Submitted by:

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PROJECT 1

PHASE 2

DATABASE AND FILE STRUCTURES
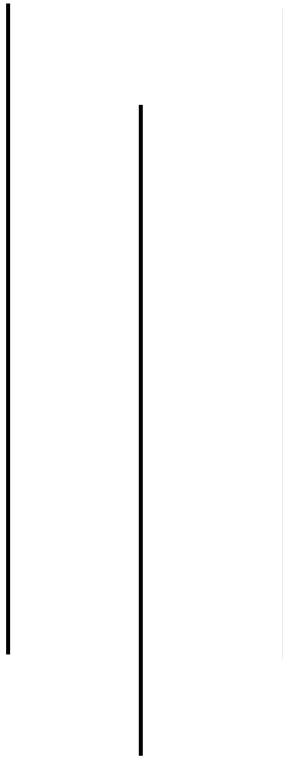
Design Description

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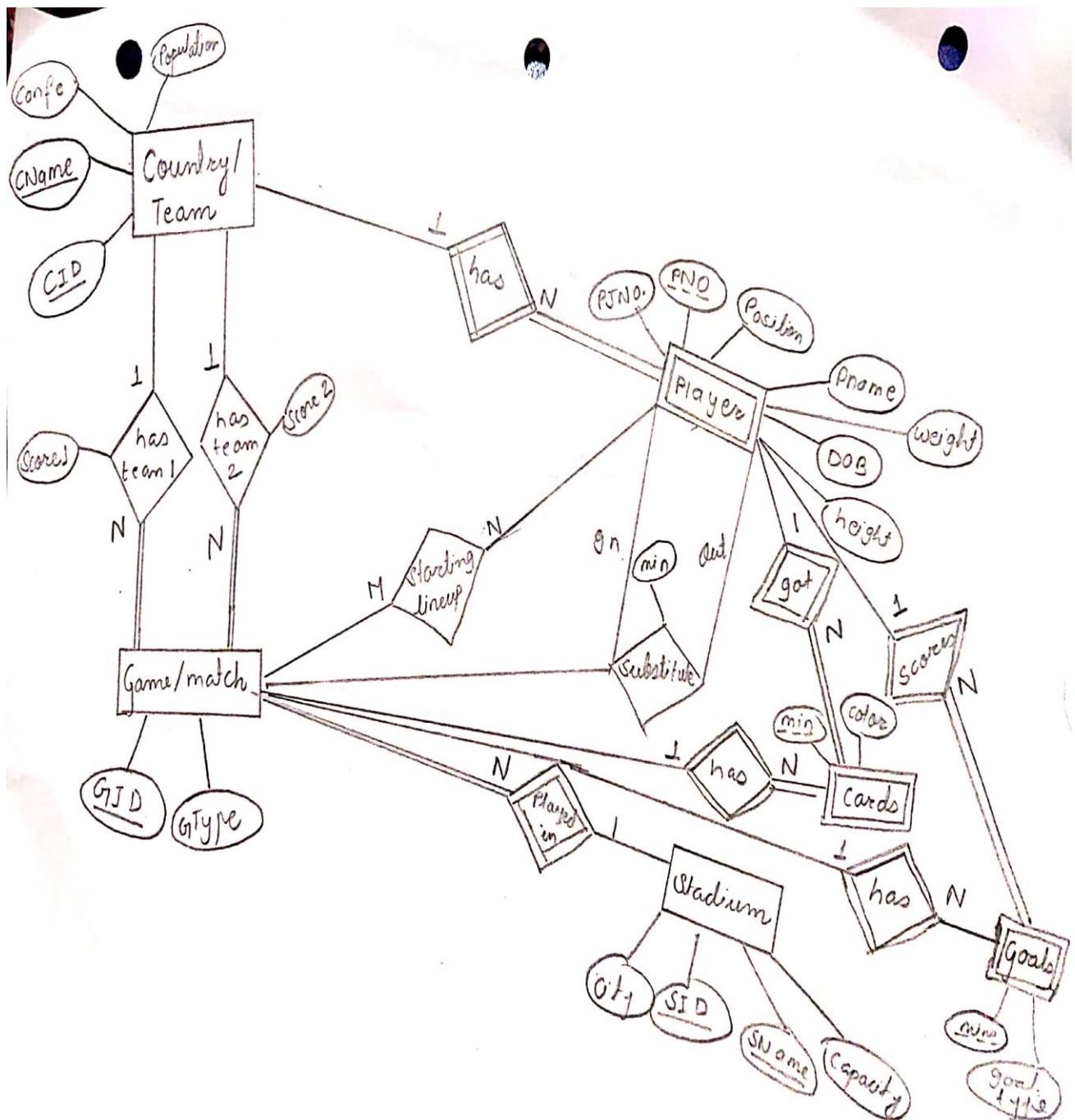
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Fig: EER diagram representing conceptual schema for soccer world cup database

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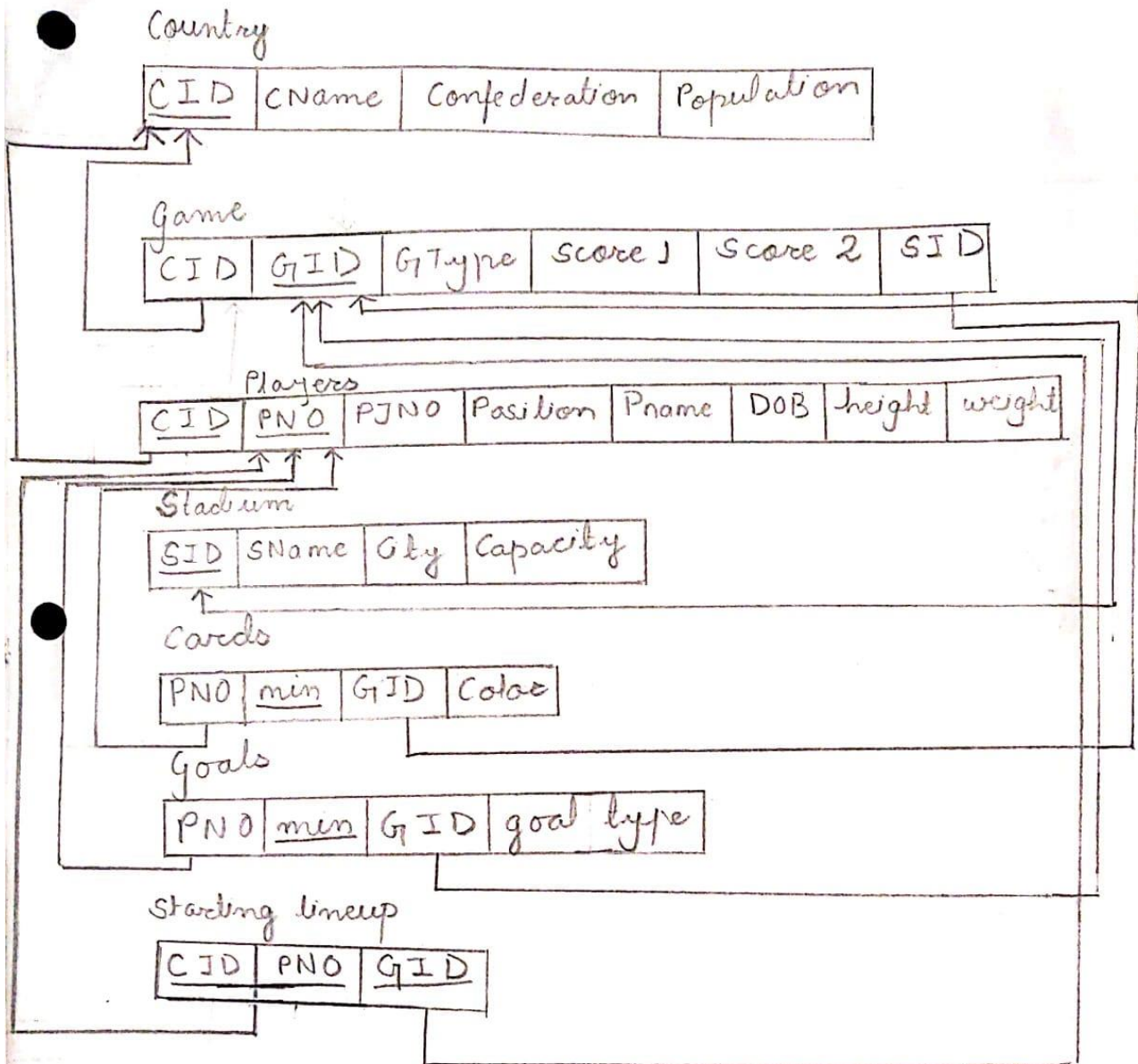
Players(1)- Got Card---Match(N)

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

Country

CID	CName	Confederation	Population

Game

CID	GID	GType	score 1	Score 2	SID

Players

CID	PNO	PJNO	Position	Pname	DOB	height	weight

Stadium

SID	SName	City	Capacity

Cards

PNO	min	GID	Color

Goals

PNO	min	GID	goal type

Starting lineup

CID	PNO	GID

Relational Schema

Fig 2: Figure representing relational database schema

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

Show query box

✅ 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, pjname 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 MTCHPK 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 STDMPK 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 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))

[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

← → C ⓘ localhost/phpmyadmin/server_sql.php ☆

phpMyAdmin

Recent Favorites

─ New
information_schema
mysql
performance_schema
phpmyadmin
project1
  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

Databases | SQL | Status | User accounts | Export | Import | Settings | Replication | Variables | Charsets | Engines | Plugins

[Edit inline] [Edit] [Create

✔ 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 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))

[Edit inline] [Edit] [Create

✔ 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

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

CREATE TABLE startinglineup (pno INT (10) , CONSTRAINT SLNPFK 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)

[Edit inline] [Edit] [Create

Your SQL query has been executed successfully.

SHOW TABLES

☐ Profiling [Edit inline] [Edit] [Create PHP code

+ Options
Tables_in_project1_2
cards
country
game
goals
players
stadium
startinglineup

Query results operations

🖨 Print ᶴᴱ Copy to clipboard 📄 Create view

📑 Bookmark this SQL query

Label: [   ]   ☐ Let every user access this bookmark

Bookmark this SQL

■ Console

SQL code attached:

```sql
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,
   pjname    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,
```

```sql
    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
 (
    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
 );
```

CREATE TABLE startinglineup
 (
   pno INT (10),
   CONSTRAINT slnpfk 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.
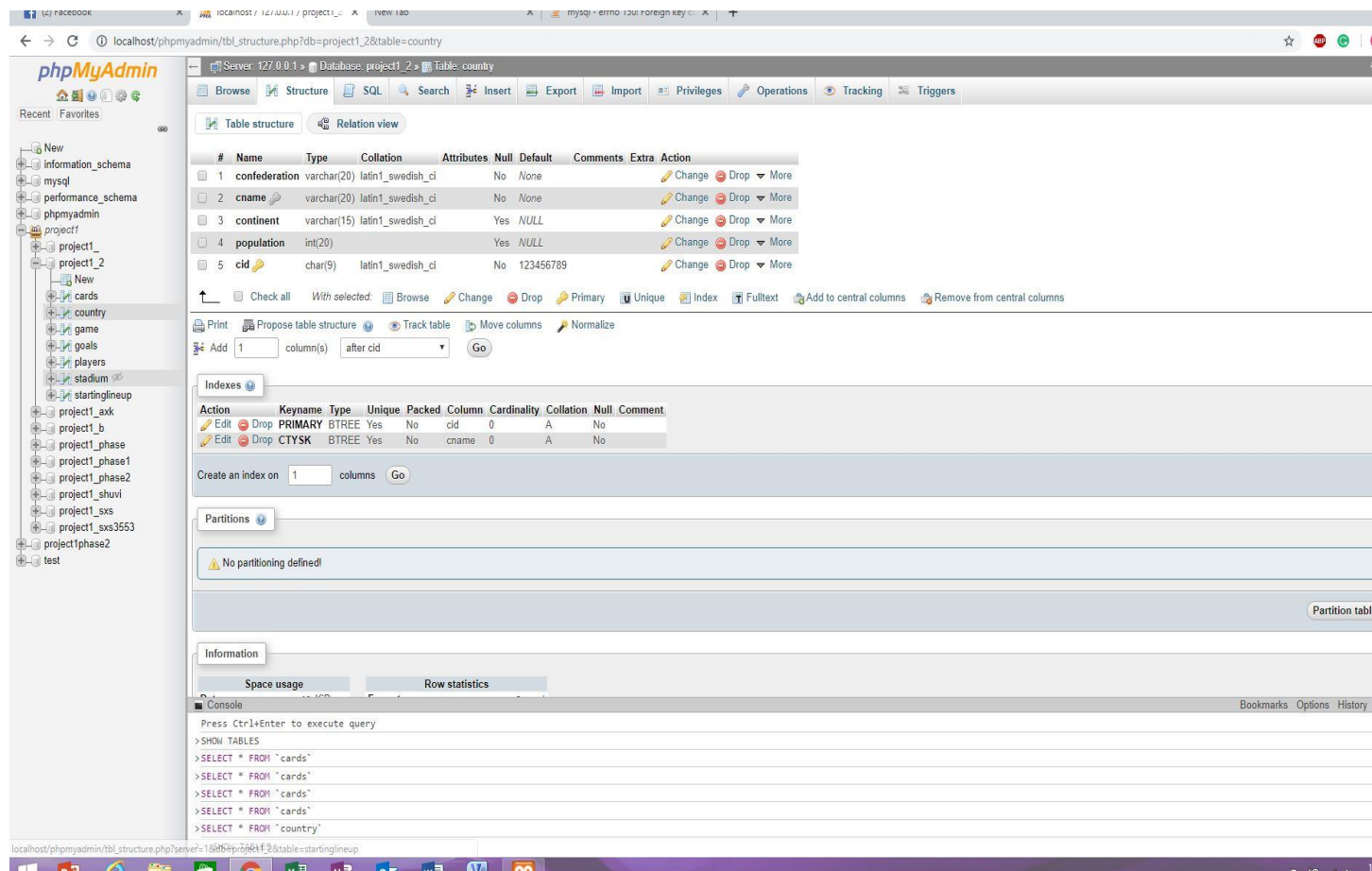
Fig 3: table for country

Continued…

Fig 4: table for game

Continued…

Fig5:table for goals

Continued…

Fig 6: table for cards

Continued…

Fig 7:table for players

Continued…

Fig 8: table for stadium

Continued…

Fig 9: table for starting lineup

THE END