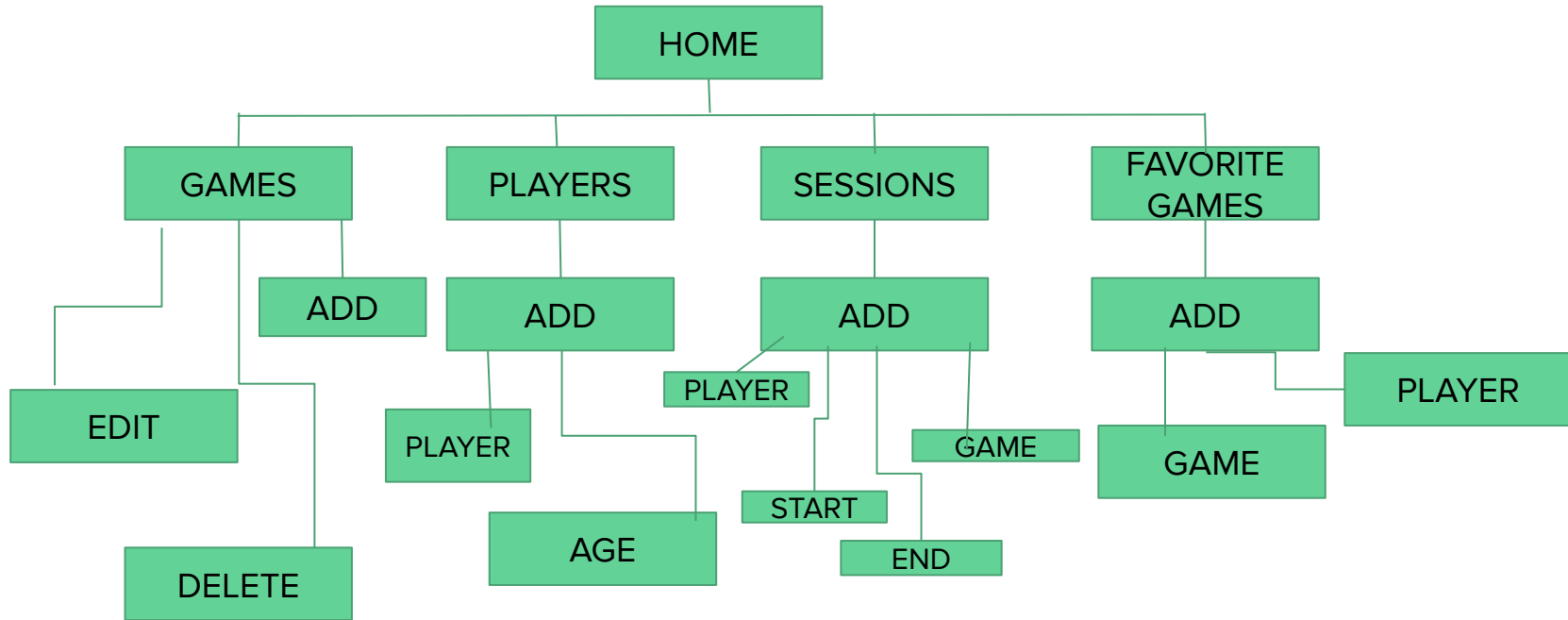# SQL Games

By Audrey Checketts

The Problem & Purpose

I have so many games. I need to track them all and want to ensure I play them and don't forget about them. I also want a way to track when my family plays them and for how long. Some additional information I want to be able to track:

- videos games
- puzzles
- Include family members interests
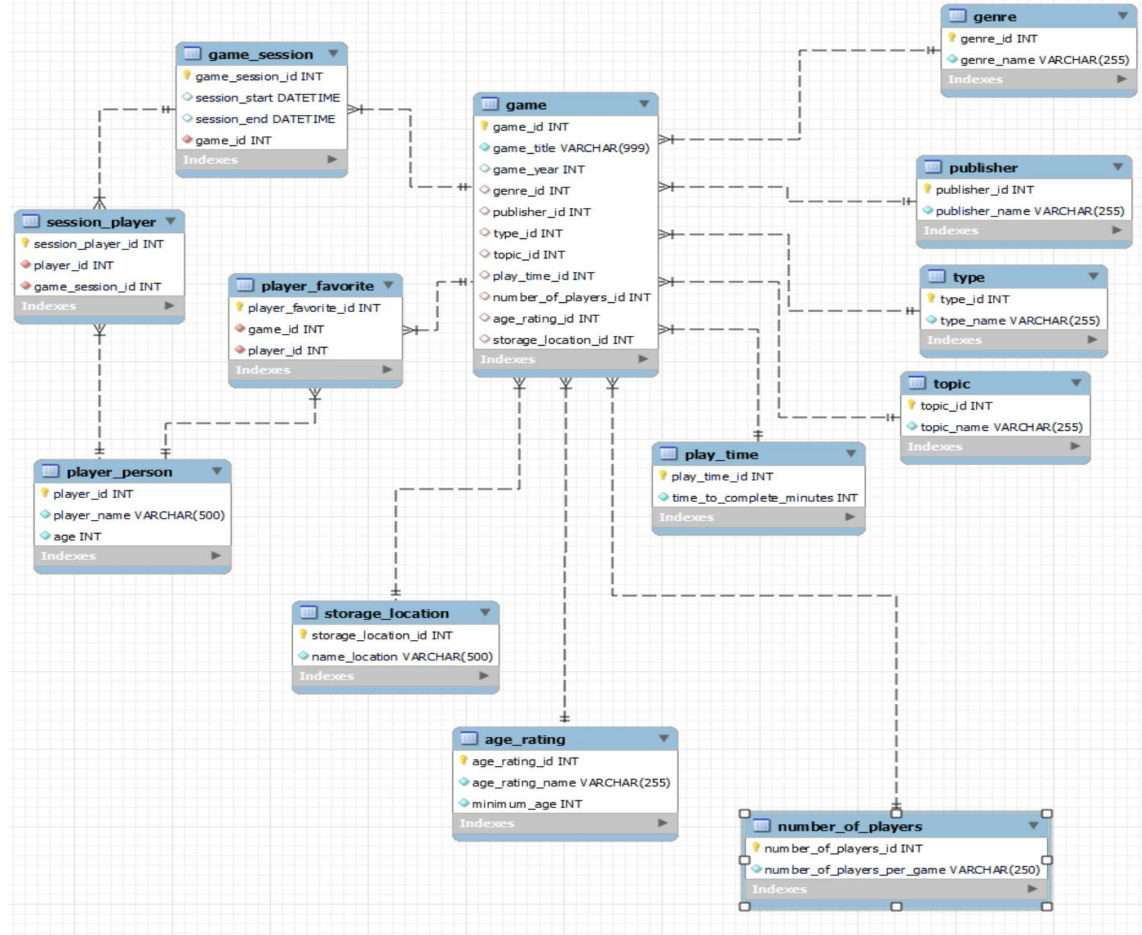- Record play sessions and who is present!

Query goals

- I can enter my game's details into the app
- I can get a listing of games that my 5 year old likes
- I can list cooperative games that 4 players can play
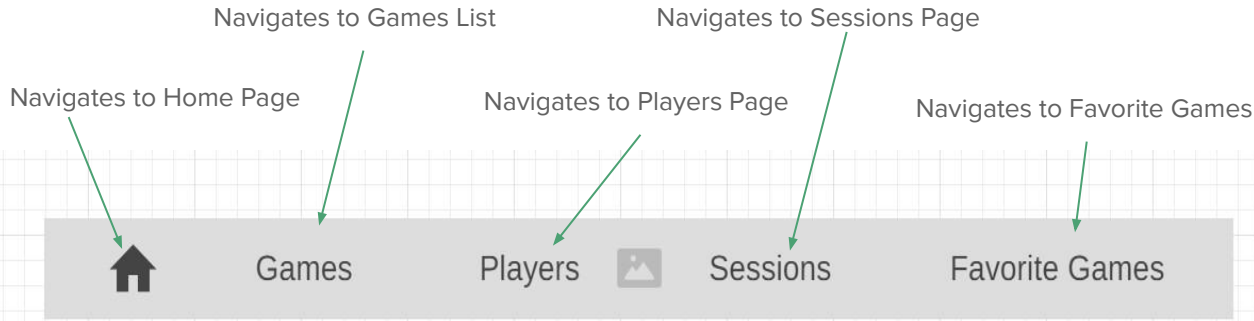- I can see what games haven't been played this year

Site Map

ERD

UI for Admin

- Following is the Admin UI
  - Add, Edit, Delete and Display lists for all the admin tables
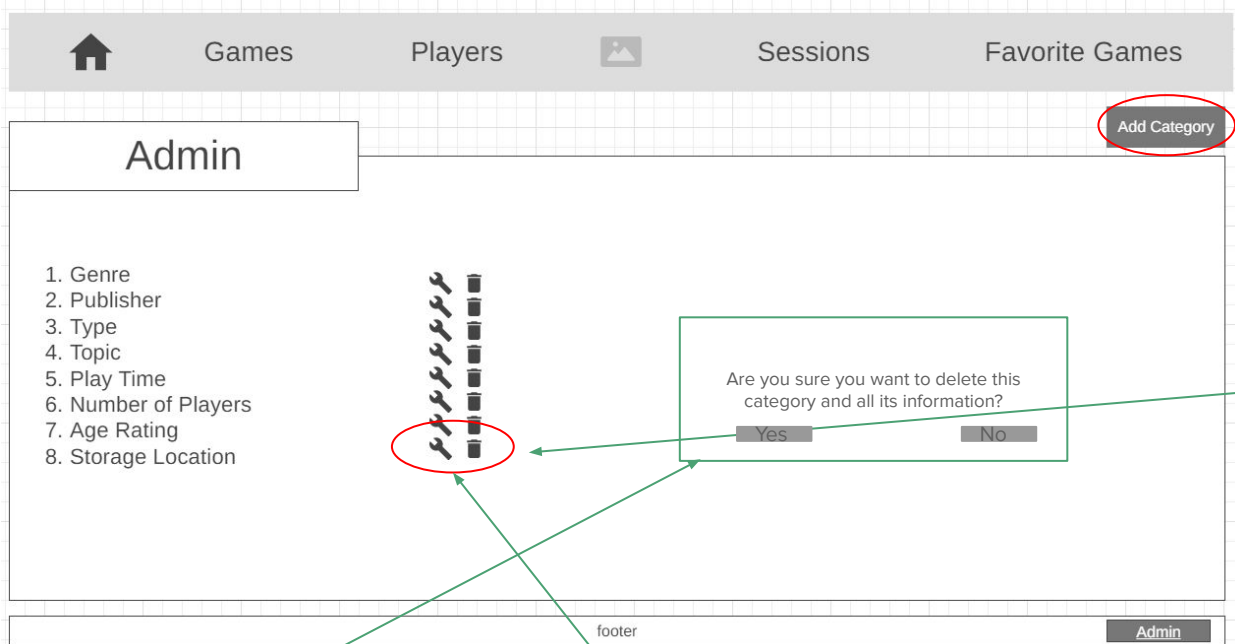 - These are used in the searches and connecting of the other tables

Navigates to Games List

Navigates to Sessions Page

Navigates to Home Page

Navigates to Players Page

Navigates to Favorite Games

🏠 Games   Players 🖼 Sessions   Favorite Games

Welcome to your Gamer's Guild!

Total Number of Games: 29

Admin button that goes to the pages to input, update & delete information about games.

footer   Admin

Games   Players   [image]   Sessions   Favorite Games

Add Category

Admin

1. Genre
2. Publisher
3. Type
4. Topic
5. Play Time
6. Number of Players
7. Age Rating
8. Storage Location

Are you sure you want to delete this category and all its information?

Yes   No

footer   Admin

Here is the admin page where you can click to add new category if need.

Then you can choose to edit or delete the other categories.

The following slides for Admin will show the category pages.

Delete will create a pop up window and ask if you want to delete the category.

Edit will take you to the new page where you can edit the information.

Creating Tables (Categories):

- The following slides are how I created my tables to be able to populate my data in my UI, etc
- I started by creating each table in my schema: gamers_guild
    - CREATE TABLE IF NOT EXISTS publisher (
    - publisher_id INT AUTO_INCREMENT PRIMARY KEY,
    - publisher_name VARCHAR(255) NOT NULL
    -) ENGINE=INNODB;
    - This helped so I wouldn't create duplicate tables.

- Then tables with foreign keys:
    - CREATE TABLE IF NOT EXISTS session_player (
    - session_player_id INT AUTO_INCREMENT PRIMARY KEY,
    - player_id INT NOT NULL,
    - game_session_id INT NOT NULL,
    - FOREIGN KEY (player_id)
    - REFERENCES player_person (player_id),
    - FOREIGN KEY (game_session_id)
    - REFERENCES game_session (game_session_id)
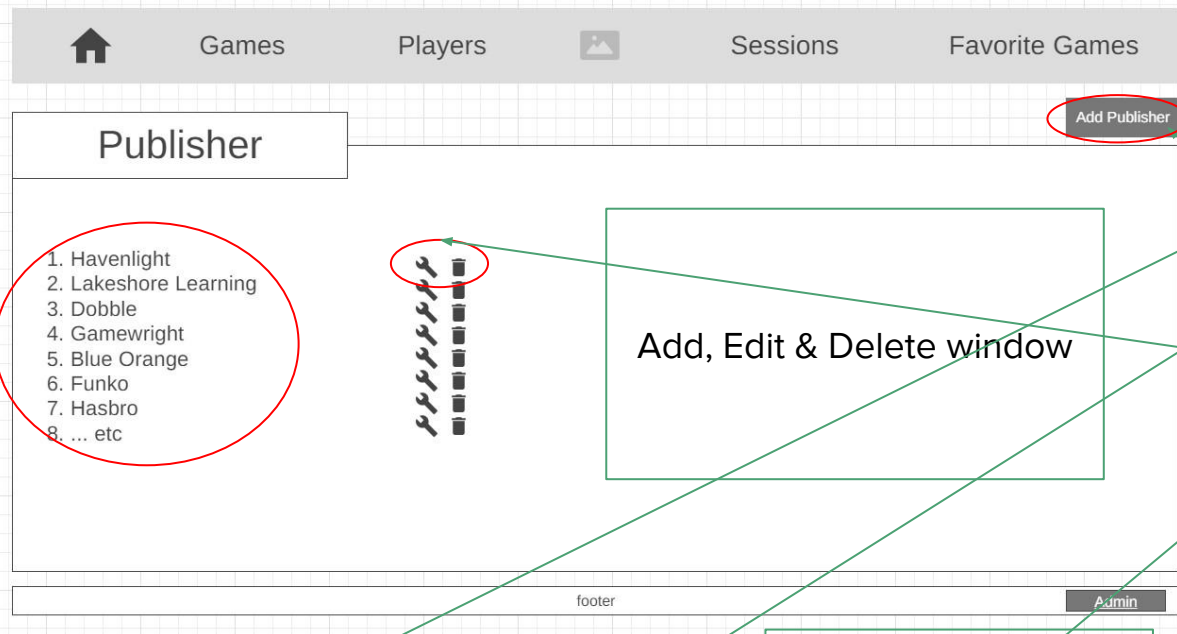   -);
    - As Admin…

CRUD for genre table:

-INSERT INTO genre (genre_id, genre_name) VALUES (1, 'Board Game');

-UPDATE genre SET genre_name = 'Card Game' WHERE genre_name = 'Card Games';

-DELETE FROM genre WHERE genre_name = 'Car Game';

-SELECT genre_id, genre_name FROM genre;

Navigation: Games | Players | Sessions | Favorite Games

Genre
1. Board Game
2. Card Game
3. Dice Game
4. Puzzle
5. Role Playing Game
6. Video Game
7. Outdoor Game
8. ... etc

Add Genre

Add, Edit & Delete window

footer   Admin

Add — genre — Save

Edit — genre — Save

Are you sure you want to delete this genre and all its information? Yes   No

Publisher

Add Publisher

1. Havenlight
2. Lakeshore Learning
3. Dobble
4. Gamewright
5. Blue Orange
6. Funko
7. Hasbro
8. ... etc

Add, Edit & Delete window

footer   Admin

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this publisher and all its information?

Yes   No

CRUD for publisher table:

-INSERT INTO publisher (publisher_id, publisher_name) VALUES (1, 'Havenlight');

-UPDATE publisher SET publisher_name = 'Funko' WHERE publisher_name = 'Funki';

-DELETE FROM publisher WHERE publisher_name = 'Beech Works';

-SELECT publisher_id, publisher_name FROM publisher;

CRUD for type table:

Home | Games | Players | | Sessions | Favorite Games

Add Type

Type

1. Single-Player
2. Multi-Player Cooperative
3. Multi-Player Competitive
4. Solitary Player
5. ...etc

Add, Edit & Delete window

footer | Admin

-INSERT INTO type (type_id, type_name) VALUES (1, 'Single Player');

-UPDATE type SET type_name = 'Multi-Player Competitive' WHERE type_name = 'Multi-Player';

-DELETE FROM type WHERE type_name = 'Solitary Player';

-SELECT type_name FROM type;

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this type and all its information?

Yes | No

Games   Players   Sessions   Favorite Games

Topic

1. Educational
2. Entertainment
3. Travel
4. ...etc

Add, Edit & Delete window

footer   Admin

Add Topic

CRUD for topic table:

-INSERT INTO topic (topic_id, topic_name) VALUES (1, 'Learning');

-UPDATE topic SET topic_name = 'Educational' WHERE topic_name = 'Learning';

-DELETE FROM topic WHERE topic_name = 'Travel';

-SELECT topic_id, topic_name FROM topic;

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this topic and all its information?
Yes   No

CRUD for play time table:

Add Play Time

Play Time in Minutes

1. 120
2. 10
3. 20
4. 30
5. 40
6. 50
7. 60
8. ... etc

Add, Edit & Delete window

footer   Admin

-INSERT INTO play_time (play_time_id, time_to_complete_minutes) VALUES (1, '120');

-UPDATE play_time SET time_to_complete_minutes = '90' WHERE time_to_complete_minutes = '70';

-DELETE FROM play_time WHERE time_to_complete_minutes = '120';

-SELECT   play_time_id, time_to_complete_minutes FROM play_time;

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this and all its information?

Yes   No

Games   Players   Sessions   Favorite Games

Add Player #

Number of Players

1. 2
2. 2-4
3. 1
4. 2-5
5. 2-8
6. 3-8
7. 12
8. ... etc

Add, Edit & Delete window

Admin

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this and all its information?
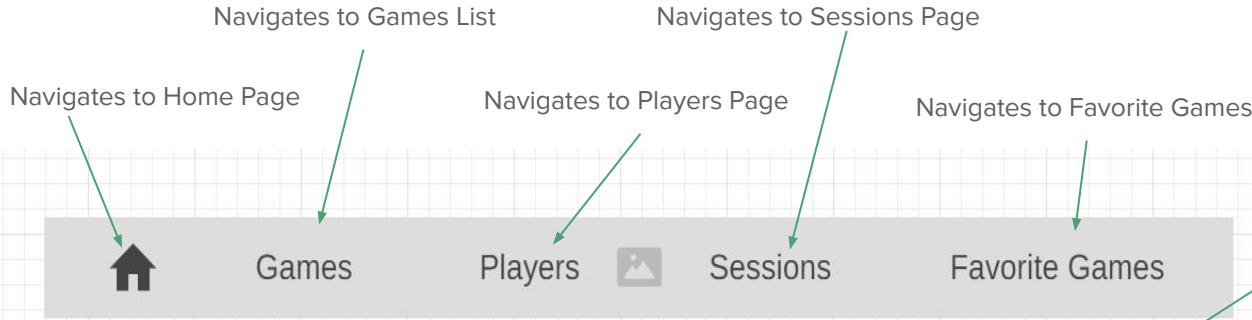
Yes   No

CRUD for number of players table:

-INSERT INTO number_of_players (number_of_players_id, number_of_players_per_game) VALUES (1, '1');

-UPDATE number_of_players SET number_of_players_per_game = '3-6' WHERE number_of_players_per_game = '4-6';

-DELETE FROM number_of_players WHERE number_of_players_per_game = '12';

-SELECT number_of_players_id, number_of_players_per_game FROM number_of_players;

Games | Players | Sessions | Favorite Games

Age Rating

Add Age

Title	Minimum Age
1. Everyone	0
2. Everyone 10+	10
3. Teens	14
4. Adults Only	18
5. Mature	16
6. Rating Pending	-
7. ... etc	

Add, Edit & Delete window

Admin

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this age rating and all its information?

Yes   No

CRUD for age rating table:

-INSERT INTO age_rating (age_rating_id, age_rating_name, minimum_age) VALUES (1, 'Everyone', 0);

-UPDATE age_rating SET age_rating_name = 'Teen' WHERE age_rating_name = 'Teens';

-DELETE FROM age_rating WHERE age_rating_name = 'Rating Pending';

-SELECT age_rating_name, minimum_age FROM age_rating ORDER BY minimum_age;

Storage Location

Add Location

1. Downstairs Shelves
2. Upstairs Shelves
3. Garage
4. Storage Room
5. Steam Deck
6. Nintendo Switch
7. Computer
8. ... etc

Add, Edit & Delete window

Admin

Add

publisher

Save

Edit

publisher

Save

Are you sure you want to delete this location and all its information?

Yes   No

CRUD for storage location table:

-INSERT INTO storage_location (storage_location_id, name_location) VALUES (1, 'Downstairs Shelves');

-UPDATE storage_location SET name_location = 'Kitchen Table Shelves' WHERE   name_location = 'Upstairs Shelves';

-DELETE FROM storage_location WHERE name_location = 'Downstairs Laundry Room';

-SELECT storage_location_id, name_location FROM storage_location ORDER BY name_location;

Now the UI for inputting Games, etc

- Here is how I was able to use all of the tables and the information I created into a usable (outside of the Admin) UI.

Home 🏡

- Games
    - Publishers
    - Type (Board game, Video Game, Puzzle)
    - Genre (Competitive, Cooperative, Solo)
    - Topic (Educational, Entertainment, Memory)
- Family members
    - Favorites
    - Ages
- Play sessions
    - Dates
    - Game played
    - People included
- Total Count of Games in Database

Tells Number of Games in Game Table:

SELECT COUNT(game_title) FROM game;

Navigates to Games List

Navigates to Sessions Page

Navigates to Home Page

Navigates to Players Page

Navigates to Favorite Games

🏠 Games   Players 🖼️ Sessions   Favorite Games

Welcome to your Gamer's Guild!

Total Number of Games: 29

Games ♠

- ADD
    - A button you can click on that allows you to add games with their information.
- EDIT
    - If you messed up spelling a name or the wrong publisher, etc you can click the edit button and update the information.
- DELETE
    - When you click the trash can, you can delete a game that you no longer have, use, or give away.

Game List

Title	Year	Genre	Publisher	Type	Topic	Play Time	Number of Players	Age Rating	Storage Location

Navigation bar: Games — Players — Sessions — Favorite Games

Add Game button

Pop up form fields: Title, Year, Genre, Publisher, Type, Topic, Play Time, Number of Players, Age Rating, Storage Location — **Save Game**

Here is where you can add games:

You would type the information into a separate window pop up and fill out the information.

Then when finished click the add game button on pop up window and it will appear in master list.

INSERT INTO game
    (game_id, game_title, game_year, genre_id, publisher_id, type_id, topic_id, play_time_id, number_of_players_id, age_rating_id, storage_location_id)
VALUES
    (1, 'The Light Rested Upon Me by Dan Burr', NULL, 4, 1, 3, 2, 8, 5, 1, 2);
    etc....

Games | Players | Sessions | Favorite Games

Game List

Add Game

Title	Year	Genre	Publisher	Type	Topic	Play Time	Number of Players	Age Rating	Storage Location

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footer

All the games would be queried and displayed here on the game list page.

```
SELECT
    ga.game_title AS 'Title',
    ga.game_year AS 'Year',
    ge.genre_name AS 'Genre',
    p.publisher_name AS 'Publisher',
    ty.type_name AS 'Type',
    top.topic_name AS 'Topic',
    pt.time_to_complete_minutes AS 'Play Time',
    n.number_of_players_per_game AS 'Number of Players',
    ar.age_rating_name AS 'Age Rating',
    st.name_location AS 'Storage Location'
FROM
    game ga
        LEFT JOIN
    genre ge ON ga.genre_id = ge.genre_id
                LEFT JOIN
        publisher p ON p.publisher_id = ga.publisher_id
                LEFT JOIN
        type ty ON ty.type_id = ga.type_id
                LEFT JOIN
        topic top ON top.topic_id = ga.topic_id
                LEFT JOIN
        play_time pt ON pt.play_time_id =
ga.play_time_id
        LEFT JOIN
    number_of_players n ON n.number_of_players_id =
ga.number_of_players_id
        LEFT JOIN
    age_rating ar ON ar.age_rating_id = ga.age_rating_id
                LEFT JOIN
        storage_location st ON st.storage_location_id =
ga.storage_location_id
ORDER BY game_title;
```
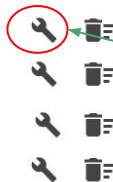
Game List

Add Game

Title	Year	Genre	Publisher	Type	Topic	Play Time	Number of Players	Age Rating	Storage Location

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footer

Was entered in like this: 'LIFE', '2010', 'Board Game', 'Hasbro', 'Multi-Player Competitive', 'Entertainment', '50', '2-4', 'Everyone 10+', 'Toy Room'

Then edited to this: 'LIFE Adventures Edition', '2010', 'Board Game', 'Hasbro', 'Multi-Player Competitive', 'Entertainment', '50', '2-4', 'Everyone 10+', 'Toy Room'

This is where you can edit the game's information (with pop up table):

UPDATE game
SET
    game_title = 'LIFE Adventures Edition'
WHERE
    game_title = 'LIFE';

Save Edit button

Game List

Games   Players   Sessions   Favorite Games

Add Game

Title	Year	Genre	Publisher	Type	Topic	Play Time	Number of Players	Age Rating	Storage Location

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footer

This is where you can delete game, like when you decide you don't like it or DI it or missing pieces you can't find:

DELETE FROM game WHERE
    game_title = 'Monopoly';

A pop-up would say, "Are you sure you want to delete this game and all its information?" Then you would click, "Yes" or "No" and the game would disappear from list.

Are you sure you want to delete this game and all its information?

Yes   No

Players

- Family Members & Friends
    - Here is a place to keep track of everyone playing the games.
- Ages
    - Ages of each member to know what games are appropriate for them to play.

Players

Add Player

Player
Information

Kolob

15

Save
Player

	Name	Age		
1.	Adam	35		
2.	Benjamin	34		
3.	Caleb	32		
4.	Daniel	30		
5.	Ephraim	28		

When you click the player add button, it opens a window to the left side. Then you type in your information and click the save player button. That inserts the information into the table.

How info inserted using SQL:

INSERT INTO player_person (player_name, age) VALUES ('Adam', 35);

INSERT INTO player_person (player_name, age) VALUES ('Benjamin', 34);

INSERT INTO player_person (player_name, age) VALUES ('Caleb', 32);

INSERT INTO player_person (player_name, age) VALUES ('Daniel', 30);

INSERT INTO player_person (player_name, age) VALUES ('Ephraim', 28);

INSERT INTO player_person (player_name, age) VALUES ('Kolob', 15);

Players

Add Player

Player Information

Kolob

15

Save Player

	Name	Age		
1.	Adam	35		
2.	Benjamin	34		
3.	Caleb	32		
4.	Daniel	30		
5.	Ephraim	28		
	...	...	...	
12.	Kolob	15	....	

How list read after values inserted:

SELECT
    player_name AS 'Name' , age AS 'Age'
FROM
    player_person;

Players

Add Player

Name	Age		
1. Adam	35	🔧	
2. Benjamin	34	🔧	
3. Caleb	32	🔧	
4. Daniel	30	🔧	
5. Ephraim	28	🔧	
...	...	...	
12. Kadesh	15	....	

Edit Player

Kadesh

15

Save Player

How info. updated using SQL:

UPDATE player_person
SET
   player_name = 'Kadesh'
WHERE
   player_id = 12;

When you click the wrench icon, it opens a window to the right side. Then you type in your information and click the save player button. That updates the player's name and age.

Players

Add Player

Name	Age		
1. Adam	35		
2. Benjamin	34		
3. Caleb	32		
4. Daniel	30		
5. Ephraim	28		
...	...	...	
12. Kadesh	15	....	

Are you sure you want to delete this name and all its information?

Yes   No

How info. deleted using SQL:

DELETE FROM player_person
WHERE
   player_id = 3;

(Better to delete using the player_id #, in case of names, etc being the same.)

Players

Add Player

Name	Age		
1. Adam	35		
2. Benjamin	34		
4. Daniel	30		
5. Ephraim	28		
...	...		
12. Kadesh	15	....	

When you click the garbage can icon, it opens a window. It asks if you want to delete the name and all its information. If "yes", click the "yes" and if "no", click "no".

If you do click yes, the information will disappear from the line.

Play Sessions

- Keeps track of When Game Started
- Keeps track of When the Game Ended
- Keeps track of Who Played the game
  - Also if multiplayer, then that player can be added
- Keeps track of The Game played

🏠	Games	Players	🖼	<u>Sessions</u>	Favorite Games

Add Session

Game Sessions

<u>Player</u>   <u>Game #</u>   <u>Start Date</u>   <u>End Date</u>   <u>Title</u>

Add Session

Player

Game #

Start Date

End Date

Title

Save Session

Reading Session List & Displaying:

Player	Game #	Start Date	End Date	Title
1. Adam	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
2. Benjamin	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
3. Daniel	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
4. Ephraim	3	2023-07-15 20:00:27	2023-07-15 21:35:27	Stardew Valley
5. Gideon	5	2024-07-05 19:00:27	2024-07-05 20:35:27	The Legend of Zelda: Breath of the Wild
6. James	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe
7. Kadesh	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe

Navigation

Games   Players   Sessions   Favorite Games

Game Sessions

Add Favorite

SQL Query

```sql
SELECT
    pp.player_name,
    gs.game_session_id,
    gs.session_start,
    gs.session_end,
    g.game_title
FROM
    session_player sp
    LEFT JOIN
    player_person pp ON
sp.player_id = pp.player_id
    LEFT JOIN
    game_session gs ON
gs.game_session_id =
sp.game_session_id
    LEFT JOIN
    game g ON g.game_id =
gs.game_id
ORDER BY player_name;
```

Updating List:

UPDATE session_player

SET

   game_session_id = 1

WHERE

   session_player_id = 3;

UPDATE session_player

SET

   player_id = 11

WHERE

   session_player_id = 3;

Game Sessions

| | Games | Players | | Sessions | Favorite Games |

Add Favorite

Player	Game #	Start Date	End Date	Title
1. Adam	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
2. Benjamin	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
3. Daniel	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
4. Ephraim	3	2023-07-15 20:00:27	2023-07-15 21:35:27	Stardew Valley
5. Gideon	5	2024-07-05 19:00:27	2024-07-05 20:35:27	The Legend of Zelda: Breath of the Wild
6. James	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe
7. Kadesh	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe
5 Millie		2024-...	2024-....	Trigger

Edit Game Session

Player
Start Date
End Date
Title

Save Session

Deleting Session:

Games Sessions

Player	Game #	Start Date	End Date	Title
1. Adam	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
2. Benjamin	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
3. Daniel	2	2023-05-10 18:30:22	2023-05-10 19:30:27	PANDEMIC
4. Ephraim	3	2023-07-15 20:00:27	2023-07-15 21:35:27	Stardew Valley
5. Gideon	5	2024-07-05 19:00:27	2024-07-05 20:35:27	The Legend of Zelda: Breath of the Wild
6. James	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe
7. Kadesh	1	2019-07-10 20:00:27	2019-07-10 20:35:27	Chess, Checkers, Tic Tac Toe
5 Millie		2024-...	2024-....	Trigger

Games   **Players**   **Sessions**   **Favorite Games**

Add Favorite

DELETE FROM
session_player

WHERE

    session_player_id = 5;

Are you sure you want to delete this name
and all its information?

Yes   No

Favorite Games

- A way to see what family members and friends love playing the most
    - Especially the youngest
- Follows the same format as previous pages

Favorite Games

Add Favorite

Game   Player

Add
Favorite Game

Game

Player

Save

Adding Favorite Games:

INSERT INTO player_favorite (game_id, player_id) VALUES (1, 1);

INSERT INTO player_favorite (game_id, player_id) VALUES (16, 2);

INSERT INTO player_favorite (game_id, player_id) VALUES (22, 4);

INSERT INTO player_favorite (game_id, player_id) VALUES (24, 5);

INSERT INTO player_favorite (game_id, player_id) VALUES (7, 6);

INSERT INTO player_favorite (game_id, player_id) VALUES (13, 10);

INSERT INTO player_favorite (game_id, player_id) VALUES (20, 9);

Add Favorite

Favorite Games

Game	Player
1. The Light Rested Upon Me by Dan Burr	Adam
2. Imhotep	Benjamin
3. Astroneer	Daniel
4. Stardew Valley	Ephraim
5. Back to the Future Back in Time	Frank
6. Connect Four	Isabel
7. Enchanted Forest	Hannah

Displaying Players & their favorite game:

```
SELECT
    ga.game_title AS 'Favorite Game',
    pp.player_name AS 'Player'
FROM
    player_favorite pf
    LEFT JOIN
    game ga ON pf.game_id =
ga.game_id
    LEFT JOIN
    player_person pp ON
pp.player_id = pf.player_id;
```

Favorite Games

Add Favorite

Favorite Games

Game
1. Pandemic
2. Imhotep
3. Astroneer
4. Stardew Valley
5. Back to the Future Back in Time
6. Connect Four
7. Enchanted Forest

Player
Adam
Benjamin
Daniel
Ephraim
Frank
Isabel
Hannah

Edit
Favorite Game

Pandemic

Adam

Save

Updating List:

UPDATE player_favorite
SET
    game_id = 17
WHERE
    player_id = 1;

Here, Adam previously had a puzzle, but it was changed to a board game, "Pandemic".

Add Favorite

Favorite Games

Are you sure you want to delete this name and all its information?

Yes   No

DELETE FROM player_favorite WHERE
   player_id = 2;

<u>Deleting unwanted favorite:</u>

<u>Game</u>	<u>Player</u>	
1. Pandemic	Adam	🔧 🗑️
2. Imhotep	Benjamin	🔧 🗑️
3. Astroneer	Daniel	🔧 🗑️
4. Stardew Valley	Ephraim	🔧 🗑️
5. Back to the Future Back in Time	Frank	🔧 🗑️
6. Connect Four	Isabel	🔧 🗑️
7. Enchanted Forest	Hannah	🔧 🗑️

Game #2, Imhotep and Benjamin would be deleted.

Add Favorite

Favorite Games

<u>Game</u>	<u>Player</u>	
1. Pandemic	Adam	🔧 🗑️
3. Astroneer	Daniel	🔧 🗑️
4. Stardew Valley	Ephraim	🔧 🗑️
5. Back to the Future Back in Time	Frank	🔧 🗑️
6. Connect Four	Isabel	🔧 🗑️
7. Enchanted Forest	Hannah	🔧 🗑️

What I have learned

- In the next few slides are some things I have learned and hope for in the future with this project as I continue to work and improve on it after this class.
- I hope that this will be beneficial for my family and I to use and help us play more games together and get rid of the ones we don't like or use often.

Initial Problems

- I got confused initially with the diagramming website
    - The site helped me visualize which attributes should exist on which table
    - Foreign keys helped depict the relationships
    - Before adding the keys I accidentally duplicated fields on tables (game name for example)
    - Having to go back and change some fields from integer to varchar() and dropping the schema
    - Disabling the Safe Mode to be able to update and delete
    - Re-starting the server after disabling safe mode

Naming standards

- After creating several table I decided on a few standards I wanted to use to be consistent
- Table names 'singular'
  - Game, User, Play_Session
- Primary key IDs match the table they represent
  - Ensured ID was consistent between tables.
  - game_id
  - user_id

Adding features Eventually

- Once the game entity was complete, I added more tables for family members and play sessions
- I can add more fields like year created and game state (if the game is missing pieces for example)
- Another attribute for 'last modified' or 'last reviewed' to easily see what games need to be checked and updated
- App for phone
- Have the computer pick a random game I haven't played recently, which could be fun