

Database Systems CSC 675.03 Fall 2019

MySQuirtLe - The Pokémon Companion App

Team 09

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1. Executive Summary

This application is a tool for first time users playing the Generation I Pokémon game – Pokémon Yellow – on the GameBoy Color, GameBoy Color emulator, or anything equivalent. Users that have no prior experience playing any Pokémon game may face difficulties in the game's progression system, mazes, and battle preparation. The Pokémon Companion App will serve as a tool for struggling individuals playing through Pokémon Yellow. Users of this app will be able to reference a variety of in-game information, such as: where to locate certain Pokémon, what Pokémon can evolve into, what challenges the next town or location will have, and more via a walkthrough guide style application. Compared to other guides, the Pokémon Companion App will also have information on Gym Leaders and their teams. With this, users will also have recommendations on how to prepare for battles against upcoming Gym Leaders and challenges.

2. Use Cases

Case 1 (Xavier): Xavier just got to a new route and wants to know what Pokemon he can catch. He opens the app, and searches for his location. After selecting it, he's presented with a list of all the Pokémon in his location that he can catch. From there, he can read their summaries, and figure out what he wants to catch.

Case 2 (Kara): Kara just lost to a gym leader and wants to get stronger before trying again. She opens up the app, and navigates to the gym leader she's challenging. She's then given a list of the leader's Pokémon and their types, as well as recommended Pokémon in areas she's already been to. Kara chooses one of the Pokemon, finds out what route it resides in, and heads out to catch it.

Case 3 (James): James really wants a Raichu. He knows it evolves from Pikachu but he doesn't know how. James opens the app, and searches for Raichu or Pikachu. After reading its summary, he learns that it evolves with an Item that he can buy. He selects the item, looks to see where its sold, then goes to purchase it

3. Entities Glossary

Trainer: A person who has a team of pokemon. The user of the app, is a trainer in-game. Trainers battle other trainers with their teams of Pokémon in-game.

Gym Leader: Eight special trainers with an assigned type. Each resides in a gym found in a town. The user must defeat the gym leaders in battle throughout the game to progress. Upon defeat, each gym leader will reward the user with a specific gym badge.

Pokémon: Creatures that exists in-game. They can be found on routes, and caught by trainers. Each Pokemon has one, or two types. Trainers can have teams of Pokemon to use in battle with other trainers. Also, some Pokémon can evolve into other Pokemon under the right conditions.

Type: 15 elemental affinities, that each Pokémon, and some trainers have. Every Pokemon has a type, as well as some trainers. Each type has an effectiveness to every other type, similar to a rock paper scissors, but spread across 15 elements.

Gym Badges: Special items awarded to the user by gym leaders. They allow the use of certain Items. It is the user's goal to collect all eight gym badges in-game.

Routes: Locations in between towns where Pokemon can be found.

Users: Any individual that visits the website to look up or research information.

4. Business Rules

1. A Pokemon can belong to a Trainer
2. Pokemon can have an Evolution Condition
3. Locations can contain Pokemon
4. A Pokemon can have multiple Types
5. A Team must consist of at least one Pokemon
6. A Trainer must have a Team
7. A Trainer is a Typed Trainer
8. A Typed Trainer must have a Type
9. A Gym Leader is also a Typed Trainer
10. A Gym Badge is given by a Gym Leader
11. Types have an effectiveness rating to other Types
12. Towns and Routes are in Locations
13. Multiple Items can be found in a Location

5. List of Entities, Relationships, and Attributes

Trainer

- Relationships: has (Team)
- Attributes:
 - tid (primary key)
 - Name
 - Progress_index

Typed Trainer

- Relationships: is_a (Trainer), has (Type), found_in (Location)
- Attributes: N/A

Gym Leader

- Relationships: is_a (Typed Trainer), gives (Gym Badge)
- Attributes: N/A

Pokemon

- Relationships: belong_to (Team), caught_at (Location), has (Type), evolves_into (Pokemon)
- Attributes:
 - pid (primary key)
 - Name
 - Description
 - Height
 - Weight
 - Progress_index

Type

- Relationships: has_effectiveness_to (Type), assigned_to (Pokemon, assigned_to (Typed Trainer
- Attributes:
 - Element_name

Gym Badge

- Relationships: given_by (Gym Leader), has_a (Type)
- Attributes: N/A

Item

- Relationships: found_in (Location)
- Attributes:
 - Name
 - Effect
 - Buy Price
 - Sell Price

Location

- Relationships: lead_to (Location)
- Attributes:
 - Name
 - Progress_index

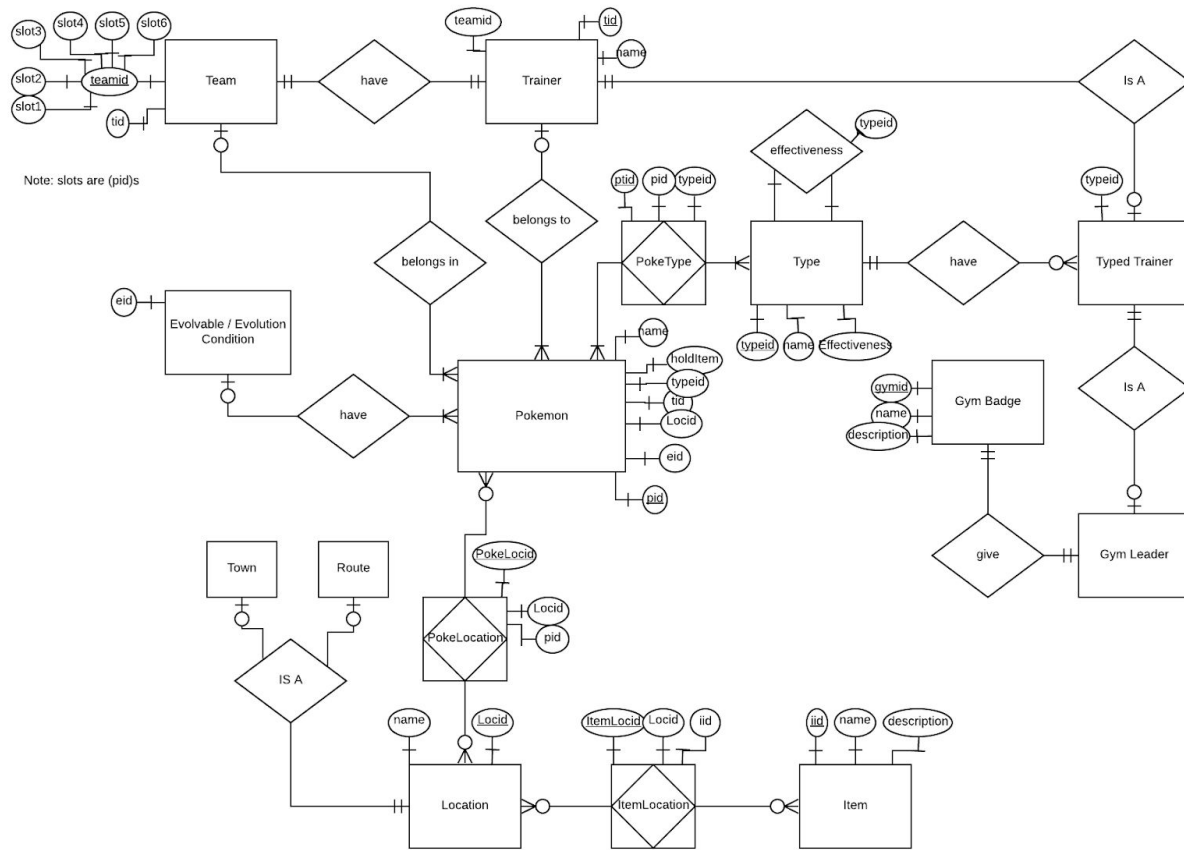
Routes

- Relationships: is_a (Location)
- Attributes: N/A

Towns

- Relationships: is_a (Location)
- Attributes: N/A

6. Entity Relationship Diagrams (ERD)



7.ERD Test

Business Rule #	Entity 1	Relationship	Type of R	Entity 2	Pass/Fail	Modify
1	Pokemon	belong	M to 1	Trainer	F	0 or 1
2	Pokemon	has	1 to M	Evolution	F	0 or 1
3	Pokemon	belong in	M to 1	Location	F	0 or 1
4	Pokemon	has	M to M	type	P	N/a
5	Team	has	0 to M	Pokemon	F	0 or 1
6	Trainer	have	1 to 1	Team	P	N/a
7	Trainer	Is a	1 to 1	Typed Trainer	F	0 or 1
8	Typed Trainer	has	1 to 1	Type	F	M to 1
9	Gym Leader	Is a	1 to 1	Typed Trainer	P	N/A
10	Gym Badge	Given by	M to 1	Gym leader	F	1 to 1
11	Type	effectiveness	M to M	type	F	1 to 1
12	Towns/Route	in	1 to 1	Location	P	N/a
13	Items	Found in	M to M	Location	P	N/a

8. List of Non-functional Requirements

- **Accessibility** - The application should be easy and convenient to use. No excessive pages. Simple menu navigation.
- **Deployment** - We will be making a static (non-changing) database, and therefore, the deployment should be accurate and free of misinformation.
- **Emotional Factors** - As an application for a video game, the app should be fun and inviting. Users should feel pleasant and relaxed when using the app.
- **Legal and Licensing** - We will need to make sure the application isn't violating any copyright
- **Readability** - Large font and clear UI. Information should be presented neatly
- **Reliability** - The data in the database is constant, and should be accurate.
- **Usability** - The application shall have clean and understandable UI. No one should struggle to find the information they're looking for when using the app.
- **Language** – The application shall be displayed in English

- **Security** – The database server will be kept separate from the web server. The data in the database will be static data, so we will only need to backup whenever information is changed. Public will also have no access to the database information unless approved. The database must be safe from sql injection, and must have proper input cleaning.
- **Performance** – Data should display on the web page in under 3 seconds. Search time should also be under 3 seconds.
- **Storage** – The website will take at most 200 megabytes of storage, and the database will have at most 1 gigabyte of data
- **Compatibility** - This database must be designed to be capable of easily adding other entities related to Pokemon Yellow.

9. Work Done

1. Pramish (team lead) 10

Divided the task to individual group person and keep them updated through Trello. Did the work done part and handled GitHub repository also scheduling the team meetings and keeping track of the work progress.

2. Brian Le 10

Worked on re-doing Business Rule, Executive summary and helped with the ERD design for Pokémon game. Also worked on reviewing the final version of this M1V1.

3. Adeel 10

Worked on re-doing ERDs Test. Also worked on reviewing the final version of this M1V1.

4. Chris 10

Came with the idea of this project and helped brainstorm ideas for the project. Completed Entities Glossary, Use cases, initial list of entities, relationships, and their attributes and Non-functional requirement. Also worked on reviewing the final version of this M1V1.

5. Raymond 10

Helped brainstorm ideas for the project. Completed Business Rule, worked on Executive Summary, and Worked on ERD and Initial list of entities, relationships, and their attributes. Also worked on reviewing the final version of this M1V1.