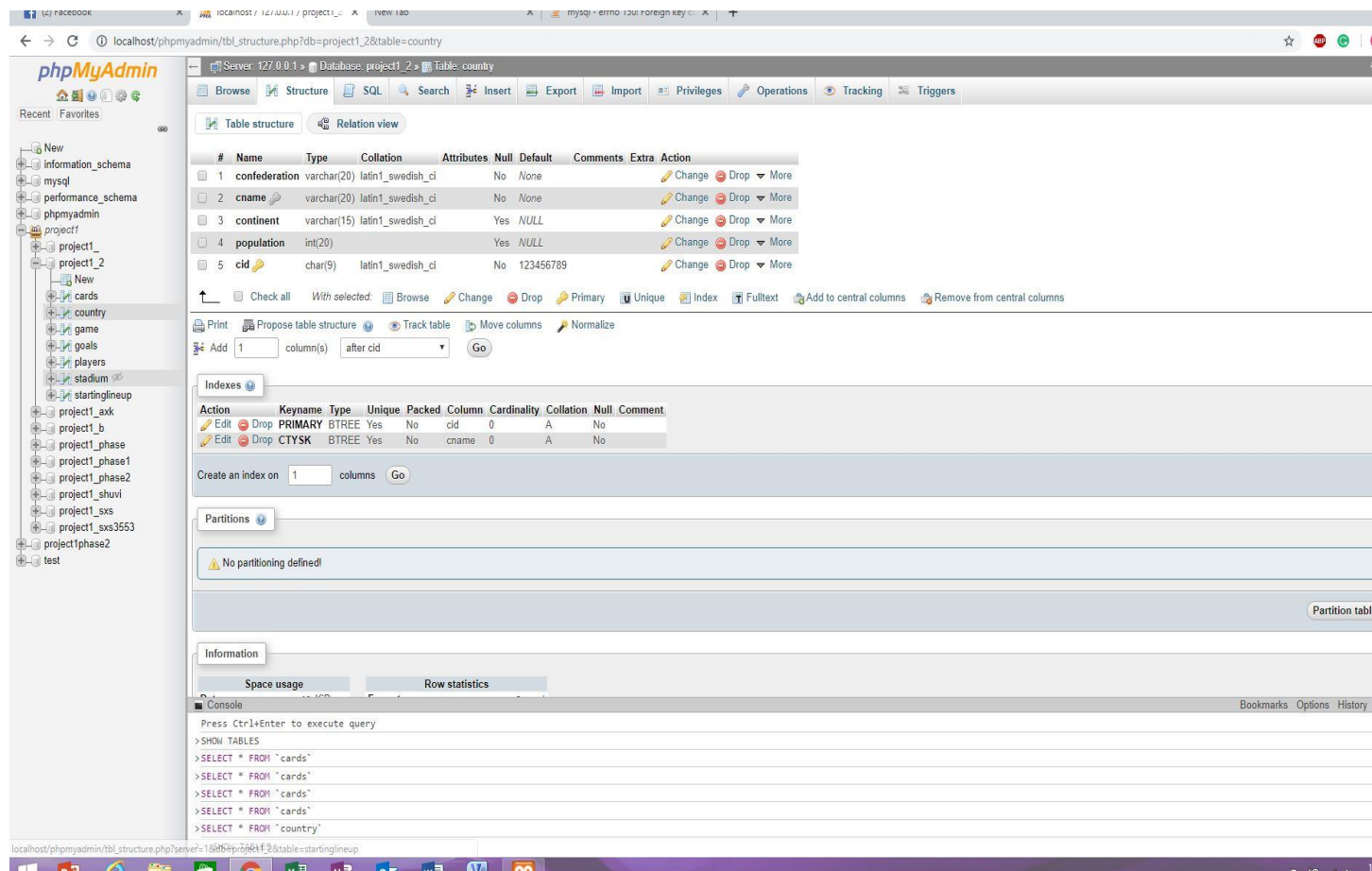


Fig 3: table for country

Continued...

The screenshot displays the phpMyAdmin interface for a MySQL database. The left sidebar shows a tree view of databases and tables, with 'project1_2' selected. The main panel shows the 'Table structure' for the 'game' table. The table has the following columns:

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	gid	char(9)	latin1_swedish_ci		No	123456789			Change Drop More
2	gtype	varchar(20)	latin1_swedish_ci		Yes	NULL			Change Drop More
3	gdate	date			Yes	NULL			Change Drop More
4	score1	int(3)			No	None			Change Drop More
5	score2	int(3)			No	None			Change Drop More
6	cid	char(9)	latin1_swedish_ci		Yes	NULL			Change Drop More

Below the column list, there are sections for 'Indexes', 'Partitions', and 'Information'. The 'Indexes' section shows a primary key index on the 'gid' column. The 'Partitions' section indicates that no partitioning is defined. The 'Information' section has tabs for 'Space usage' and 'Row statistics'. At the bottom, a console window shows the following SQL queries:

```
Press Ctrl+Enter to execute query
>SHOW TABLES
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `country`
```

Fig 4: table for game

Continued...

localhost/phpmyadmin/tbl_structure.php?db=project1_2&table=goals

phpMyAdmin

Recent Favorites

- New
- information_schema
- mysql
- performance_schema
- phpmyadmin
- project1
- project1_2
 - New
 - cards
 - country
 - game
 - goals
 - players
 - stadium
 - startinglineup
- project1_axk
- project1_b
- project1_phase
- project1_phase1
- project1_phase2
- project1_shuvi
- project1_sxs
- project1_sxs3553
- project1phase2
- test

Server: 127.0.0.1 Database: project1_2 Table: goals

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	goaltype	char(20)	latin1_swedish_ci		Yes	NULL			Change Drop More
2	mins	time			No	None			Change Drop More
3	pno	int(20)			Yes	NULL			Change Drop More
4	gid	char(9)	latin1_swedish_ci		Yes	NULL			Change Drop More

Check all With selected: Browse Change Drop Primary Unique Index Fulltext Add to central columns Remove from central columns

Print Propose table structure Track table Move columns Normalize

Add 1 column(s) after gid Go

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	GLNFK	BTREE	No	No	pno	0	A	Yes	
Edit Drop	GLGFK	BTREE	No	No	gid	0	A	Yes	

Create an index on 1 columns Go

Partitions

No partitioning defined

Partition table

Information

Space usage		Row statistics	
Data	16 KiB	Format	Compact
Index	32 KiB	Collation	latin1_swedish_ci

Console

Press Ctrl+Enter to execute query

```
>SHOW TABLES
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `country`
>SELECT * FROM `game`
```

Fig5:table for goals

Continued...

localhost/phpmyadmin/tbl_structure.php?db=project1_2&table=cards

phpMyAdmin

Recent Favorites

Server: 127.0.0.1 » Database: project1_2 » Table: cards

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	color	char(20)	latin1_swedish_ci		Yes	NULL			Change Drop More
2	mins	time			No	None			Change Drop More
3	pno	int(20)			Yes	NULL			Change Drop More
4	gid	char(9)	latin1_swedish_ci		Yes	NULL			Change Drop More

Check all With selected: Browse Change Drop Primary Unique Index Fulltext Add to central columns Remove from central columns

Print Propose table structure Track table Move columns Normalize

Add 1 column(s) after gid Go

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	CRDNFK	BTREE	No	No	pno	0	A	Yes	
Edit Drop	CRDGFK	BTREE	No	No	gid	0	A	Yes	

Create an index on 1 columns Go

Partitions

No partitioning defined!

Information

Space usage		Row statistics	
Data	16 KIB	Format	Compact
Index	32 KIB	Collation	latin1_swedish_ci

Console

Press Ctrl+Enter to execute query

```
> SHOW TABLES
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SHOW TABLES
```

Fig 6: table for cards

Continued...

localhost/phpmyadmin/tbl_structure.php?db=project1_2&table=players

Server: 127.0.0.1 Database: project1_2 Table: players

Table structure

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	pname	varchar(20)	latin1_swedish_ci		No	None			Change Drop More
2	pjname	varchar(20)	latin1_swedish_ci		Yes	NULL			Change Drop More
3	club	varchar(15)	latin1_swedish_ci		Yes	NULL			Change Drop More
4	pno	int(20)			No	1			Change Drop More
5	birthdate	date			Yes	NULL			Change Drop More
6	height	decimal(5,2)			Yes	NULL			Change Drop More
7	weight	decimal(5,2)			Yes	NULL			Change Drop More
8	cid	char(9)	latin1_swedish_ci		Yes	NULL			Change Drop More

Check all With selected Browse Change Drop Primary Unique Index Fulltext Add to central columns Remove from central columns

Print Propose table structure Track table Move columns Normalize

Add 1 column(s) after cid Go

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	pno	0	A	No	
Edit Drop	PLYRFK	BTREE	No	No	cid	0	A	Yes	

Create an index on 1 columns Go

Partitions

No partitioning defined!

Console

```

Press Ctrl+Enter to execute query
>SHOW TABLES
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `cards`
>SELECT * FROM `country`
>SELECT * FROM `game`
  
```

Fig 7:table for players

Continued...

localhost/phpmyadmin/tbl_structure.php?db=project1_2&table=stadium

Server: 127.0.0.1 » Database: project1_2 » Table: stadium

Table structure

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	sid	char(9)	latin1_swedish_ci		No	123456789			Change Drop More
2	sname	varchar(20)	latin1_swedish_ci		No	None			Change Drop More
3	city	varchar(25)	latin1_swedish_ci		Yes	NULL			Change Drop More
4	capacity	int(20)			Yes	NULL			Change Drop More

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	PRIMARY	BTREE	Yes	No	sid	0	A	No	
Edit Drop	STDMK	BTREE	Yes	No	sname	0	A	No	

Partitions

No partitioning defined!

Information

Space usage		Row statistics	
Data	16 KIB	Format	compact
Index	16 KIB	Collation	latin1_swedish_ci

Console

```
Press Ctrl+Enter to execute query
> SHOW TABLES
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SELECT * FROM `cards`
> SELECT * FROM `country`
> SELECT * FROM `game`
```

Fig 8: table for stadium

Continued...

localhost/phpmyadmin/tbl_structure.php?db=project1_2&table=startinglineup

Server: 127.0.0.1 Database: project1_2 Table: startinglineup

Table structure Relation view

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	pno	int(10)			Yes	NULL			Change Drop More
2	gid	char(9)	latin1_swedish_ci		Yes	NULL			Change Drop More

Check all With selected: Browse Change Drop Primary Unique Index Fulltext Add to central columns Remove from central columns

Print Propose table structure Track table Move columns Normalize

Add 1 column(s) after gid Go

Indexes

Action	Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
Edit Drop	SLNPFK	BTREE	No	No	pno	0	A	Yes	
Edit Drop	SLNGFK	BTREE	No	No	gid	0	A	Yes	

Create an index on 1 columns Go

Partitions

No partitioning defined!

Information

Space usage		Row statistics	
Data	16 KIB	Format	Compact
Index	32 KIB	Collation	latin1_swedish_ci
Overhead		Next autoindex	0
Effective	48 KIB	Creation	Mar 04, 2019 at 11:29 PM
Total	48 KIB	Last update	Mar 05, 2019 at 06:38 AM

Console

Press Ctrl+Enter to execute query

```
>SHOW TABLES
>SELECT * FROM "cards"
>SELECT * FROM "cards"
>SELECT * FROM "cards"
>SELECT * FROM "cards"
>SELECT * FROM "country"
>SELECT * FROM "game"
```

Fig 9: table for starting lineup

THE END