

Tyson Bryant & Liam Armstrong

CS340 Introduction to Databases

12/10/2023

Pokémon TCG Database

Repository URL:

<https://github.com/tysonfromearth/Pokemon-Database/tree/liam-pokemon-database>

Executive Summary:

Early feedback indicated that people might not understand details about the Pokemon Trading Card Game. We modified the "Project Outline" section of our report to include basic information about the Pokemon, the trading card game, decks, and cards. Here also, critiques of the relationship constraints convinced us to reverse the constraints on some relationships.

When we first started publishing work we did so via a public_html folder in our student accounts. Peers pointed out in review that while the permissions on the index.html file were correct, other files in the folder did not have the proper permissions, resulting in web pages which were not visible to other students. Adding the proper permissions remedied this problem. We also updated the schema so that sets do not require cards in reply to remarks that if sets did require cards then a set could be deleted if a card was deleted. Additionally, at this stage in project development we did not have an SQL insert in our DML file for creating an entry in the Decks_has_Cards table when a card is added to a deck so we wrote such a query.

When peers were able to get a better look at our html pages, it became clear from feedback that html pages for Pokemon and Sets would have to be added and that a home button would improve ease of navigation. The corresponding improvements were made.

During CRUD implementation, reviews noted that only read operations were working in terms of the CRUD paradigm, so CRUD operations were expanded for all entities except for Players, which was dropped for simplicity. However, as CRUD operations were integrated based off of the example starter code, peers observed that the operations were still showing the data from the Battlestar Galactica database. Accordingly, one of our final actions based on feedback has been to modify our application to display data specifically from our Pokemon Database. Furthermore, we yielded to suggestions to use one method to add data to the table. A navigation bar was added in this stage, as well.

Project Outline

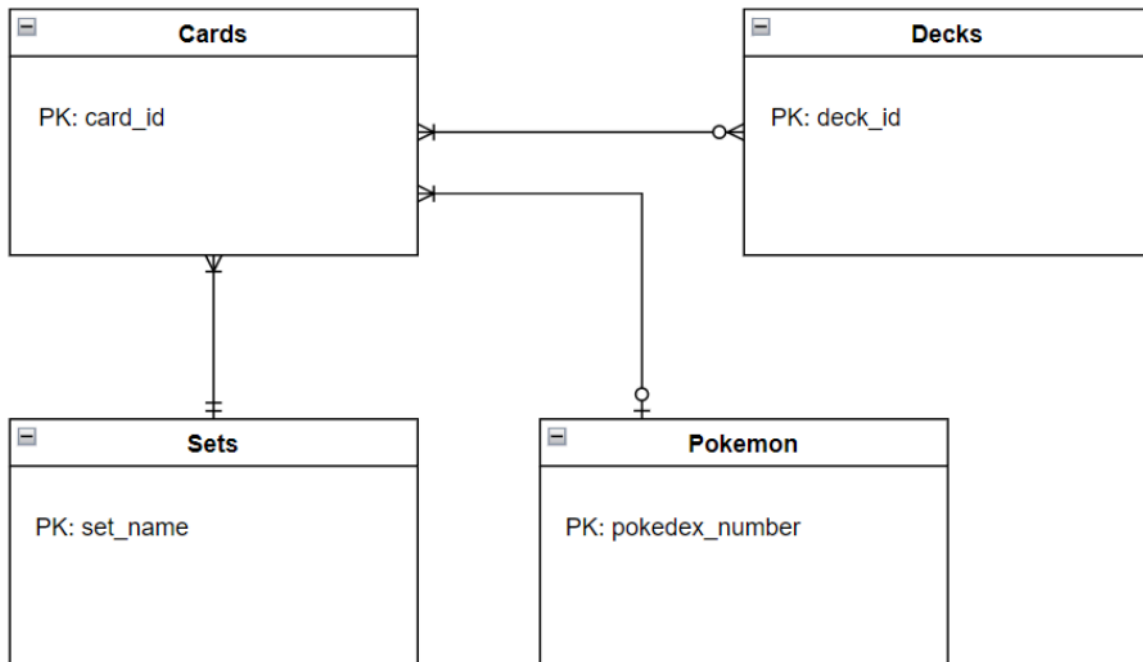
Collectors of the Pokémon Trading Card Game (TCG) need an efficient system to manage their decklists, lists of cards contained in a deck used to play the game against opponents who have their own deck. Our database-driven website addresses this by cataloging a player's decklists. The database also stores information on the cards that players can use in their decks which come from three legal sets. The legal sets are the Base Set and the Jungle and Fossil expansion sets, which have 102, 64, and 62 cards, respectively, for a total of 228 cards. Information about each of 150 unique Pokemon and which cards they appear on is also stored in the database. Users can design decks using Pokemon, Energy, and Trainer cards, ensuring they're prepared for battles.

Database Outline

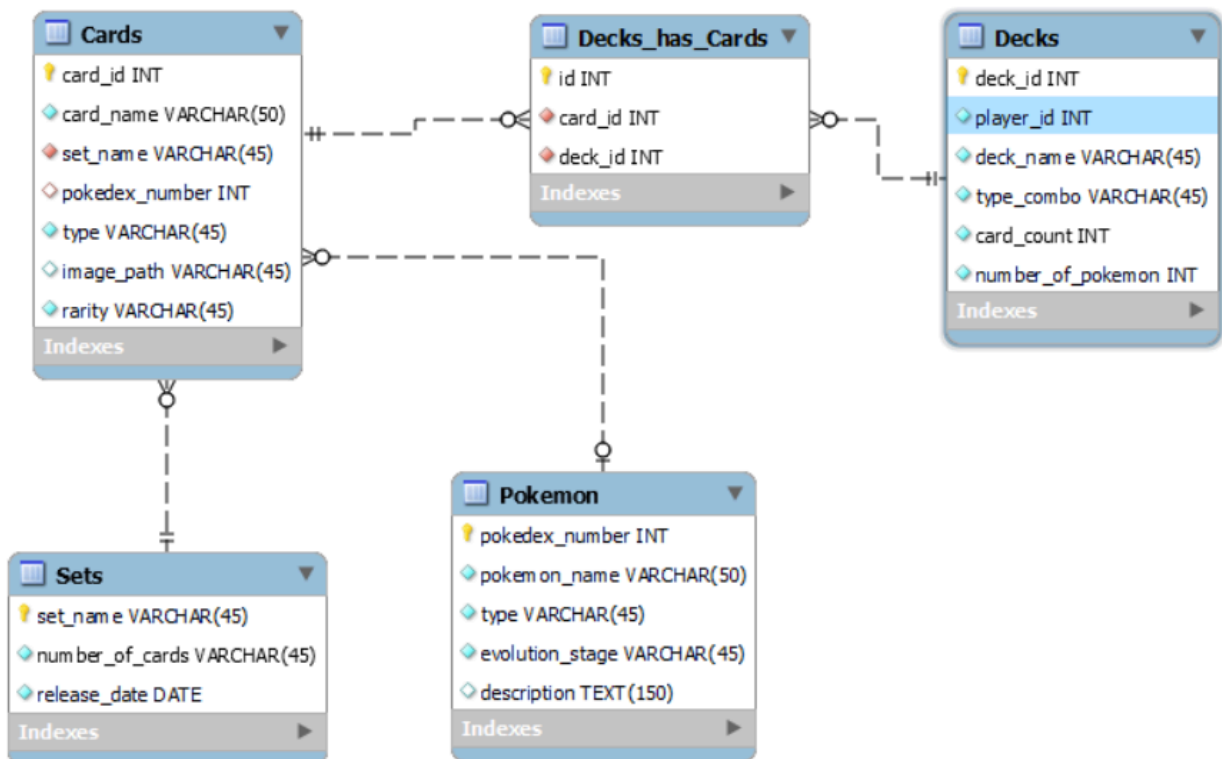
- **Cards:** Records the details of the cards found in Base Set and the Jungle and Fossil expansion sets.
 - **card_id:** INT (Primary Key, Auto-increment, Unique, Not Null)
 - **card_name:** VARCHAR (Not Null)
 - **set_name:** VARCHAR (Unique, Not Null, Foreign Key to Sets)
 - **pokedex_number:** INT (Nullable, Foreign Key to Pokémon) - A card may or may not be associated with a specific Pokémon.
 - **type:** VARCHAR (Not Null)
 - **image_path:** VARCHAR (Nullable)
 - **rarity:** VARCHAR (Not Null)
 - **relationship w/ Decks:** a M:N relationship between Cards and Decks is implemented with card_id and deck_id as FKs inside of the cards_decks intersection table. Each card can be part of multiple decks and each deck must have multiple cards.
 - **relationship w/ Sets:** a M:1 relationship between Cards and Sets is implemented with set_name as a FK inside of Cards. Each card belongs to one set, but each set has multiple cards.
 - **relationship w/ Pokemon:** a M:1 relationship between Cards and Pokemon is implemented with pokedex_id as a FK inside of Cards. Each card can represent one Pokémon, but each Pokémon must have at least one card.
- **Decks:** Records the lists of unique cards appearing in each of the decks the user has constructed. A standard Pokémon deck contains 60 cards. However, depending on the format or casual play, deck sizes can vary.
 - **deck_id:** INT (Auto-increment, Unique, Not Null, Primary Key) - The main identifier for a deck.
 - **deck_name:** VARCHAR(Not Null) - Represents the chosen name of the deck.
 - **type_combo:** VARCHAR(Not Null) - A list of the all the energy types of Pokemon contained in the deck.
 - **card_count:** INT (Not Null)
 - **number_of_pokemon:** INT, (Not Null)
 - **relationship w/ Cards:** a M:N relationship between Decks and Cards is implemented with card_name and deck_name as FKs inside of the Decks_has_Cards intersection table. Each card can be part of multiple decks and each deck must have multiple cards.
- **Sets:** Records details about each of the three relevant sets of cards.
 - **set_name:** VARCHAR(Unique, Not Null, Primary Key)
 - **number_of_cards:** INT (Not Null)
 - **release_date:** DATETIME, (Not Null)
 - **relationship w/ Cards:** a 1:M relationship between Sets and Cards is implemented with set_name as a FK inside of Cards. Each card belongs to one set, but each set has multiple cards.
- **Pokémon:** Records details about each of the 150 Pokémon; Catalogs the individual Pokémon characteristics and their evolutionary stages.
 - **pokedex_number:** INT (Primary Key, Unique, Not Null)
 - **pokemon_name:** VARCHAR (Unique, Not Null)
 - **type:** VARCHAR (Not Null)

- **evolution_stage**: INT (Not Null)
- **description**: TEXT
- **relationship w/ Cards**: a 1:M relationship between Pokemon and Cards is implemented with pokedex_id as a FK inside of Cards. Each card can represent one Pokémon, but each Pokémon must have at least one card.
- **Decks_has_Cards**: Records the details of the cards found in Base Set and the Jungle and Fossil expansion sets.
 - **id**: INT (Primary Key, Auto-increment, Unique, Not Null)
 - **card_id**: INT (Foreign Key to Cards, Not Null)
 - **deck_id**: INT (Foreign Key to Decks, Not Null)
 - **relationship w/ Decks and Cards**: a M:N relationship between Cards and Decks is implemented with card_id and deck_id as FKs inside this entity

ER Diagram



Schema



Sample Data

Cards Table:

card_name	card_id	set_name	pokedex_num	type	image_path	rarity
Pikachu	1	Base Set	1	Grass	/images/bulbasaur.jpg	Common
Charizard	2	Base Set	2	Fire	/images/squirtle.jpg	Common
Squirtle	3	Base Set	3	Water	/images/squirtle.jpg	Common

Pokemon Table:

pokedex_number	pokemon_name	type	evolution_stage	description
1	Bulbasaur	Grass/Poison	1	Bulbasaur is the...
5	Charmander	Fire	1	Charmander is the...
7	Squirtle	Water	1	Squirtle is the...

Decks Table:

deck_id	player_id	deck_name	type_combo	card_count	number_of_pokemon
1	14567	Pikachu Deck	Electric	60	12
2	34566	Water Deck	Water	50	20
3	38506	Fire Deck	Fire	45	30

Sets Table:

set_name	number_of_cards	release_date
Base Set	102	1/9/91
Jungle	64	6/16/99
Fossil	62	10/10/99

Players Table:

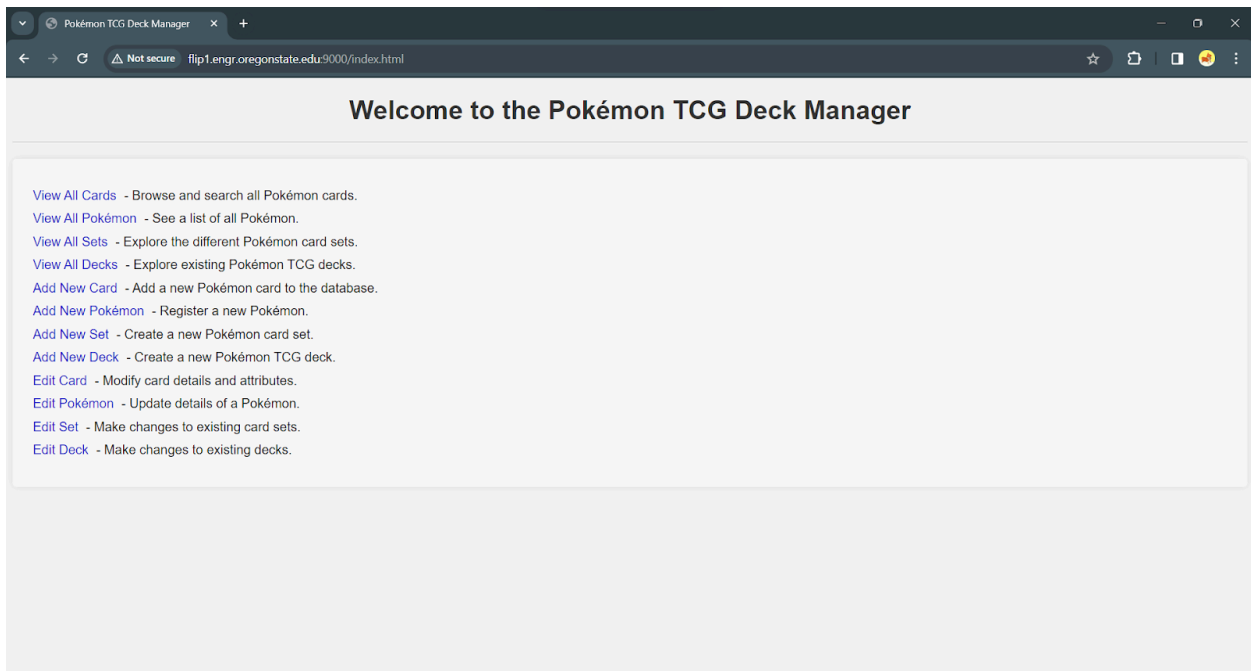
player_id	name	country
15670	Ash	USA
13450	Misty	France
14389	Brooke	Belgium

Decks_has_Cards Table:

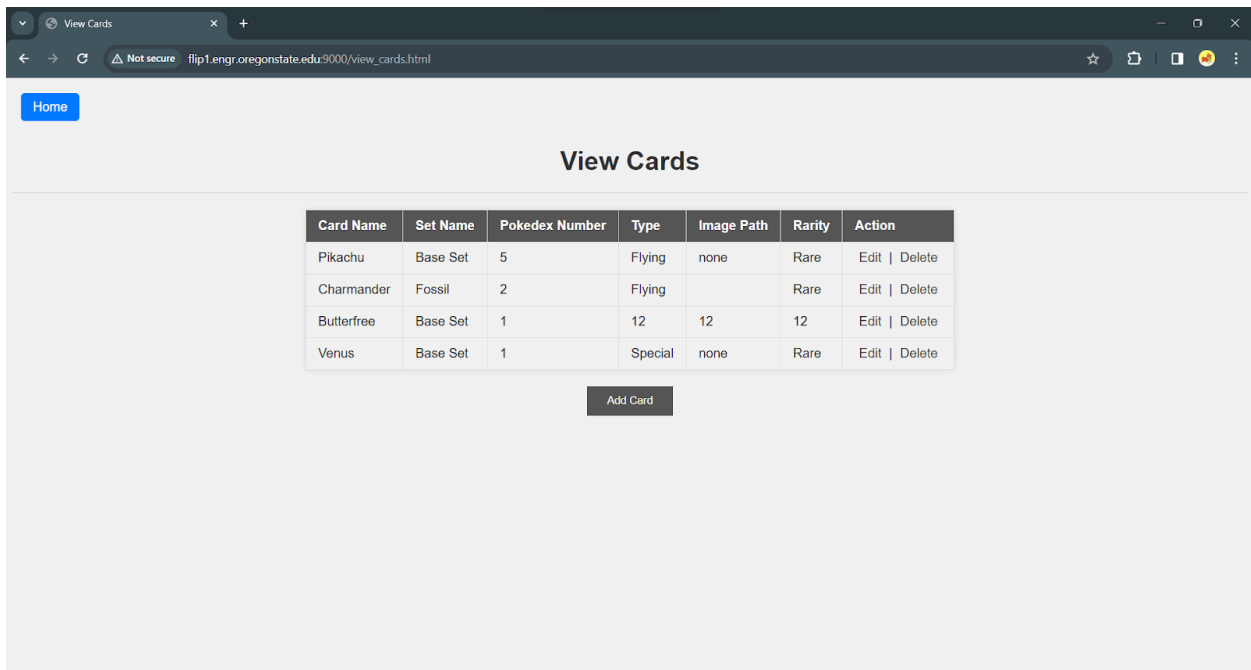
id	card_id	deck_id
1	1	1
2	2	1
3	3	2

UI Screen Shots

Index Page



Read Cards Page



Read Pokemon Page

View Pokémon

Not secure flip1.engr.oregonstate.edu:9000/view_pokemon.html

Home

View Pokémon

Pokédex Number	Pokémon Name	Type	Evolution Stage	Description	Action
1	Bulbasaur	Grass/Poison	Basic	A Grass/Poison-type Pokémon with a plant bulb on its back. It can grow by absorbing sunlight.	Edit Delete
2	Charmander	Fire	Basic	A fire-type Pokémon with a flame at the tip of its tail.	Edit Delete
3	Squirtle	Water	Basic	A water-type Pokémon that can shoot water from its mouth.	Edit Delete
4	Charizard	Fire/Flying	Final	A fire-flying type Pokémon...	Edit Delete
5	Charmeleon	Fire	Intermediate	A flame burns at the tip of its tail from birth. It is said that a Charmander dies if its flame goes out.	Edit Delete
6	Blastoise	Water	Advanced	The pressurized water jets on this brutal Pokemon shell are used for attacks at high speed.	Edit Delete

Add Pokémon

Read Sets Page

View Sets

Not secure flip1.engr.oregonstate.edu:9000/view_sets.html

Home

View Sets

Set Name	Number of Cards	Release Date	Action
Base Set	120	10/10/2023	Edit Delete
Fossil	62	10/10/1999	Edit Delete
Jungle	64	6/16/1999	Edit Delete

Add Set

Read Decks Page

DELETE functionality for a Many-to-Many (M:N) relationship (when a deck is deleted, all the card associations with that deck should be removed as well.)

Home

View Decks

DELETE functionality for a Many-to-Many (M:N) relationship (when a deck is deleted, all the card associations with that deck should be removed as well.)

Deck Name	Type Combo	Card Count	Number of Pokemon	Action
Ash's Deck	Grass/Fire/Water	60	0	Edit Delete
Misty's Deck	Water	55	0	Edit Delete
Liam's Deck	Mixed	100	12	Edit Delete

Add Deck

Create New Card Page

Home

Add Card

Card Name:

Set Name:
Base Set

Pokedex Number:
6 - Blastoise

Type:

Image Path:

Rarity:

Add Card

Create New Pokemon Page

Home

Add Pokémon

Add Pokémon

Pokédex Number (must be unique):

Pokémon Name (must be unique):

Type:

Evolution Stage:

Description:

Add Pokémon

Back to Pokémon List

Create New Set Page

Pokémon TCG Deck

Add Set

Add Deck

Edit Card

Edit Pokémon

Edit Set

Edit Deck

Home

Add Set

Add Set

Set Name:

Number of Cards:

Release Date:

mm/dd/yyyy

Add Set

Back to Sets List

Create New Deck Page

Home

Add Deck

Deck Name:

Type Combo:

Card Count:

Number of Pokemon:

Add Deck

Update Card Page

Edit Card

Card Name:

Set Name:

Base Set

Pokedex Number:

Type:

Image Path:

Rarity:

Update Card

Update Pokemon Page

Home

Edit Pokémon

Pokédex Number:

Pokémon Name:

Type:

Evolution Stage:

Description:

Update Pokémon

Back to Pokémon List

Update Set Page

Updates the M:N (Many-to-Many) relationship between sets and decks.

Home

Edit Set

Updates the M:N (Many-to-Many) relationship between sets and decks.

Number of Cards:

Release Date:

Update Set

Back to Sets List

Update Deck Page

Pokémon TCG Deck Manager

Edit Deck

Not secure filip1.engr.oregonstate.edu:9000/edit_deck.html

☆

Updates the M:N (Many-to-Many) relationship between cards and decks.

Home

Edit Deck

Deck Name:

Type Combo:

Card Count:

Number of Pokemon:

Update Deck

Back to Deck List