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Project Title:	Basketball Manager
Project Number:	38

Project Final Version

URL: http://flip2.engr.oregonstate.edu:4212/

Feedback by peer reviewers:

We had a lot of feedback over the course of this project and changed some aspects significantly because of it. Some of the major items were:

- We changed the number of variables in some of our tables. Initially we had a couple (i.e. Players) that had >8 variables. This caused some issues in implementing the database and we eventually concluded that the benefit from having so many variables didn't outweigh the problems they were causing and reduced the number of variables down to only the essential ones.

- We initially had our site hosted on heroku as we wanted to try and learn some new techniques for implementing. While we got the site up and running, there were some difficulties in how fast it would update when we pushed changes as well as getting it connected to the database on the OSU server. Based on feedback from our peers, we switched the hosting to flip2.

- Changed the relationship between certain keys and foreign keys to more effectively implement our database. The original schema would have worked, but with feedback from peers we were able to make it more simple.

- Changed selector for many variables in multiple tables from the user entering numbers to drop downs. This helps prevent the user from entering incorrect information and helps ensure that the database queries provide the correct results.

- Removed auto-increment IDs in INSERT queries because the should be generated by the database and not passed by the website.

- Many comments were helpful in updating the database creation and query forms. Everything from missing queries to misplaced or missing punctuation marks which were causing errors in the database.

Feedback/changes made by the team:

- Initially we had thought of doing 13 players per team but over the course of the project we felt like this was redundant to showcase our database knowledge and we were just adding way too many players (leading to unnecessary code) when we didn't really need to. So we chose to just add one top player (from Players table) into the Teams table.
- Some other changes included changing the attributes for the tables, for example, changing a player's id from "id" to "player_id" because over time we ended up having multiple id references and this helped us differentiate the different id values.
- We chose to remove the active attribute because a player is already active if they are in a team
- Removed constraints for having a certain amount of salary for each team to give teams more opportunity to add various players

Database Outline:

Teams

This is any of the given NBA teams, each with 13 player slots that have to be filled to be considered to play for that year. Teams do not have mandatory player positions, a team could be made of all “C” positions.

- team_id: int, auto_inc, not NULL, PK, unique
- team_name: varchar, not NULL
- total_fines: int, not NULL
- salary_available: int, not NULL
- best_player: varchar, not NULL
- Relationship: a 1:M relationship between Players and Teams with Teams (team_id) as a FK within Players and a 1:1 relationship between Teams and Head_Coaches with team (team_id) as FK within Head_Coaches). A 1:1 relationship with Stadiums with team (team_id) as FK in Stadiums

Players

This is the entire player pool of the NBA. Players on teams are active and players not currently on a team are not active. Must have team field if active.

- player_id: int, auto_inc, not NULL, PK, unique
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- speciality: varchar, not NULL
- team: int, FK, not NULL if Active
- salary: int, not NULL
- height: int, not NULL (cm)
- weight: int, not NULL (lbs)
- birthday: date
- primary_position: varchar, could be “PG”, “SG”, “SF”, “PF”, “C”, not NULL
- secondary_position: varchar, could be “PG”, “SG”, “SF”, “PF”, “C”
- fg: decimal, not NULL, float, field goal percentage
- ft: decimal, not NULL, free throw percentage
- ppg: float, points per game
- rpg: decimal, not NULL, rebounds per game
- apg: decimal, not NULL, assists per game
- spg: decimal, not NULL, steals per game
- bpg: decimal, not NULL, blocks per game
- tpg: decimal, not NULL, turnovers per game relationship: a 1:M relationship between Players and Teams with Teams (team_id) as a FK inside of Players and a M:M relationship between Players and Trainers shown with the player_trainer entity

Head_Coaches

Each of the NBA teams have one Head_Coaches. Each head_coach has a first_name and a last_name, along with the team they are part of currently.

- coach_id: int, auto_inc, not NULL, PK, unique
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- team: varchar, not NULL
- relationship: a 1:1 relationship between Head_Coaches and Teams with team (team_id) as FK within Head_Coaches

Trainers

A trainer can be approached by any of the NBA players when they want to work on any of their skill sets or want to develop new skills. Each trainer has a first_name and last_name, along with their speciality of skill(s) they can teach any of the NBA players.

- trainer_id: int, auto_inc, not NULL, PK, unique
- first_name: varchar, not NULL
- last_name: varchar, not NULL
- specialty: varchar, not NULL
- relationship: a M:M relationship between Players and Trainers shown with the Players_Trainers entity.

Stadiums

The homecourt for each Team where the players (Player) come to play. Each stadium has a name and their respective team.

- stadium_id: int, auto_inc, not NULL, PK, unique
- stadium_name: varchar, not NULL
- city: varchar, not NULL
- team: varchar, not NULL
- state: varchar, not NULL
- relationship: a 1:1 relationship between Stadiums and Teams with team (team_id) as FK inside of Stadiums

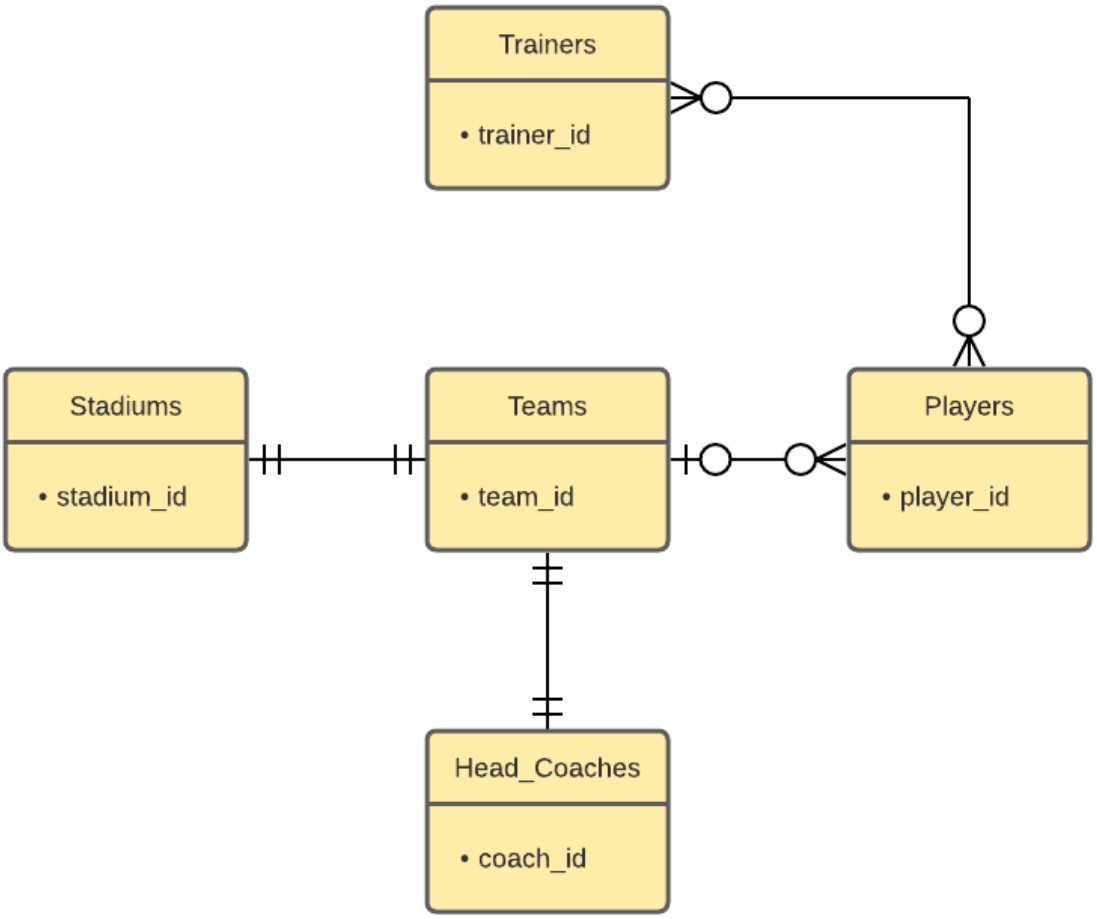
Intersection Table:

Players_Trainers

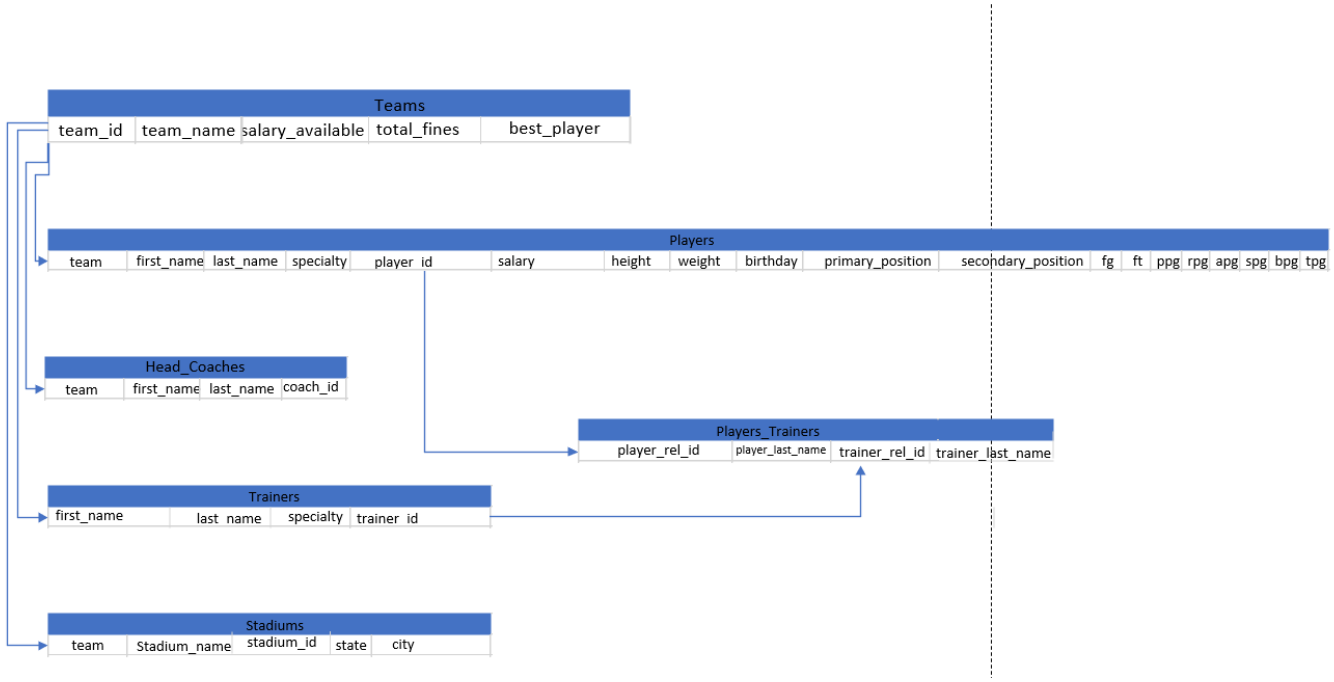
Relationship between Players and Trainers.

- player_rel_id: int, not NULL, PK, FK
- player_last_name: varchar, not NULL, PK, FK
- trainer_rel_id: int, not NULL, PK, FK
- player_last_name: varchar, not NULL, PK, FK
- relationship: a M:M relationship for Players and Player_Trainers with player_id and trainer_id as keys

Basketball Manager Entity-Relationship (ER) Diagram:



Basketball Manager Schema:



Home Page - Links to Other Web Pages

NBA Database Manager

Welcome to the NBA Database Manager's Homepage. This website allows you to update NBA teams, players, head coaches, trainers and stadiums.

Home View Teams View Players View Head Coaches View Trainers View Stadiums View Players-Trainers

Teams Page = Update or Delete Team

Menu

Teams

This page will allow you to sort, view, update or delete the teams.

Team ID	Name	Fines($USD)	Salary Available($USD)	Best Player		
5	Lakers	1000000	0	James	Update Team	Delete Team
6	Nets	0	20000	Harden	Update Team	Delete Team
7	Heat	100	1000000	Butler	Update Team	Delete Team
8	Raptors	250	6678	Siakam	Update Team	Delete Team

Teams

Add a Team

Add new team page - Create a team

Menu

This page allows you to add a new team.

Add new team:

Team Name:

Fines($USD):

Salary Available($USD):

Best Player: James

Submit

Players Page - Display Player information and Delete Player

Menu

Players

This page will allow you to sort, view, update or delete the players.

Player ID	First Name	Last Name	Speciality	Team	Salary($USD)	Height(cm)	Weight(lbs)	Birthday	Primary Position	Secondary Position	FG%	FT%	PPG	RPG	APG	SPG	BPG	TPG	
5	Lebron	James	dunking	Lakers	39219566	206	250	1984-12-30	SF	PG	51.30	69.80	25.00	7.70	7.80	1.10	0.60	3.70	Delete Player
6	Stephen	Curry	shooting	Warriors	43006362	188	190	1988-03-14	PG	SG	48.20	91.60	32.00	5.50	5.80	1.20	0.10	3.40	Delete Player
7	James	Harden	passing	Nets	41254920	196	220	1989-08-26	PG	SG	46.60	86.10	24.60	7.90	10.80	1.20	0.80	4.00	Delete Player
8	Giannis	Antetokounmpo	dunking	Nets	41254920	196	220	1989-08-26	PG	SG	46.60	86.10	24.60	7.90	10.80	1.20	0.80	4.00	Delete Player

Players

Add a Player

Add A new player - Creates a Player

Menu

This page allows you to add a new player.

Add new player:

First Name:

Last Name:

Speciality:

Team: Lakers

Salary($USD):

Height(cm):

Weight(lbs):

Birthday: mm/dd/yyyy

Primary Position: PG

Secondary Position:

FG%:

FT%:

PPG:

RPG:

APG:

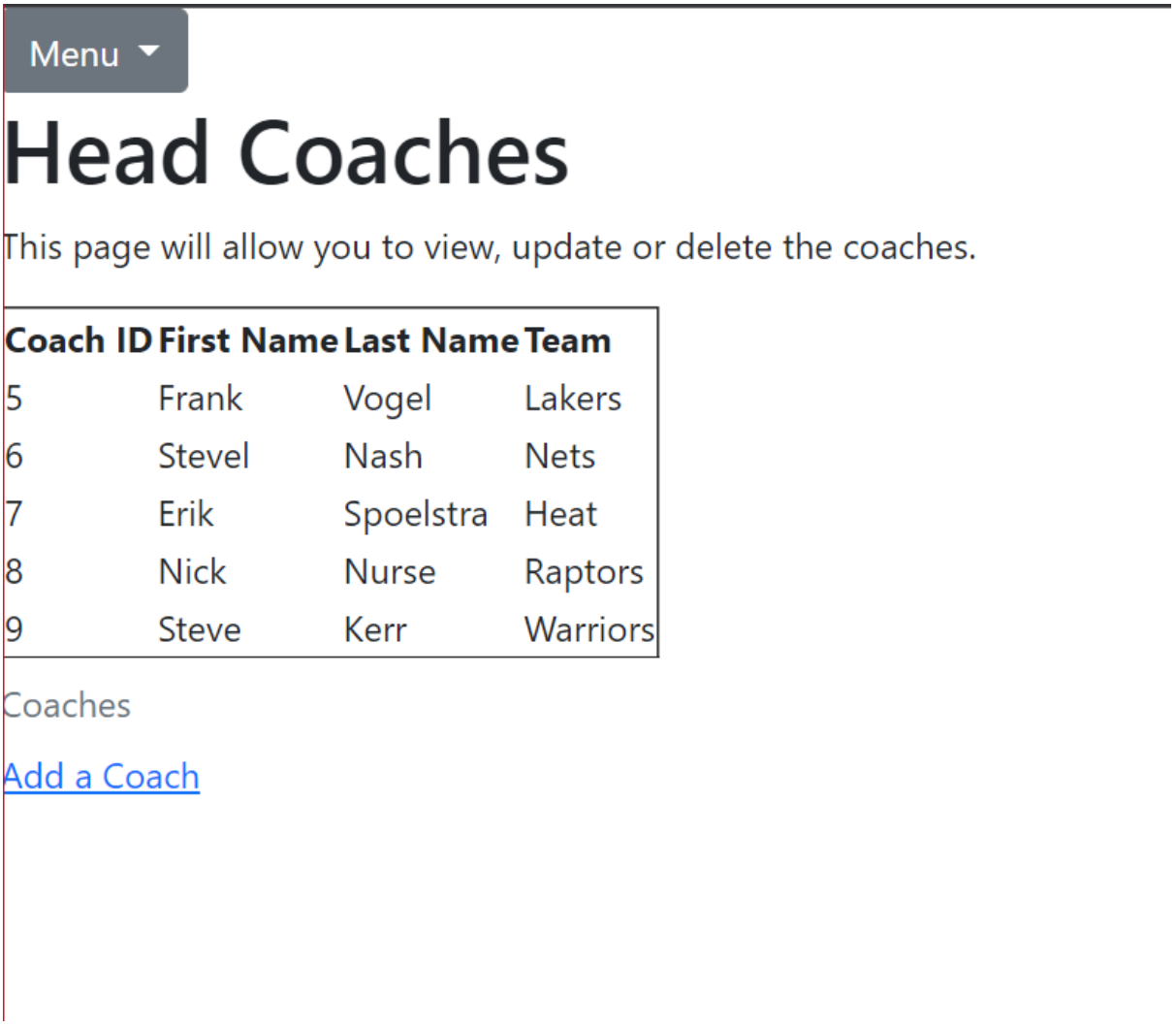
SPG:

BPG:

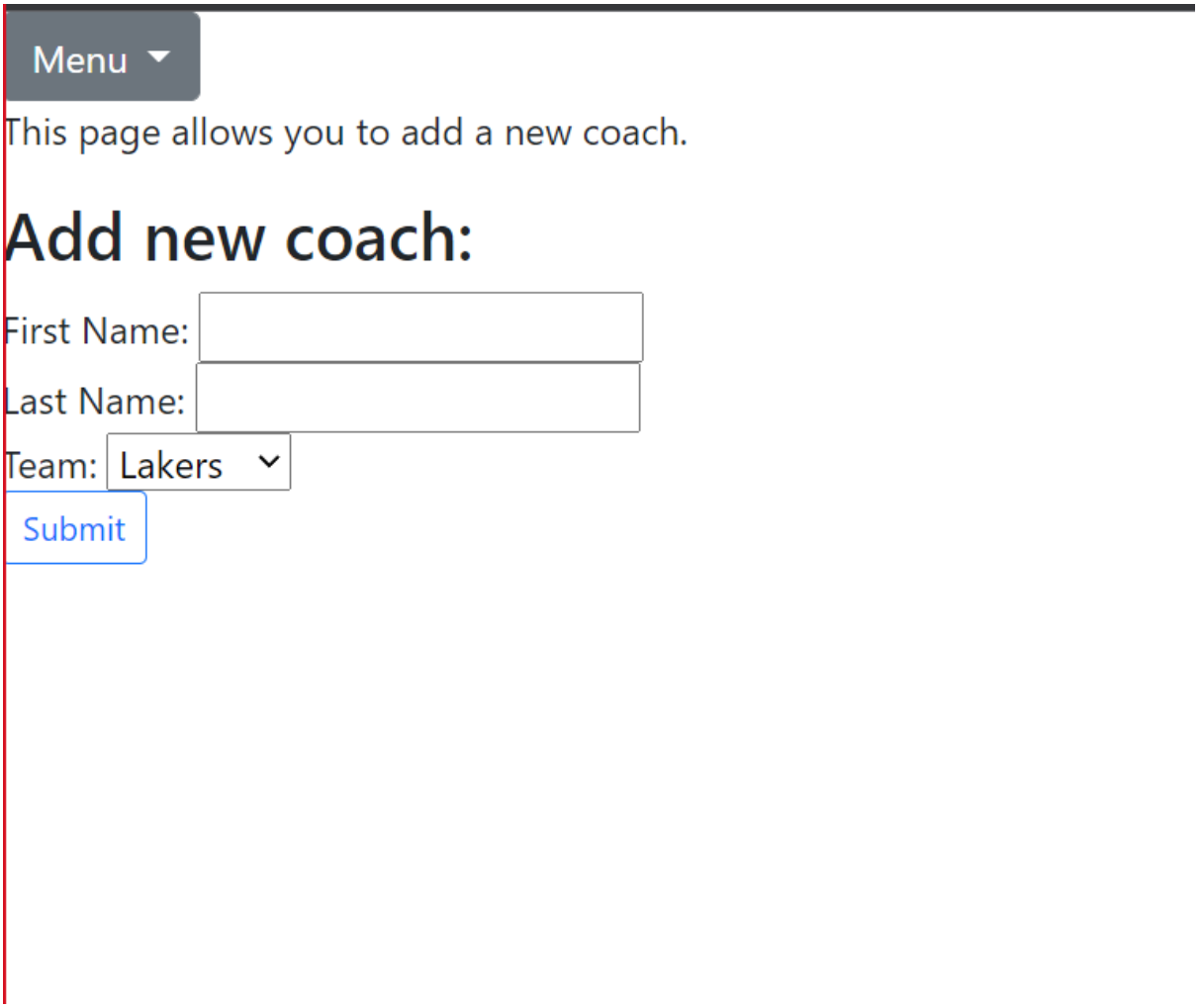
TPG:

Submit

Head Coaches - Displays coaches information



Add new coach - Create new coaches



Trainers - Display trainer information

Menu

Trainers

This page will allow you to view, update or delete the trainers.

Trainer ID	First Name	Last Name	Speciality
5	Magic	Johnson	passing
6	Michael	Jordan	shooting
7	Kareem	Abdul-Jabar	dunking
8	Reggie	Miller	shooting
9	Gary	Payton	defense

Trainers

Add a Trainer

Add new trainer - Create a new trainer

Menu

This page allows you to add a new trainer.

Add new trainer:

First Name:

Last Name:

Speciality: passing

Submit

Stadiums - Displays Stadium information. Search stadiums by state

Menu

Stadiums

This page will allow you to view, update or delete the stadiums.

Stadium ID	Name	City	Team	State
5	Scotiabank Arena	Toronto	Raptors	Ontario
6	STAPLES Center	Los Angeles	Lakers	California
7	FTX Arena	Miami	Heat	Florida
8	Barclays Center	Brooklyn	Nets	New York
9	Chase Center	Golden State	Warriors	California

Stadiums

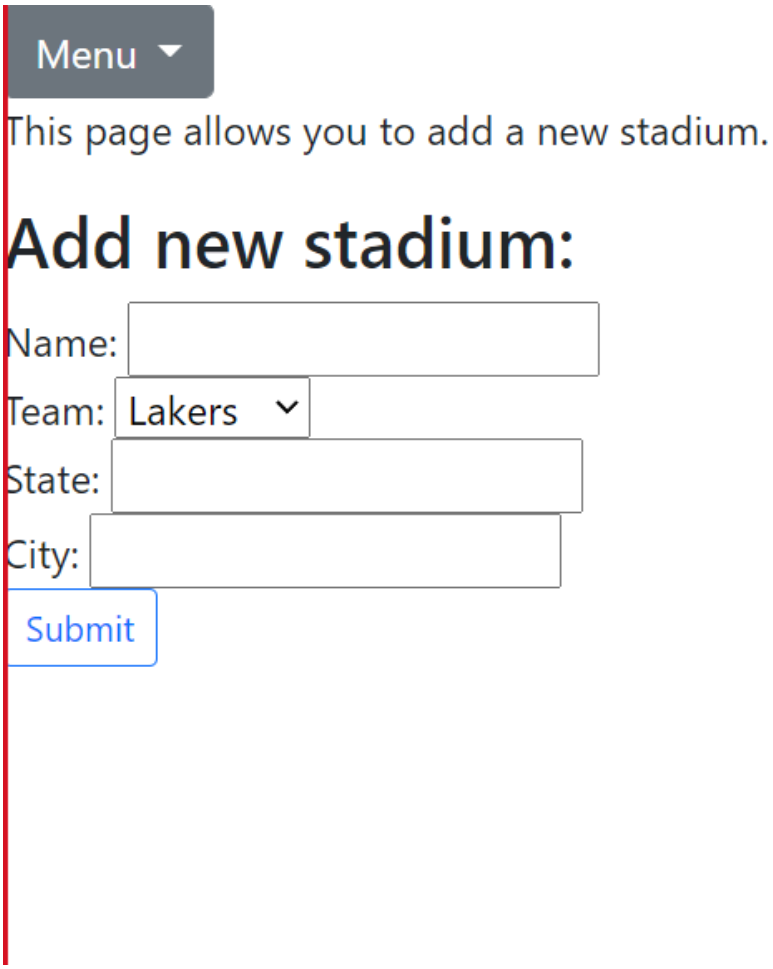
Add a Stadium

Show Stadiums by State

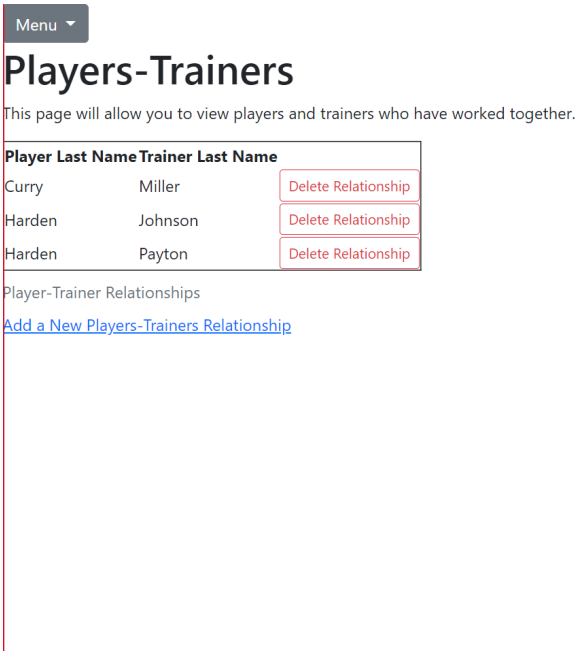
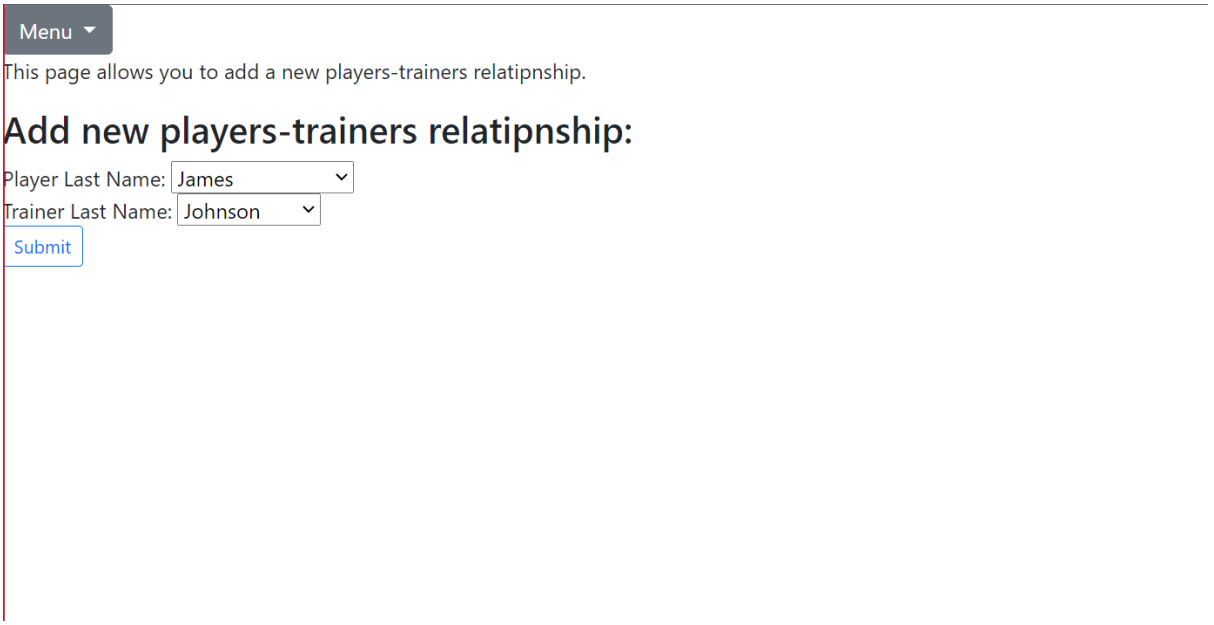
Enter State Name:

Show Stadiums

Add a new Stadium - Create stadium



Players-Trainers - Displays player/trainer relationship information. Delete relationship



Add new players-trainers relationship