Executive Summary:

Our project completely changed direction from our initial project proposal. Originally, we had planned on doing a dog-kennel-themed database will capabilities for owners to save account information as well as pet information for organizing reservations for kennel stays. However, after submitting this proposal, we felt that the subject matter would not be as fun as our current project theme, a Pokemon database. In our initial attempts to organize and design the structure of our database, we had come up with several different possibilities for attributes and relationships that pre-exist within the actual game itself. From there, we narrowed our scope down to a select few attributes and relationships to make our database different from many others.

In our draft submission for step 3 of the project, we had implemented several adjustments based on the previous week's feedback. One major change was based on the CRUD implementation. Rather than function like in the video games where a trainer would have their Pokedex (database) auto-insert a Pokemon's information upon capture, we realized this would not fit in with CRUD and instead based it off a trainer journeying and entering information as they traveled. So, if a trainer visited a location, captured Pokemon in that location, or defeated a gym leader there, that information would pre-populate into the database. During this time, we also added more quantitative data facts to our project to keep track of data as it was entered.

From step 4 of our project, we finalized our relationships and attributes we wanted to stick with. Officially, we had Pokemon -> Moves and Pokemon -> Locations as our M:M relationships, Type -> Moves as 1:M, and Gym Leaders -> Locations as 1:M. We chose not to pursue a relationship between Pokemon and Types as they both moved on from one another.

For step 5, we set up some of our queries and which functions would be set up for each table. We created a Home screen that gives a nice cover page to what our website is about and what our database can provide for users. Next, we had a search page set separately from the other tables to have a central location for searching for any information throughout the website. The Pokemon and Types tables have been changed to implement all CRUD features with some already pre-populated Pokemon and Types shown on either page. Moves was changed to have C, R and D and is connected to the Types table, fathering type information via foreign key. Locations is set up the same way but instead grabs from the Gym Leaders table which also has full CRUD. Both of the Pokemon_Moves and Pokemon_Locations tables pull from the Pokemon table using the foreign key "pokeID". In addition to utilizing the foreign key pokeID, The Pokemon_Moves table pulls from the Moves table by accessing the foreign key "moveID" and the Pokemon_Locations table pulls from the Locations table by accessing the foreign key "locationID". Both M:M tables are populated with both pre-populated data as well as user input from the Pokemon, Moves, and Locations tables.

Project Outline

Our team has decided to create a model Pokemon database, inspired by the popular video game series created by Nintendo. In the Pokemon universe, trainers capture Pokemon, creatures that have specific types such as fire, flying, or water, and battle against other trainers in an effort to become a Pokemon champion. We have modeled our database on the Sinnoh region of the Pokemon games. This region is the main world utilized in Pokemon: Diamond and Pokemon: Pearl video games.

In the video game universe, there are many different Pokemon, each with their own specific types. The world of Sinnoh has many regions, each containing specific Pokemon unique to each location. An overarching achievement in each Pokemon video game is to "capture them all" or make an effort to capture every single Pokemon in a specific region.

Our Pokemon database, or Pokedex, aims to help a Pokemon player keep track of information on each of the 107 Pokemon found in the Sinnoh region. Our Sinnoh Pokedex will contain information on each Pokemon found, the location they were captured in, the types and move sets they have, and the Gym Leaders that utilize each specific Pokemon. This Pokedex will function differently than in the original video games. In the original video games, when a player encounters or captures a Pokemon, the data is automatically loaded into the Pokedex. Our database will function as a simulation of a quarter point in trainer's journey. For instance, upon logging into the Pokedex, each table will be pre-populated with information about the Pokemon that have already been captured, which gym leaders have been defeated, and which locations have been logged. In order to uphold CRUD functionality, the database will utilize user input. As the trainer moves through the Sinnoh region, they can create, read, update, and delete information.

Each entity listed in this database outline will be a table implemented in the final project. At the end of each entity description, you will find which team member is assigned to write the code for each associated web page.
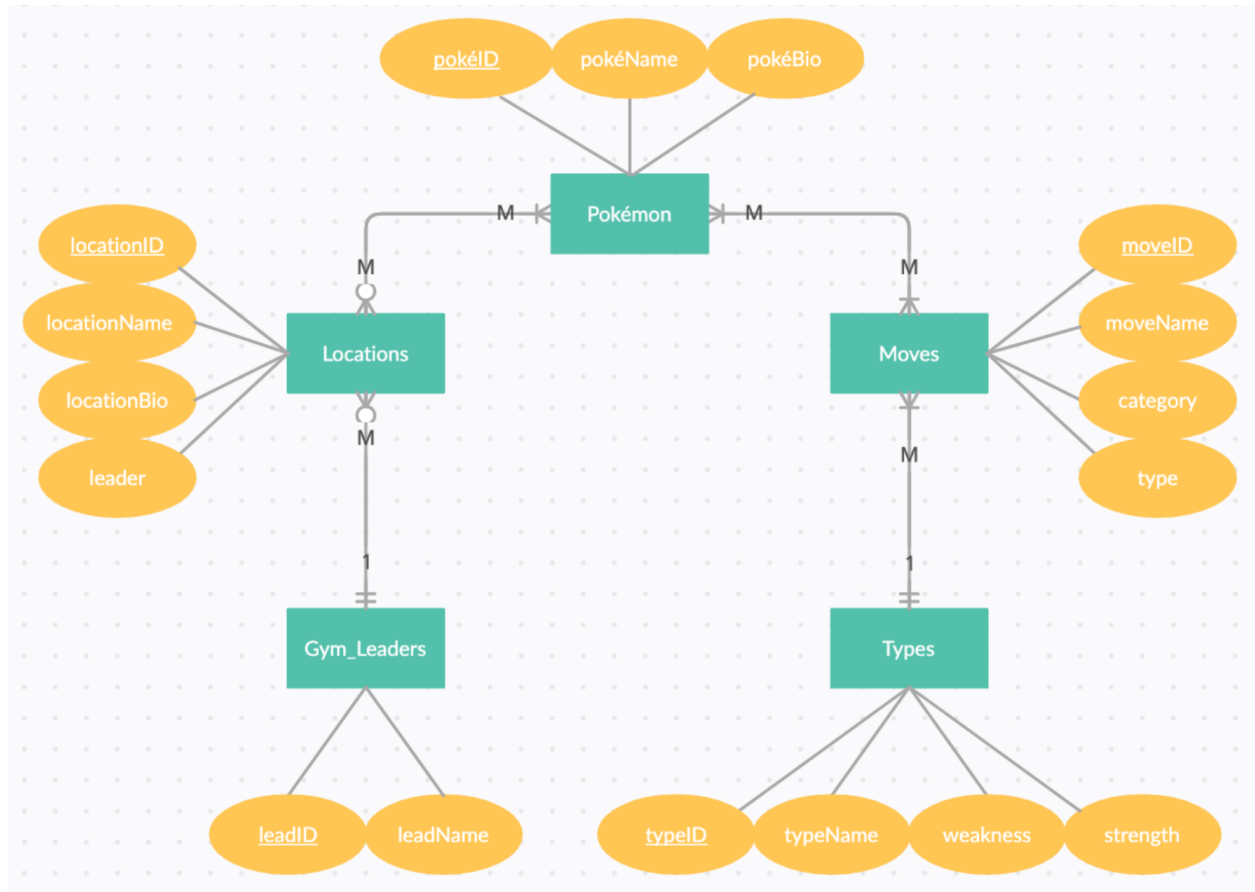
Database Outline

- **Pokemon**: holds information on each Pokemon captured in the Sinnoh region (107 total)
  - pokeID: int(20), unique, auto_increment, not NULL [PRIMARY KEY]
  - pokeName: varchar(255), unique, not NULL
  - pokeBio:varchar(255)
  - **Relationship(s):**
    - **Pokemon_Moves** [FOREIGN KEY]- M:M relationship between Pokemon and moves. Many Pokemon can learn a multitude of moves, and many moves can be learned by a multitude of Pokemon. This intermediate table has pokeID and moveID as foreign keys.
    - **Pokemon_Location** - M:M relationship between Pokemon and locations. Many Pokemon can be found in many locations, and each location can have many Pokemon. This intermediate table has pokeID and locationID as foreign keys.
    - Team Member Assigned: Victoria Zavala
- **Types**: holds information about the various types of Pokemon in the Sinnoh region; can be Fire, Ice, Water, Grass, Electric, Flying, Bug, Poison, Fighting, Rock, Ground, Ghost, Dark, Steel, Dragon, Psychic, and Normal (17 types total)
  - typeID: int(20), not NULL, unique, auto_increment [PRIMARY KEY]
  - typeName: varchar(255), not NULL, unique
  - strength:varchar(255)
  - weakness:varchar(255)
  - **Relationship(s):**
    - 1:M relationship between types and moves. Each move can have only 1 type, but each type can have a multitude of moves
    - Team Member Assigned: Victoria Zavala
- **Gym_Leaders:** holds information about the gym leader encountered at each location in the Sinnoh Region (8 gym leaders total)
  - leadID: int(20), not NULL, unique, auto_increment [PRIMARY KEY]
  - leadName: varchar(255), not NULL, unique
  - **Relationship(s):**
    - 1:M relationship between gym leaders and locations. There can be 1 and only 1 gym leader at each location, but gym leaders can be in many locations.
    - Team Member Assigned: Colin Huey
- **Moves**: holds information about the various moves each Pokemon can use
  - moveID: int(20), not NULL, unique, auto_increment [PRIMARY KEY]
  - moveName: varchar(255), not NULL, unique,
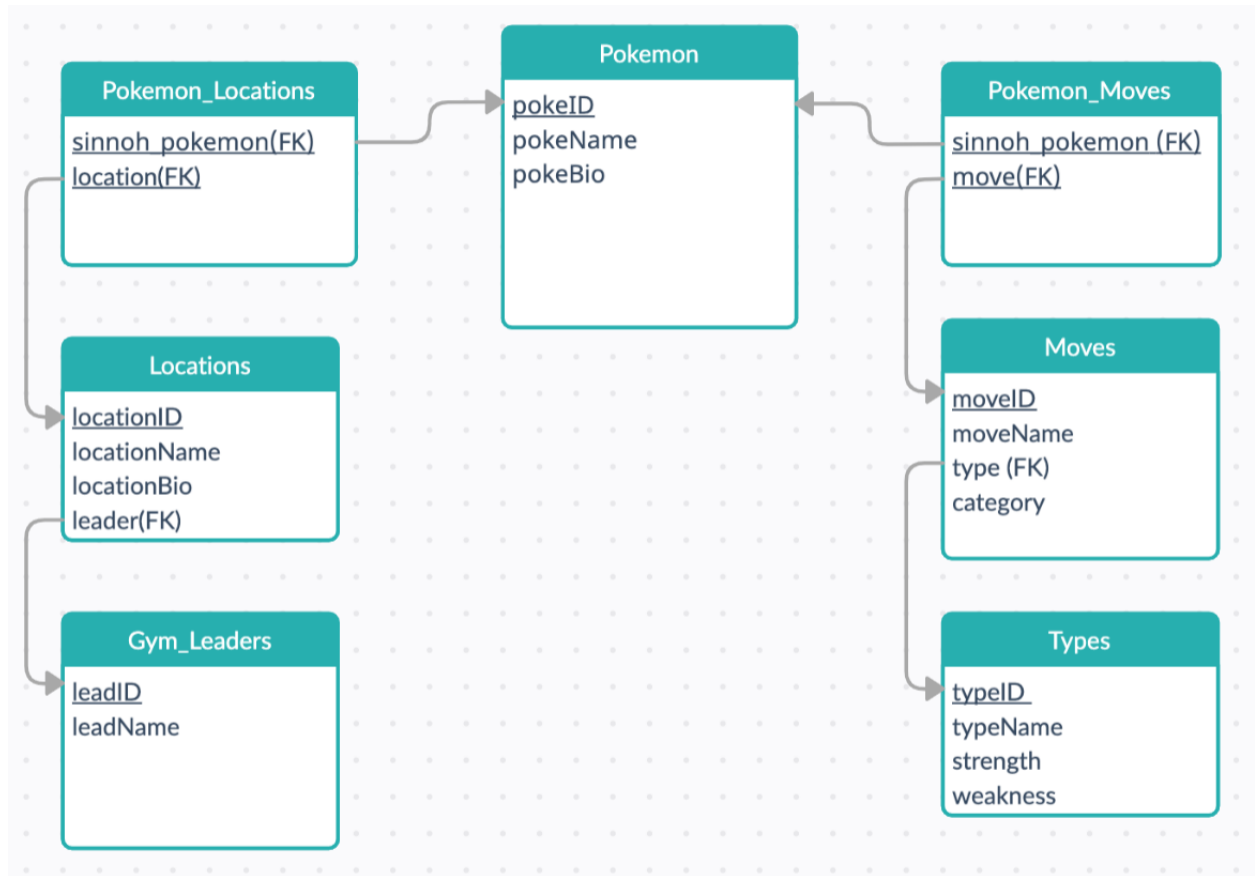 - type: int(20) NOT NULL

- ○ category: int(20) NOT NULL FOREIGN KEY (type) REFERENCES Types (typeID)
- ○ category: varchar(255), not NULL
- ○ **Relationship(s):**
    - ■ 1:M relationship between types and moves. Each move can have only 1 type, but each type can have a multitude of moves
    - ■ M:M relationship between Pokemon and moves. Many Pokemon can learn a multitude of moves, and many moves can be learned by a multitude of Pokemon. (Intermediate table listed as Pokemon_Moves)
    - ■ Team Member Assigned: Victoria Zavala

- **Locations**: holds information about each location found in the Sinnoh region.
    - ○ locationID: int(20), not NULL, unique, auto_increment [PRIMARY KEY]
    - ○ locationName: varchar(255), not NULL, unique
    - ○ locationBio:varchar(255)
    - ○ leader: int(20) NOT NULL, FOREIGN KEY (leader) REFERENCES Gym_Leaders (leadID)
    - ○ **Relationship(s):**
        - ■ M:M relationship between Pokemon and locations. Many Pokemon can be found in many locations. (Intermediate table listed as Pokemon_Locations)
        - ■ 1:M relationship between gym leaders and locations. There can be 1 and only 1 gym leader at a given location, but there are several locations that have a gym leader.
        - ■ Team Member Assigned: Colin Huey

- **Pokemon_Moves**: holds information about the M:M relationship between Pokemon and their moves.
    - ○ sinnoh_pokemon: int(20), NOT NULL o move: int(20), NOT NULL
    - ○ PRIMARY KEY (sinnoh_pokemon, move)
    - ○ FOREIGN KEY (sinnoh_pokemon) REFERENCES Pokemon (pokeID)
    - ○ FOREIGN KEY (move) REFERENCES Moves (moveID)
    - ○ Team Member Assigned: Colin Huey

- **Pokemon_Locations**: holds information about the M:M relationship between Pokemon and the locations they are found in.
    - ○ sinnoh_pokemon: int(20), NOT NULL o location: int(20), NOT NULL

- PRIMARY KEY (sinnoh_pokemon, location)
- FOREIGN KEY (sinnoh_pokemon) REFERENCES Pokemon (pokeID)
- FOREIGN KEY (location) REFERENCES Locations (location ID)
- Team Member Assigned: Victoria Zavala

ERD Diagram:

Schema:

Pokemon_Locations
- sinnoh_pokemon(FK)
- location(FK)

Pokemon
- pokeID
- pokeName
- pokeBio

Pokemon_Moves
- sinnoh_pokemon (FK)
- move(FK)

Locations
- locationID
- locationName
- locationBio
- leader(FK)

Moves
- moveID
- moveName
- type (FK)
- category

Gym_Leaders
- leadID
- leadName

Types
- typeID
- typeName
- strength
- weakness

Screenshots:

(No CRUD) Home Page:

(Search, No CRUD)Search Page:
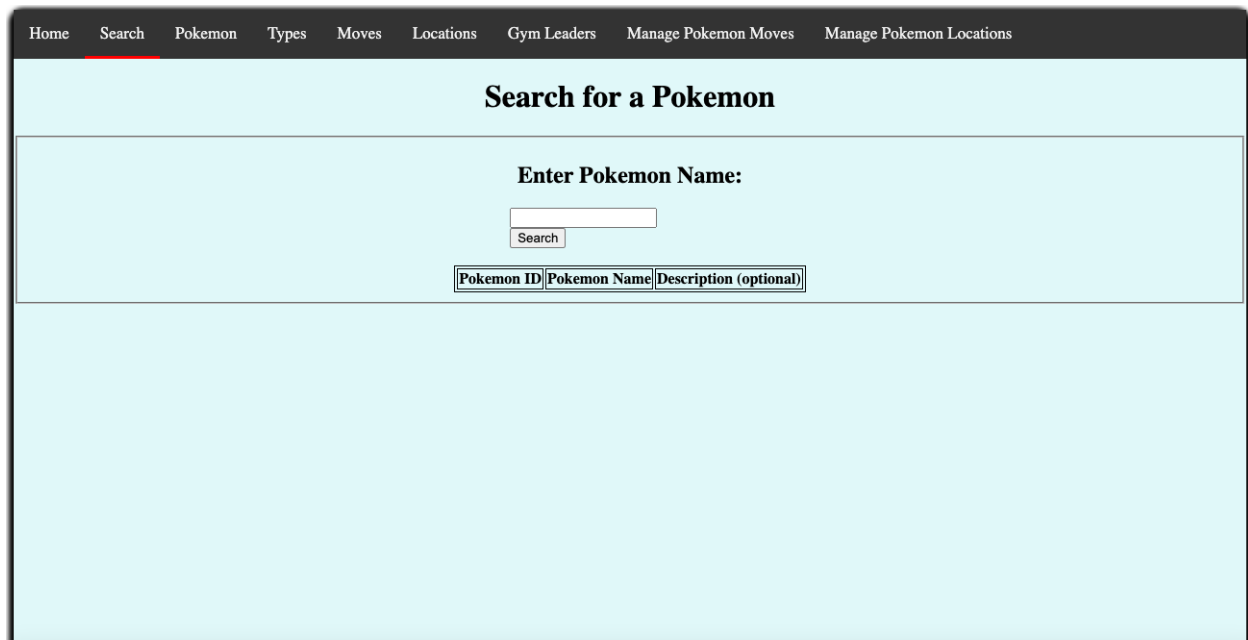
(ADD/VIEW/UPDATE/DELETE) Pokemon Page:

| Home | Search | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Pokemon

Here you will find details about the various Pokemon found in the wonderful and mysterious Sinnoh region. You may view, create, update, and delete these types.

Add a Pokemon

View Pokemon

Pokemon ID	Pokemon Name	Description (optional)	Update/Delete
1	Chimchar	A small, feisty Pokemon we received from Professor Rowan.	Update Delete
2	Starly	A species of Bird Pokemon found on Route 201	Update Delete
3	Shinx	A quadrupedal, feline Pokémon resembling a lion cub or lynx kitten	Update Delete
4	Electivire	A large, humanoid Pokémon covered in yellow fur with black stripes	Update Delete
6	Squirtle	A small Pokemon that resembles a turtle	Update Delete
9	Pikachu	The most famous Pokemon around!	Update Delete

(ADD/UPDATE) Pokemon Add or Update Page:

| Home | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Add or Update Pokemon

Enter a Pokemon Name: [   ]   Enter a Description for the Pokemon (optional): [   ]

Submit

(ADD/VIEW/UPDATE/DELETE) Types Page:

	Home	Search	Pokemon	Types	Moves	Locations	Gym Leaders	Manage Pokemon Moves	Manage Pokemon Locations

Types

Here you will find details about the various types of Pokemon you may encounter in the Sinnoh region. There are 17 total types, and each Pokemon can either have 1 or two types. Each type may have both strengths and weaknesses. You may view, create, update, and delete Pokemon types.

Add a Type

View Pokemon Types

Type ID	Type Name	Weaknesses (optional)	Strengths (optional)	Update/Delete	
1	Rock	Fighting	Flying	Update	Delete
2	Fighting	Flying	Rock	Update	Delete
3	Flying	Rock	Fighting	Update	Delete
4	Fire	Water	Grass	Update	Delete
5	Water	Grass	Fire	Update	Delete
6	Grass	Fire	Water	Update	Delete
7	Electric	Ground	Water	Update	Delete
11	Psychic	Dark	Fighting	Update	Delete

(ADD/UPDATE) Types Add or Update Page:

	Home	Pokemon	Types	Moves	Locations	Gym Leaders	Manage Pokemon Moves	Manage Pokemon Locations

Add or Update Type

Add a Type [   ] This type is weak against (optional): [   ] This type is strong against (optional): [   ] Submit

(ADD/VIEW/UPDATE/DELETE) Moves Page:

Home   Search   Pokemon   Types   Moves   Locations   Gym Leaders   Manage Pokemon Moves   Manage Pokemon Locations

Moves

Here you will find details about which moves each Pokemon can perform in battle. You may view, create, update, and delete Pokemon types.

Add a Move

View Moves

Move ID	Move Name	Category	Type	Delete
1	Ember	Special	Fire	Delete
2	Gust	Special	Flying	Delete
3	Thundershock	Special	Electric	Delete
4	Thunderpunch	Physical	Electric	Delete
9	Flamethrower	Special	Fire	Delete
10	Air Slash	special	Flying	Delete

(ADD/UPDATE) Moves Add or Update Page w/ Drop Down Menu:

Home   Pokemon   Types   Moves   Locations   Gym Leaders   Manage Pokemon Moves   Manage Pokemon Locations

Add or Update Move

Add a Move [   ]   Category (physical, special, or status): [   ]   Add a Type

Submit

✓ Rock
Fighting
Flying
Flying
Fire
Fire
Water
Grass
Electric
Electric
Psychic

(ADD/VIEW/DELETE) Locations Page:

Home	Search	Pokemon	Types	Moves	Locations	Gym Leaders	Manage Pokemon Moves	Manage Pokemon Locations

Locations

Here you will find details about all of the beautiful, somewhat mysterious locations found in the Sinnoh region. You may view, create, update, and delete locations.
**NOTE: Not all locations have a gym leader.

[Add a Location]

View Locations

Location ID	Location Name	Location Description (optional)	Leader	Delete
1	Oreburgh City	A mining town blessed with significant natural resources.	Roark	Delete
2	Route 201	A route in southwestern Sinnoh, connecting Twinleaf Town and Sandgem Town	None	Delete
3	Fuego Ironworks	Refines iron ore mined from Mt. Coronet to make iron and to manufacture mechanical parts.	None	Delete
4	Twinleaf Town	The coziest town in the Sinnoh region	None	Delete

(ADD/UPDATE) Locations Add or Update Page w/ Drop Down Menu:

Home	Pokemon	Types	Moves	Locations	Gym Leaders	Manage Pokemon Moves	Manage Pokemon Locations

Add or Update Locations

Add a Location [   ]   Location (description): [   ]   Add a Gym Leader ✓

[Submit]

Roark

Gardenia

Maylene

Crasher Wake

(ADD/VIEW/UPDATE/DELETE) Gym Leaders Page:

| Home | Search | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Gym Leaders

Here you will find details about all of the gym leaders you are able to challenge in the Sinnoh Region.

Add a Gym Leader

View Gym Leaders

Gym Leader ID	Gym Leader Name	Update/Delete
1	Roark	Update Delete
2	Gardenia	Update Delete
3	Maylene	Update Delete
4	Crasher Wake	Update Delete

(ADD/UPDATE) Gym Leaders Add or Update Page:

| Home | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Add or Update Gym Leaders

Add a Gym Leader [   ]

Submit

(ADD/VIEW/DELETE) Manage Pokemon Moves Page:

| | Home | Search | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

View Pokemon Moves

Here you may find information about the particular moves each Pokemon can use. You may add, update, or delete these relationships.

Add a Pokemon Move

View Pokemon Moves

Pokemon ID	Pokemon Name	Move ID	Move Name	Delete
1	Chimchar	1	Ember	Delete
1	Chimchar	2	Gust	Delete
1	Chimchar	9	Flamethrower	Delete
2	Starly	2	Gust	Delete
3	Shinx	2	Gust	Delete
3	Shinx	3	Thundershock	Delete
6	Squirtle	2	Gust	Delete
9	Pikachu	3	Thundershock	Delete
9	Pikachu	4	Thunderpunch	Delete

12/view_pokemon.html

(ADD/UPDATE) Manage Pokemon Moves Add or Update Page w/ Drop Down Menu:

| Home | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Add a Pokemon Move

Enter Pokemon ID   ✓ 1   Enter Move ID: 2 ⌄
1
1
2
3
3
4
6
9
9

(ADD/VIEW) Manage Pokemon Locations:

| Home | Search | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

View Pokemon Locations

Here you may find information about the particular locations each Pokemon can be found within the Sinnoh Region. You may add, update, or delete these relationships.
*NOTE: Not all Pokemon have a locations. Some can only be obtained through trading or in-game events.

Add a Pokemon Location

View Pokemon Locations

Pokemon ID	Pokemon Name	Location ID	Location Name
1	Chimchar	1	Oreburgh City
2	Starly	2	Route 201
3	Shinx	3	Fuego Ironworks
4	Electivire	4	Twinleaf Town
9	Pikachu	2	Route 201

12/main.html

(ADD) Manage Pokemon Locations w/ Drop Down Menu:

| Home | Pokemon | Types | Moves | Locations | Gym Leaders | Manage Pokemon Moves | Manage Pokemon Locations |

Add a Pokemon Location

Enter Pokemon ID Enter Location ID 2

✓ 1
2
3
4
6
9