Group 83: San Francisco 39ers
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Project: OSU Beavers Football Team Database Management

Executive Summary

Our Project was initially planned with the idea of creating a system for managing player, coach, and equipment data for the OSU football team, we have gone through multiple evolutions from the initial proposal. We initially planned to have 5 entities, Players, Coaches, Injuries, Equipment, and a now-deleted Games entity. The first round of peer reviews had us add the count attributes to Coaches, Injuries, and Equipment. We also fixed typos and added some details in the outline.

By the time we reached our second draft, we decided to remove the Games entity, finding it a bit redundant. We also split Equipments into 2 entities, an Equipments entity and an EquipmentDetails entity, which shared a 1:M relationship to record each piece of equipment and the specifics of those pieces. We again added more attributes and fixed more mistakes in the outline. The EquipmentDetails entity would later be removed since this caused a partial dependency between players and equipment, but we would keep the 1:M relationship.

For our third draft and peer reviews, the only major changes we made were to change the relationship between the Players and Equipments tables to an M:M relationship, this time adding some modifications to the intersection table to avoid a partial dependency that caused us to remove the table in the first place. Subsequent peer reviews would focus more on the refinement of the database and user interface, with the main structure of the project being mainly set in stone by now. Some improvements would include the intersection table to the outline, enhancements to the SQL files, or small QOL updates to the user interface. Reflecting on the peer review process,

it's clear that the feedback helped find blind spots and areas of improvement, especially when we were bouncing around several ideas about which entities to use .

A. Overview

Managing large groups of people can be a costly challenge for companies. The Oregon State University football team has 99 players on its current roster, **34** coaches, 6 types of equipment with over 1188 pieces to be divided among the players, and 13 injuries of varying severity. Therefore, we propose a database-driven web application that management can use to keep track of *Players, Coaches, Equipment, and Injuries*. This system allows management to easily access information on their players: who they're coached by, what games they played, what equipment they have been assigned, and the injuries that they have. With this database, it will help streamline, keep track of players and their equipment. It will be easier to manage the roster of coaches and players, track down missing pieces of gear that cost hundreds of dollars, and show what injuries they have.

B. Database Outline

a. **Players**: records the details of players within the team
   i. playerID: int, unique, not NULL, PK, auto_increment
   ii. playerName: varChar(50), not NULL,
   iii. jerseyNum: int,unique, not NULL
   iv. height: int, not NULL
   v. weight: int, not NULL
   vi. position: varChar(30), not NULL
   vii. **score**: int(100), not NULL
   viii. Relationships:
   M:M with Coaches with coachID and playerID as foreign keys inside of the intersection table PlayersHaveCoaches,
   1:M with PlayersHaveEquipments with playersID as an FK inside of PlayersHaveEquipments
   M:M with Injuries with injuryID and playerID as FK's inside intersection table PlayerHaveInjuries

b. **Coaches**: records the details of coaches within the team
   i. coachID: int, unique, not NULL, PK, auto_increment
   ii. coachName: varChar(50), not NULL

     iii.   title: varChar(50), not NULL

     iv.   yearsCoaching: int, not NULL

     v.   Relationships:

          M:M with Players with coachID and playerID as foreign keys inside of the intersection table PlayersHaveCoaches

c. **PlayersHaveCoaches**: Intersection table between Players and Coaches

     i.   playerID, FK

     ii.   coachID, FK

     iii.   Relationships:

          1:M with Players with playerID as a FK inside of PlayersHaveCoaches

          M:1 with Coaches with coachID as an FK inside of PlayersHaveCoaches

d. **Equipments**: records details of each piece of equipment associated with a player

     i.   equipmentID: int, unique, not NULL, PK, auto_increment

     ii.   type: varChar(30), not NULL

     iii.   numOfType: int, not NULL

     iv.   replacementCost: float, not NULL

     v.   condition: int, not NULL

     vi.   Relationships:

          1:M with PlayersHaveEquipments with equipmentID as an FK inside of PlayersHaveEquipments

e. **PlayersHaveEquipments**: Intersection table between Players and Equipments

     i.   playerID, FK

     ii.   equipmentID, FK

     iii.   Relationship:

     iv.   1:M with Players with playerID as an FK inside PlayersHaveEquipments and 1:M with Equipments with equipmentID as an FK inside PlayersHaveEquipments.

f. **Injuries**: Records Injuries sustained by each player

     i.   injuryID: int, PK, unique, auto_increment

     ii.   injuryName: varChar(100)

          1. avgRecoveryTime: float, not NULL

     iii.   Relationships:

   M:M with Players with injuryID and playerID as FK's inside intersection table PlayerHaveInjuries

g. **PlayersHaveInjuries**: Intersection table between Players and Injuries

i. playerID, FK
ii. injuryID, FK
iii. Relationship:
iv. 1:M with Players with playerID as an FK inside PlayersHaveInjuries and 1:M with Injuries with injuryID as an FK inside PlayersHaveInjuries.

C. ER Diagram
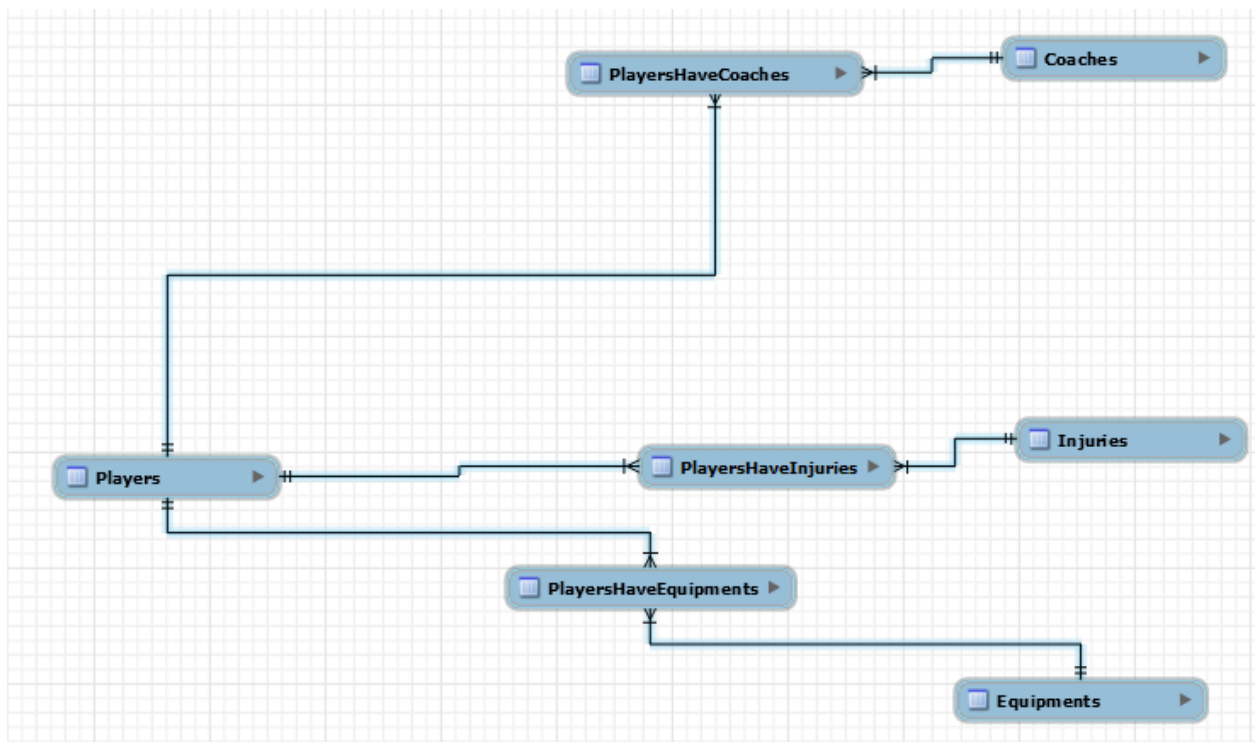
D. Schema
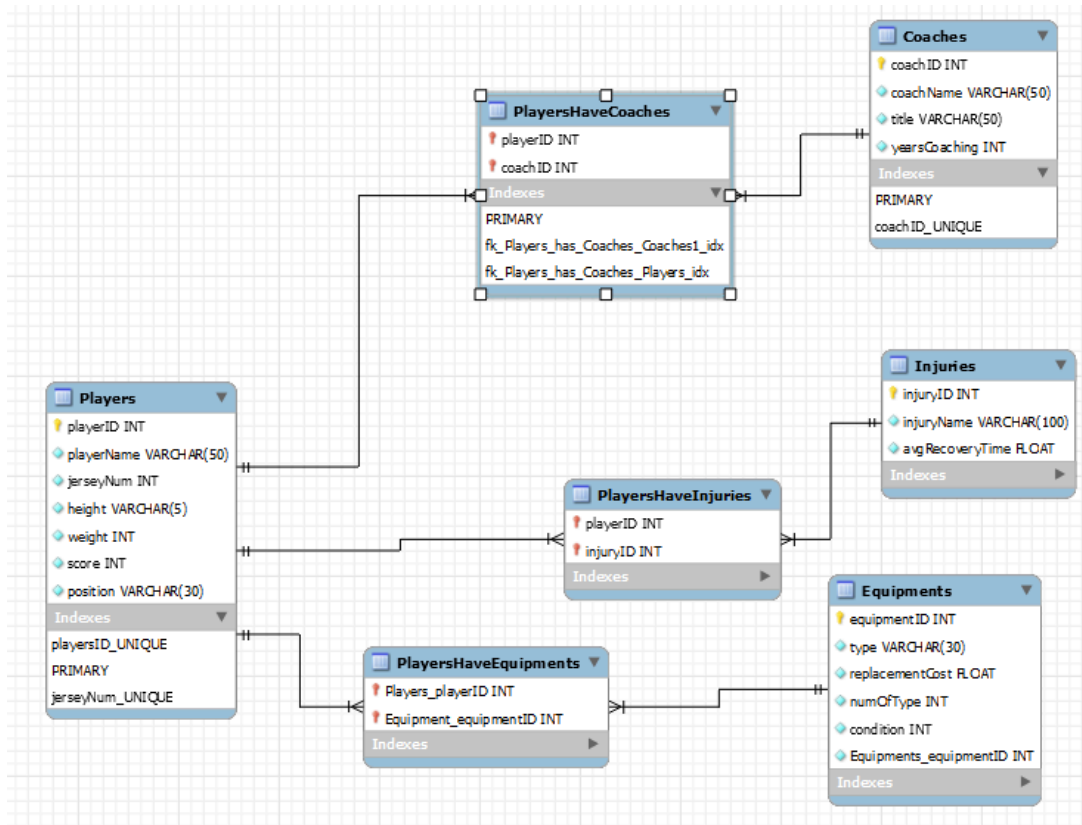
E. Example Data

Players

playerID	playerName	jerseyNum	height	weight	score	position
1	Lebron James	11	72	220	98	Linebacker
2	Godzilla	99	200	400	100	Quarterback
3	Stephen Curry	30	66	180	87	Wide Receiver
4	Tom Hardy	6	60	170	79	Wide Receiver

Coaches

coachID	coachName	title	yearsCoaching

1	Jamison Hardy	Head Coach	12
2	Bobby Dean	Defense Coordinator	8
3	Nurman Harwell	Tight-Ends Coach	6
4	Dan McNarson	Offensive Coordinator	10
5	Steven Wilson	Running Backs Coach	9

PlayersHaveCoaches

playerID	coachID
1	1
2	2
2	3
3	3
4	4

Injuries

injuryID	injuryName	avgRecoveryTime
1	Sprained Ankle	2
2	Turf Toe	1
3	Concussion	4
4	ACL tear	13
5	Dislocation	3

PlayersHaveInjuries

playerID	injuriesID
1	1
1	4
2	2
3	2
3	3

Equipments

equipmentID	type	numOfType	replacementCost	condition
1	Helmet	25	2000	100

2	Uniform	52	100	95
3	Shoes	45	150	75
4	Ball	10	50	100
5	Mouth Guard	130	10	83

PlayersHaveEquipments

playerID	equipmentID
1	1
2	2
2	3
3	3
4	4

F. URL to HTML: http://flip3.engr.oregonstate.edu:2121/

G. Screenshots of UI

Index Page: Provides navigation between relevant pages for user interaction:

Players Page: Provides Create, Read, Update, Delete and Browse functionality for the user to view and interact with the entries of different players:

Browse Players

playerID	playerName	jerseyNum	height	weight	position	score	
1	Lebron James	11	72	220	Linebacker	98	Delete
2	Godzilla	99	200	400	Quarterback	100	Delete
3	Stephen Curry	30	66	180	Wide Receiver	87	Delete
4	Tom Hardy	6	60	170	Wide Receiver	79	Delete

Add Player

Name: *

Enter First and Last

Jersey Number: *

Jersey Number

Height: *

Height

Weight: *

Weight

Position: *

Position

Score: *

Score

Add Player

Reset Form

Edit Player

Current Player Name:

Current Player Name

Full Name:

Enter First and Last

Jersey Number: *

Jersey Number

Height: *

Height

Weight: *

Weight

Position: *

Position

Score: *

Score

Edit Player

Reset Form

Search by Player Name:

Player Name

Submit

Reset Page

Equipments Page: Provides Create, Read, Update, Delete and Browse functionality for the user to view and interact with the entries of different pieces of equipment:

Browse Equipments

equipmentID	type	condition	numOfType	replacementCost	
1	Helmet	100	25	2000	Delete
2	Uniform	95	52	100	Delete
3	Shoes	75	45	150	Delete
4	Ball	100	10	50	Delete
5	Mouth Guard	83	130	10	Delete

Add Equipment

Equipment Type: *

```
Type
```

Condition: *

```
100
```

Amount of Equipment: *

```
1000
```

Replacement Cost: *

```
200
```

Add Equipment

Reset Form

Edit Equipment

Current Equipment Type:

```
Current Equipment Type
```

Equipment Type:

```
Type
```

Condition:

```
100
```

Amount of Equipment:

```
1000
```

Replacement Cost:

```
200
```

Edit Equipment

Reset Form

Search by Equipment Name:

```
Type
```

Submit

Reset Page

Coaches Page: Provides Create, Read, Update, Delete and Browse functionality for the user to view and interact with the entries of different coaches:

Browse Coaches

coachID	coachName	title	numOfYearCoaching	
1	Jamison Hardy	Head Coach	12	Delete
2	Bobby Dean	Defense Coordinator	8	Delete
3	Nurman Harwell	Tight-Ends Coach	6	Delete
4	Dan McNarson	Offense Coordinator	10	Delete
5	Steven Wilson	Running Backs Coach	9	Delete

Add Coach

Coach Name: *

Coach Name

Title: *

Coach Title

Years of experience coaching: *

Years coaching

Add Coach

Reset Form

Edit Coach

Current Coach Name: *

Current Coach Name

Coach Name: *

Coach Name

Title: *

Coach Title

Years of experience coaching:

Years coaching

Edit Coach

Reset Form

Search by Coach Name:

Coach Name

Submit

Reset Page

Injuries Page: Provides Create, Read, Update, Delete and Browse functionality for the user to view and interact with the entries of different injuries:

Browse Injuries

injuryID	injuryName	avgRecoveryTime	
1	Sprained Ankle	2	Delete
2	Turf Toe	1	Delete
3	Concussion	4	Delete
4	ACL Tear	13	Delete
5	Dislocation	3	Delete

Add Injury

Injury Name: *

Injury Name

Average Recovery Time: *

Average Recovery Time

Add Injury

Reset Form

Edit Injury

Current Injury Name: *

Current Injury Name

Injury Name: *

Injury Name

Average Recovery Time: *

Average Recovery Time

Edit Injury

Reset Form

Search by Injury Name:

Injury Name

Submit

Reset Page

PlayersHaveCoaches Page: Provides Create, Read, Delete and Browse functionality for the user to view and interact with the relationships between players and coaches (an Edit form is provided but currently does not function:

Browse Players have Coaches

Player ID	Player Name	Coach ID	Coach Name	
2	Godzilla	2	Bobby Dean	Delete
2	Godzilla	3	Nurman Harwell	Delete
3	Stephen Curry	3	Nurman Harwell	Delete
4	Tom Hardy	4	Dan McNarson	Delete

Add Coach to Player

Player Name: *

[Player Name]

Coach Name: *

[Coach Name]

Add Coach to Player

Reset Form

Edit Player Coach

Curr Player Name: *

[Player Name]

Player Name:

[Player Name]

Curr Coach Name: *

[Coach Name]

Coach Name:

[Coach Name]

Edit Player Coach

Reset Form

Search by Player/Coach Name:

[Coach Name]

[Player Name]

Submit

Reset Page

PlayersHaveInjuries Page: Provides Create, Read, Delete and Browse functionality for the user to view and interact with the relationships between players and injuries:

Browse Players have Injuries

Player ID	Player Name	Injury ID	Injury Name	
1	Lebron James	1	Sprained Ankle	Delete
2	Godzilla	2	Turf Toe	Delete
3	Stephen Curry	2	Turf Toe	Delete
3	Stephen Curry	3	Concussion	Delete

Add Injury to Player

Player Name: *

Player Name

Injury Name: *

Injury Name

Add Injury to Player

Reset Form

Search by Player/Injury Name:

Injury Name

Player Name

Submit

Reset Page

PlayersHaveEquipments Page: Provides Create, Read, Delete and Browse functionality for the user to view and interact with the relationships between players and pieces of equipment:

Browse Players have Equipments

Player ID	Player Name	Equipment ID	Equipment Type	
1	Lebron James	1	Helmet	Delete
1	Lebron James	4	Ball	Delete
3	Stephen Curry	2	Uniform	Delete
3	Stephen Curry	3	Shoes	Delete

Add Equipment to Player

Player Name: *

Player Name

Equipment Type: *

Equipment Type

Add Equipment to Player

Reset Form

Search by Player/Equipment Name:

Equipment Type

Player Name

Submit

Reset Page