University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: M4

Date: 12/1/23

Group Number: 81

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

University of British Columbia, Vancouver
Department of Computer Science

Project Summary:

Our project is a Pokemon Go journal that aims to allow players to keep track of their activities and interactions with both in-game and outside of game elements. Our database models different in-game aspects that players may want to keep track of, in addition to actions that players may do in-game. As such, players can keep track of what they have accomplished within the game, as well as compare with other players.

Project Repository:
https://github.students.cs.ubc.ca/CPSC304-2023W-T1/project_m4y2u_x5y6z_z4j2v

SQL Script:
See /src/database/pokemon.sql

Changes in Schema:

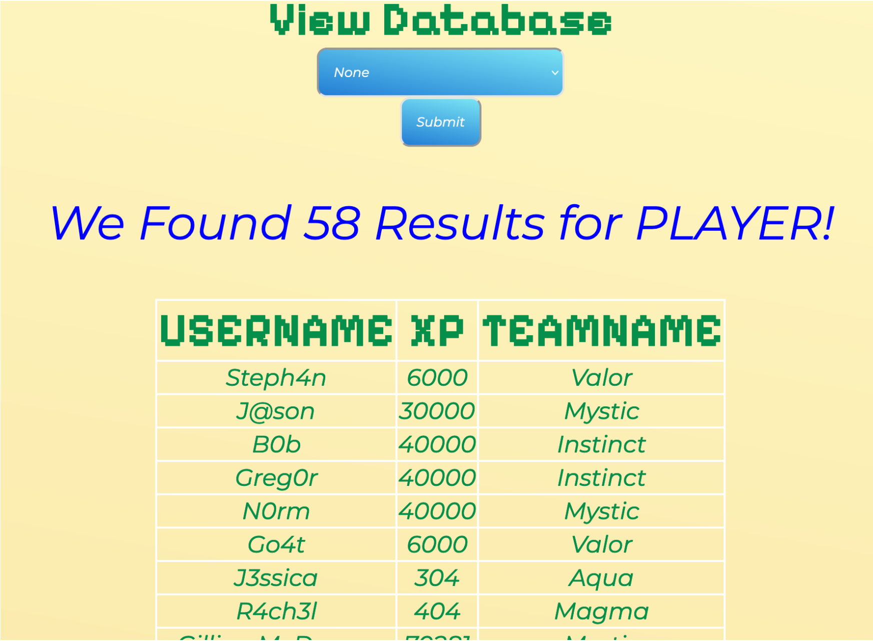
- Created PlayerCapturedPokemon and PlayerCapturedEgg tables instead of PlayerCapturedSpecies, since it is total + disjoint the FK cannot reference both Pokemon and Egg, and it was simpler to query

Schema:

- Attached as a separate pdf

Queries:

- **Insert**
    - File location:
        - src/backend/Insert.php, lines 109-224
    - What:
        - Screenshots of inserting into Player Table
    - Before:

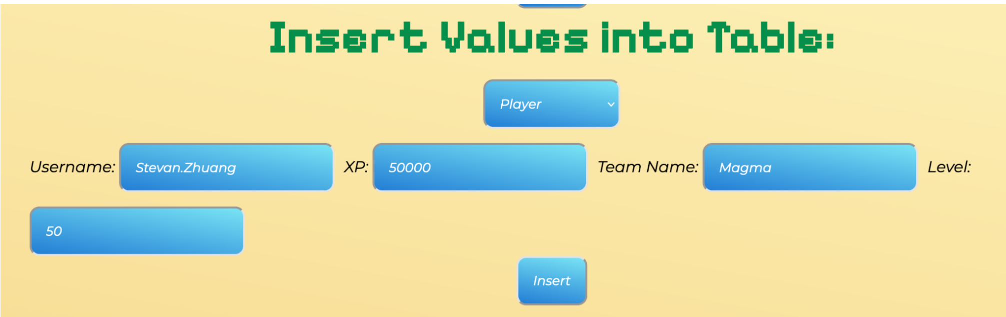


View Database

We Found 58 Results for PLAYER!

USERNAME	XP	TEAMNAME
Steph4n	6000	Valor
J@son	30000	Mystic
B0b	40000	Instinct
Greg0r	40000	Instinct
N0rm	40000	Mystic
Go4t	6000	Valor
J3ssica	304	Aqua
R4ch3l	404	Magma

- During:

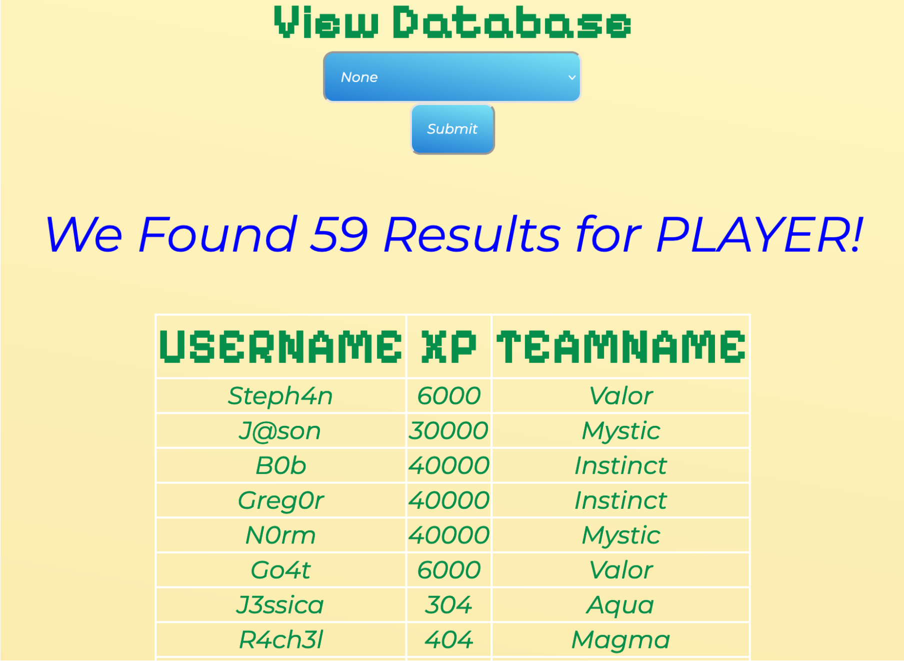


Insert Values into Table:

Player

Username: Stevan.Zhuang XP: 50000 Team Name: Magma Level: 50

- After:



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USERNAME	XP	TEAMNAME
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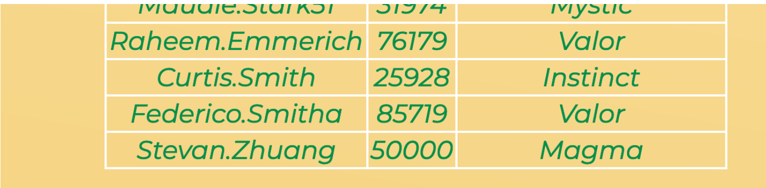
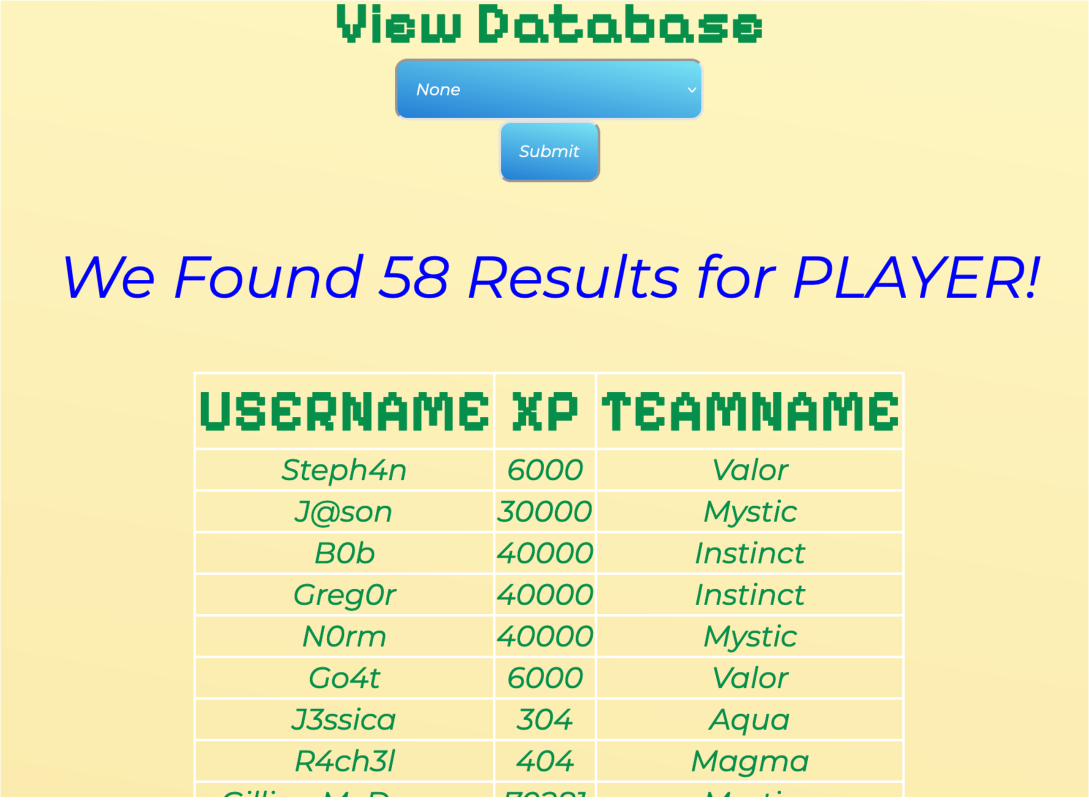
Go4t	6000	Valor
J3ssica	304	Aqua
R4ch3l	404	Magma



Maudie.Stark51	31974	Mystic
Raheem.Emmerich	76179	Valor
Curtis.Smith	25928	Instinct
Federico.Smitha	85719	Valor
Stevan.Zhuang	50000	Magma

- **Delete**
    - File location:
        - src/backend/Delete.php, lines 68-106
    - What:
        - Screenshots of deleting a tuple in Player Table

- Before:



View Database

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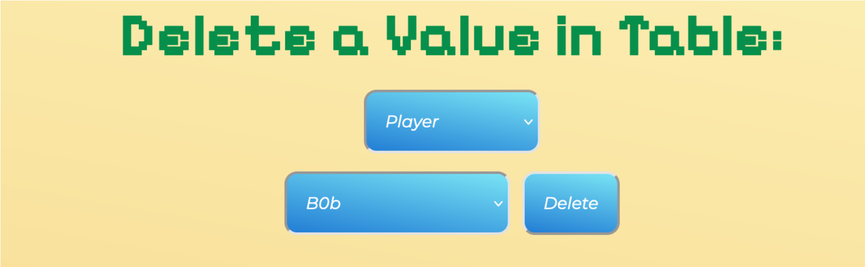
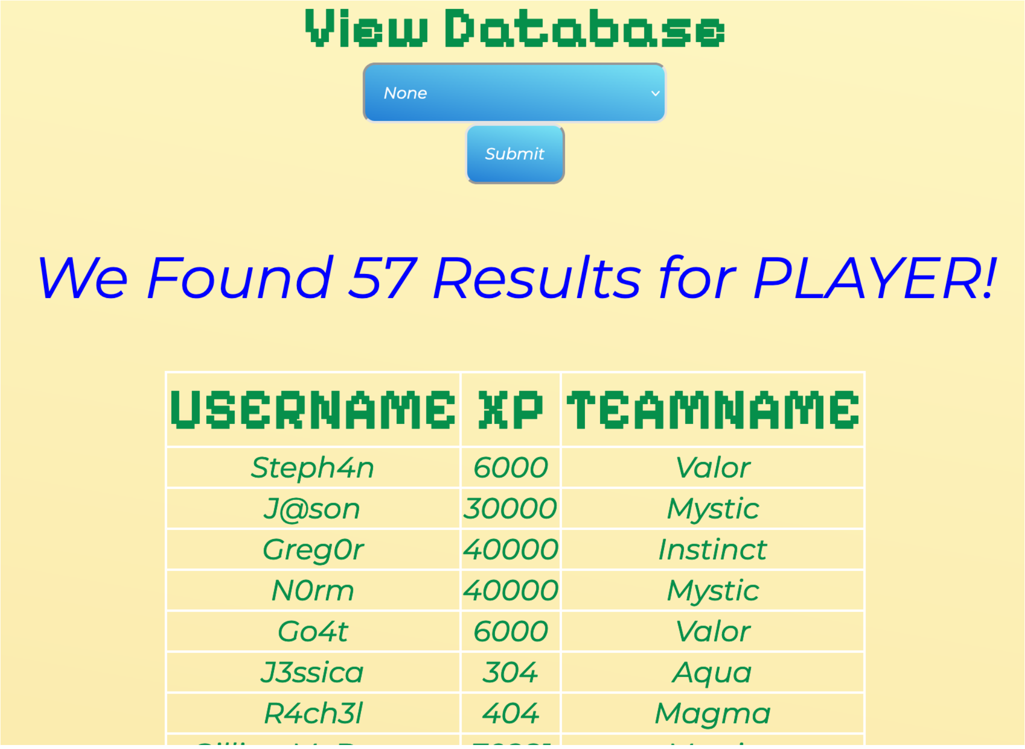
USERNAME	XP	TEAMNAME
Steph4n	6000	Valor
J@son	30000	Mystic
B0b	40000	Instinct
Greg0r	40000	Instinct
N0rm	40000	Mystic
Go4t	6000	Valor
J3ssica	304	Aqua
R4ch3l	404	Magma

- During:



Delete a Value in Table:

- After:



We Found 57 Results for PLAYER!

USERNAME	XP	TEAMNAME
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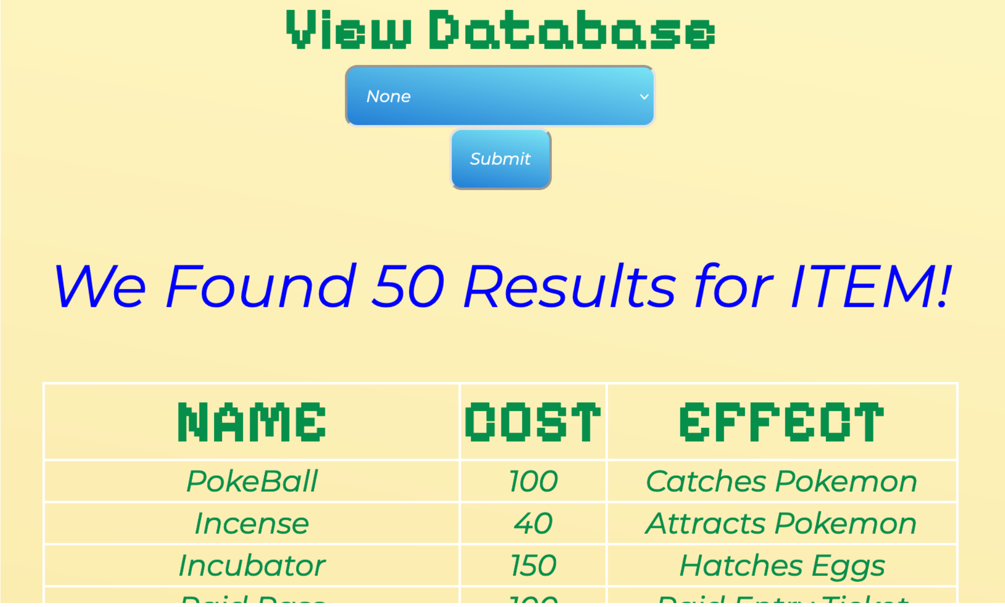
Greg0r	40000	Instinct
N0rm	40000	Mystic
Go4t	6000	Valor
J3ssica	304	Aqua
R4ch3l	404	Magma

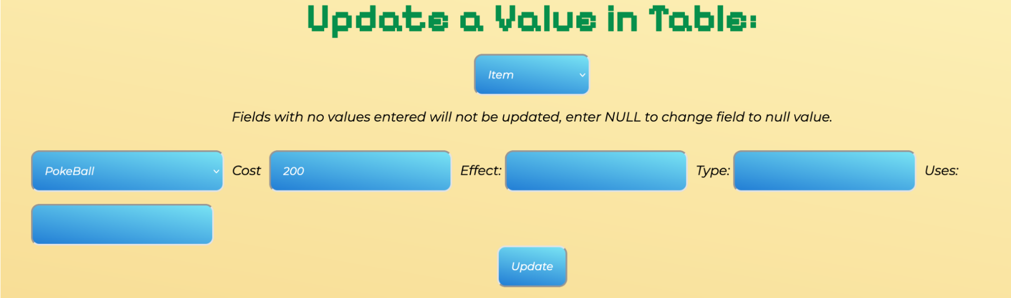
- **Update**
    - File location:
        - src/backend/Update.php, lines 124-268
    - What:
        - Screenshots of updating a tuple in Item Table
    - Before:



We Found 50 Results for ITEM!

NAME	COST	EFFECT
PokeBall	100	Catches Pokemon
Incense	40	Attracts Pokemon
Incubator	150	Hatches Eggs
Raid Pass	100	Raid Entry Ticket

- During:



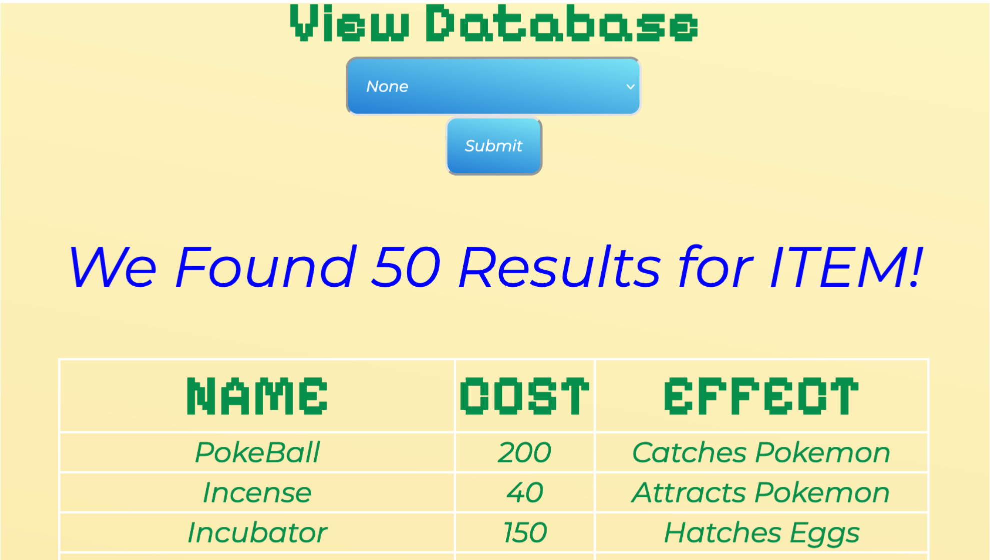
Update a Value in Table:

Item

Fields with no values entered will not be updated, enter NULL to change field to null value.

PokeBall Cost: 200 Effect: Type: Uses:

- After:



View Database

None

We Found 50 Results for ITEM!

NAME	COST	EFFECT
PokeBall	200	Catches Pokemon
Incense	40	Attracts Pokemon
Incubator	150	Hatches Eggs

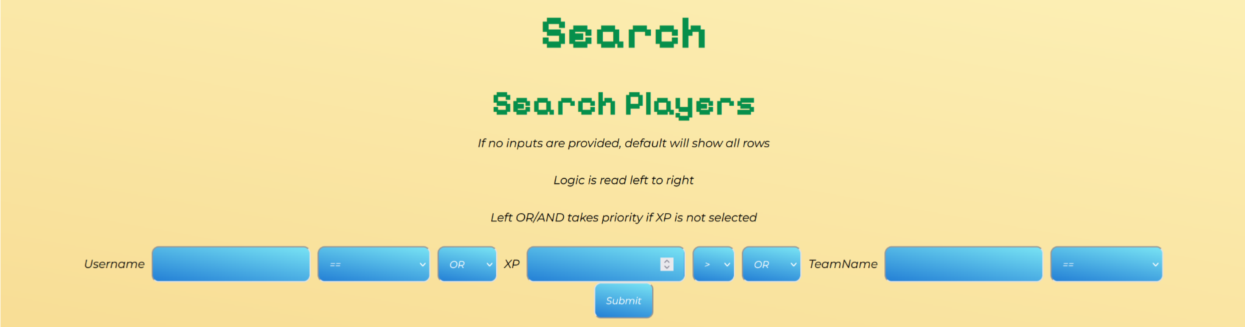
- **Selection**
    - File location:
        - src/backend/Select.php
        - Lines 71-111
    - What:
        - The selection query refines the query by allowing the user to optionally input a username, xp value, and teamname. These values are taken from the GUI input and are first parsed for input sanitization. Following, the code checks if a value was provided, and if so adds constructs the query around it.
        - The user is able to specify if they want the string to end with, start with, or have the specific value that they want, and so there is a helper function handleWildcards that handles that, which would append and/or prepend '%' character depending on user input.
        - Finally, the user is able to combine queries together with and and or expressions, which is accomplished via INTERCEPT and UNION instructions

- This is an example of a query that would get constructed if the user specified that they wanted the username to have the letter ‘b’ in it and have the xp value greater than 1000, or be part of team Magma

```
Username:
SELECT *
FROM Player p
WHERE TRIM(p.Username) LIKE ‘%b%’
XP:
SELECT *
FROM Player p
WHERE p.XP > 1000
TeamName:
SELECT *
FROM Player p
WHERE TRIM(p.TeamName) LIKE ‘Magma’
```

- If no inputs are given, we default to selecting all values from the table

- Before:



Search

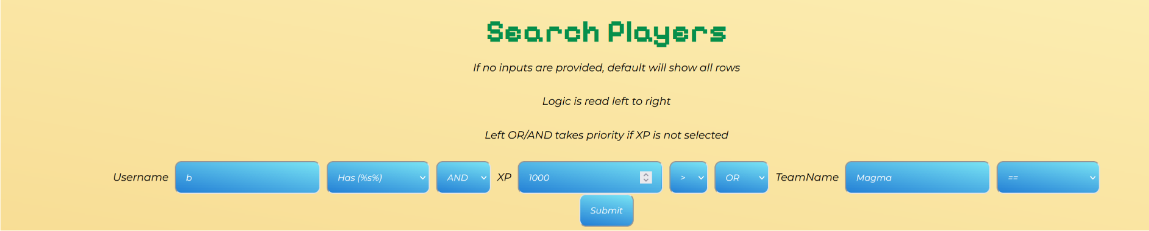
Search Players

If no inputs are provided, default will show all rows

Logic is read left to right

Left OR/AND takes priority if XP is not selected

- During:
  - This is the query that gets created:



Search Players

If no inputs are provided, default will show all rows

Logic is read left to right

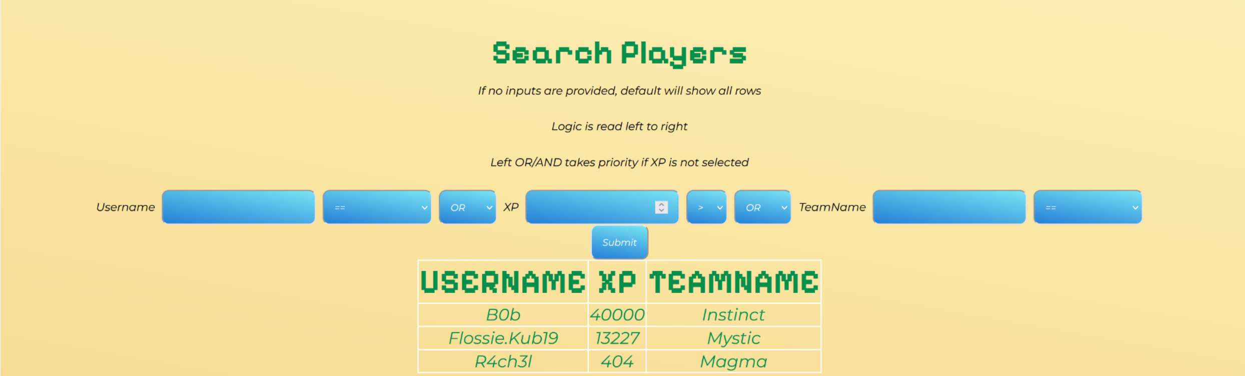
Left OR/AND takes priority if XP is not selected

Username b Has (%s%) AND XP 1000 > OR TeamName Magma ==

-

```
(SELECT *
FROM Player p
WHERE TRIM(p.Username) LIKE '%b%' )
INTERSECT
(SELECT *
FROM Player p
WHERE p.XP > 1000)
UNION
(SELECT *
FROM Player p
WHERE TRIM(p.TeamName) LIKE 'Magma' )
```

-
- After:



Search Players

If no inputs are provided, default will show all rows

Logic is read left to right

Left OR/AND takes priority if XP is not selected

USERNAME	XP	TEAMNAME
B0b	40000	Instinct
Flossie.Kub19	13227	Mystic
R4ch3l	404	Magma

-

- **Projection**
    - File location:
        - src/backend/ViewTables.php
        - Lines 31-90 & 97-129
    - What:
        - Selects all table names and their associated column names from the database to construct the input UI
        -

Selecting all tables:

```
SELECT table_name FROM user_tables
```

Selecting all column names from each table (done with loop):

```
SELECT column_name
FROM USER_TAB_COLUMNS
WHERE table_name = '$tableName'
```

- Selects all values from a specified column name in the input
-

Select all selected columns from specified tables

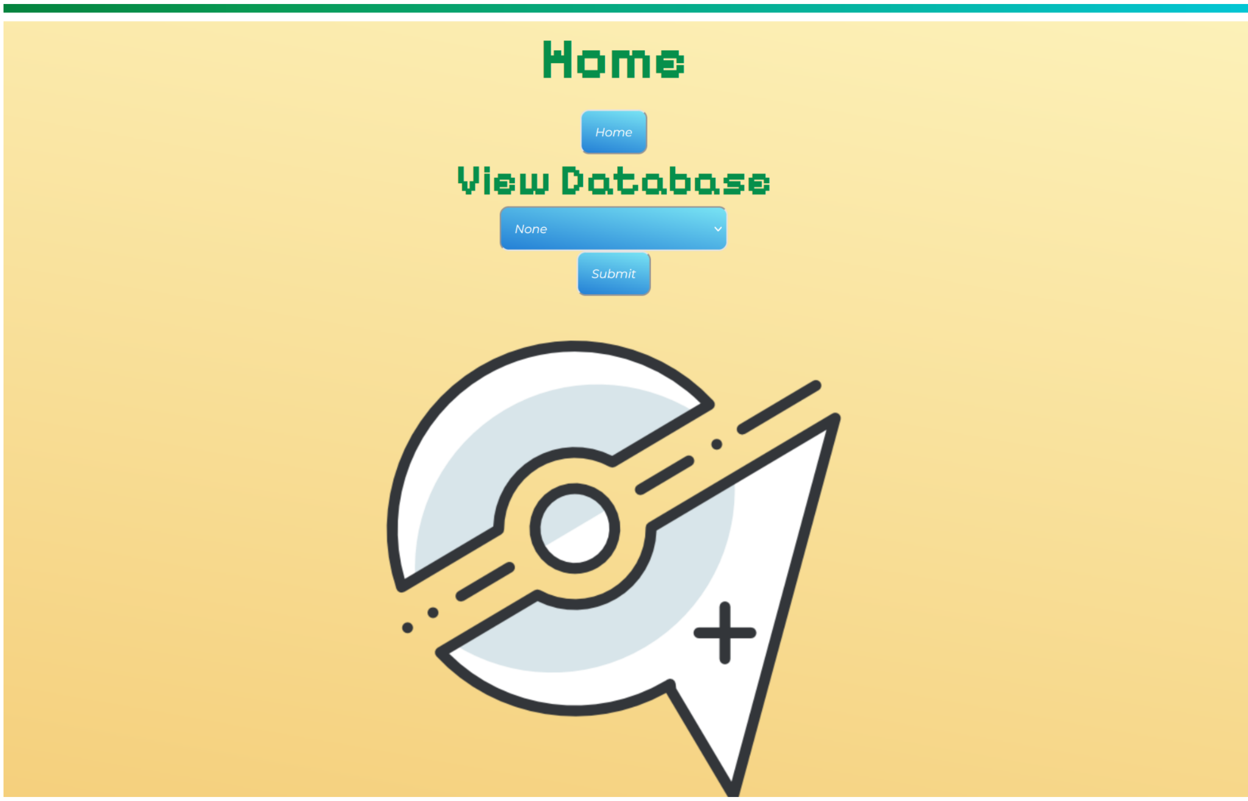
```
"SELECT " . implode(", ", $columns_to_show)
. "FROM $tableName"
```

where `implode(", ", $columns_to_show)` joins all columns selected with ", " ex. if `$columns_to_show == [Username, XP, TeamName]` and we were projecting the table Players, the query would be

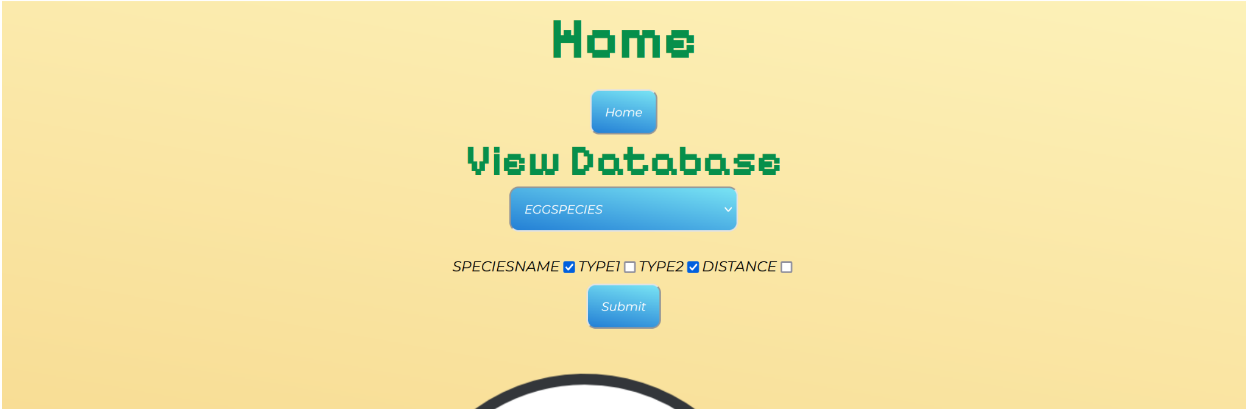
```
SELECT Username, XP, TeamName
FROM Players
```

-

- Before:



- During:



EGGSPECIES

SPECIESNAME ☑ TYPE1 □ TYPE2 ☑ DISTANCE □

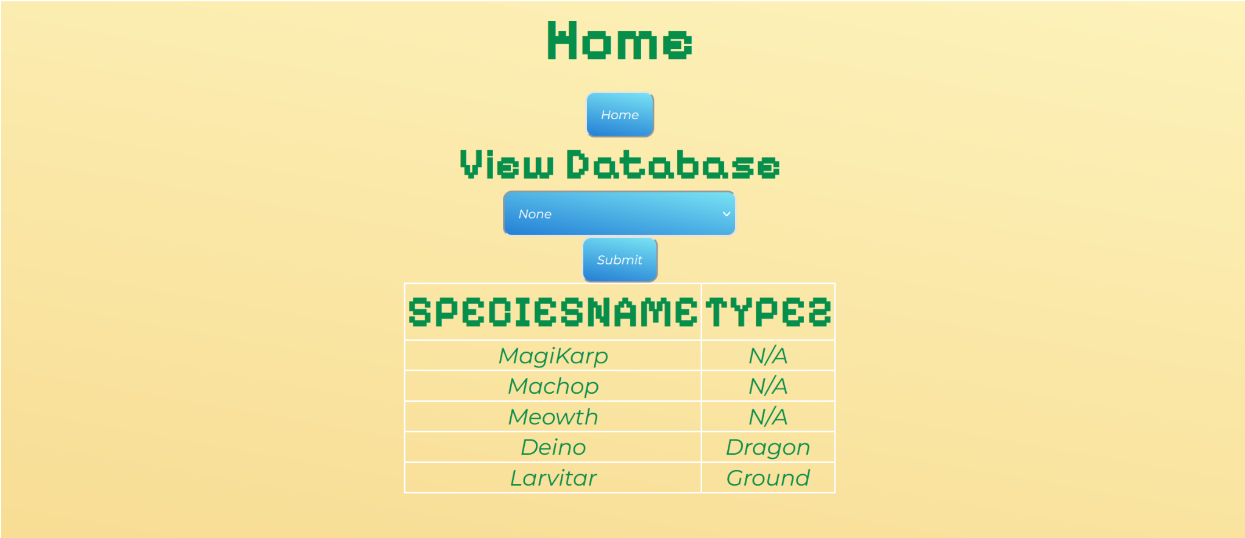
-

This is the query that gets created:

```
SELECT SpeciesName, Type2
```

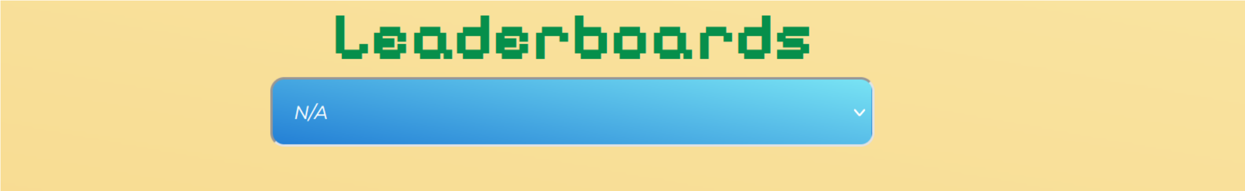
```
FROM EggSpecies
```

-
- After:



SPECIESNAME	TYPE2
MagiKarp	N/A
Machop	N/A
Meowth	N/A
Deino	Dragon
Larvitar	Ground

- **Join**
    - File location:
        - src/backend/Leaderboard.php
        - lines 153-163 & 165-227
    - What:
        - Joins the PlayerCapturedPokemon and Pokemon tables together on SpeciesID = ID
        - with a given Pokemon species, finds the number of people who own that Pokemon grouped by Team
    - Before:



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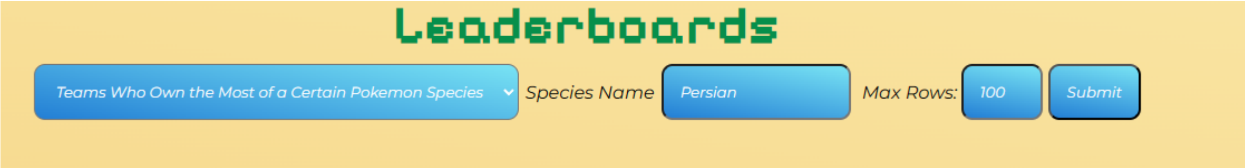
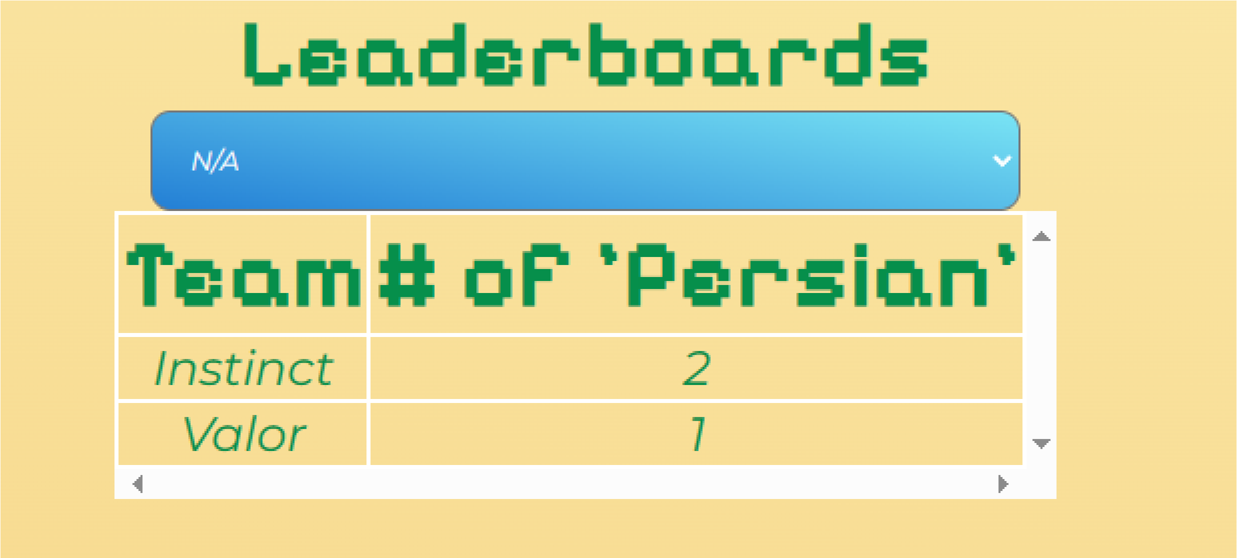
- During:



Teams Who Own the Most of a Certain Pokemon Species
Species Name: Persian
Max Rows: 100

-
- After:

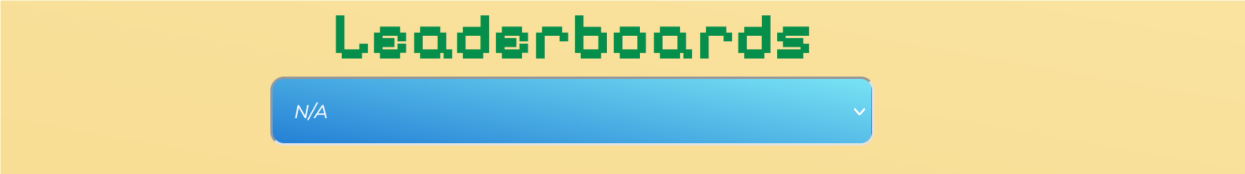


Leaderboards

N/A

Team	# of 'Persian'
Instinct	2
Valor	1

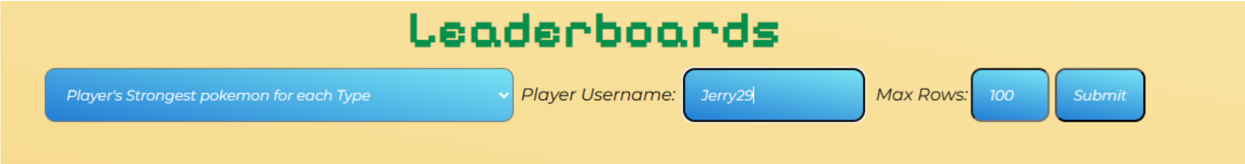
- **Aggregation with Group By**
    - File location:
        - src/backend/Leaderboard.php
        - Lines 133-141, 165-227
    - What:
        - Selects a player's strongest Pokemon grouped by type
    - Before:



Leaderboards

N/A

- During:



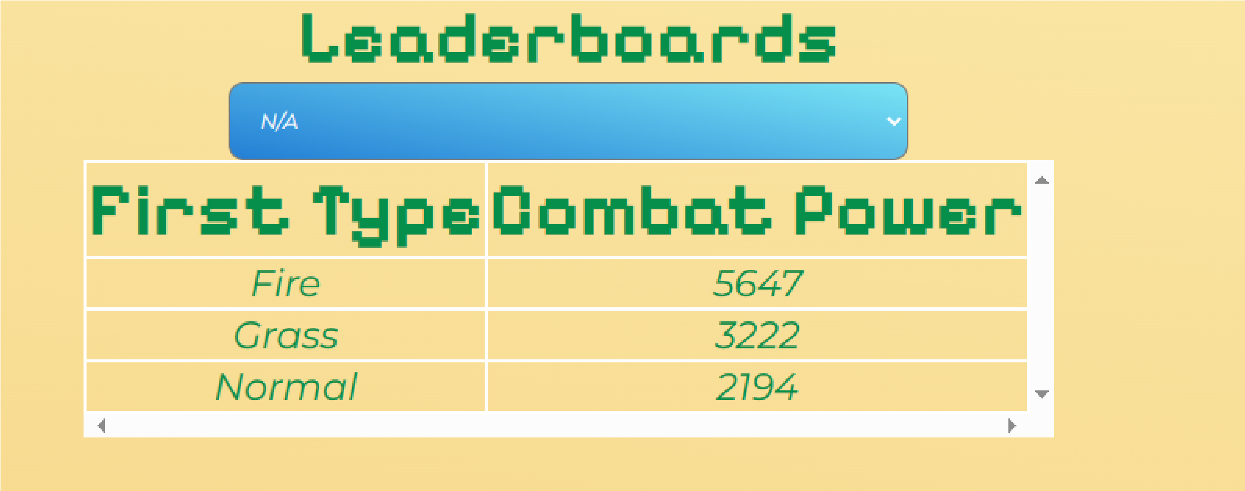
Leaderboards

Player's Strongest pokemon for each Type

Player Username: Jerry29

Max Rows: 100

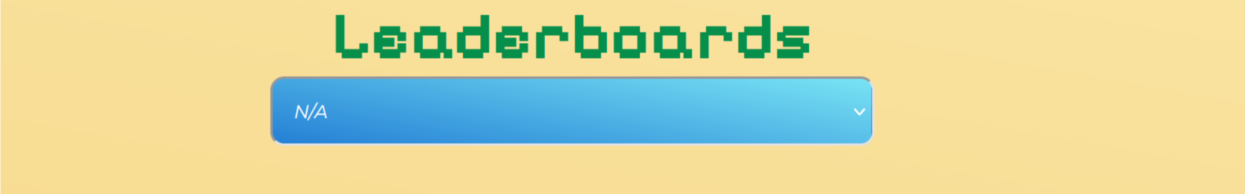
- After:



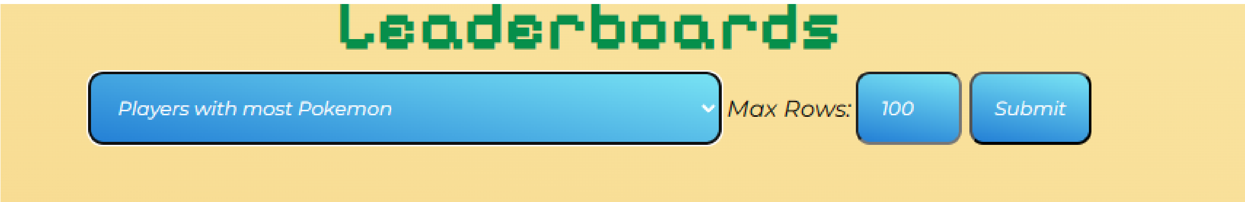
First Type	Combat Power
Fire	5647
Grass	3222
Normal	2194

-

- **Aggregation with Having**
    - File location:
        - src/backend/Leaderboard.php
        - lines 45-55, 165-227
    - What:
        - finds the players who own the most pokemon
    - Before:

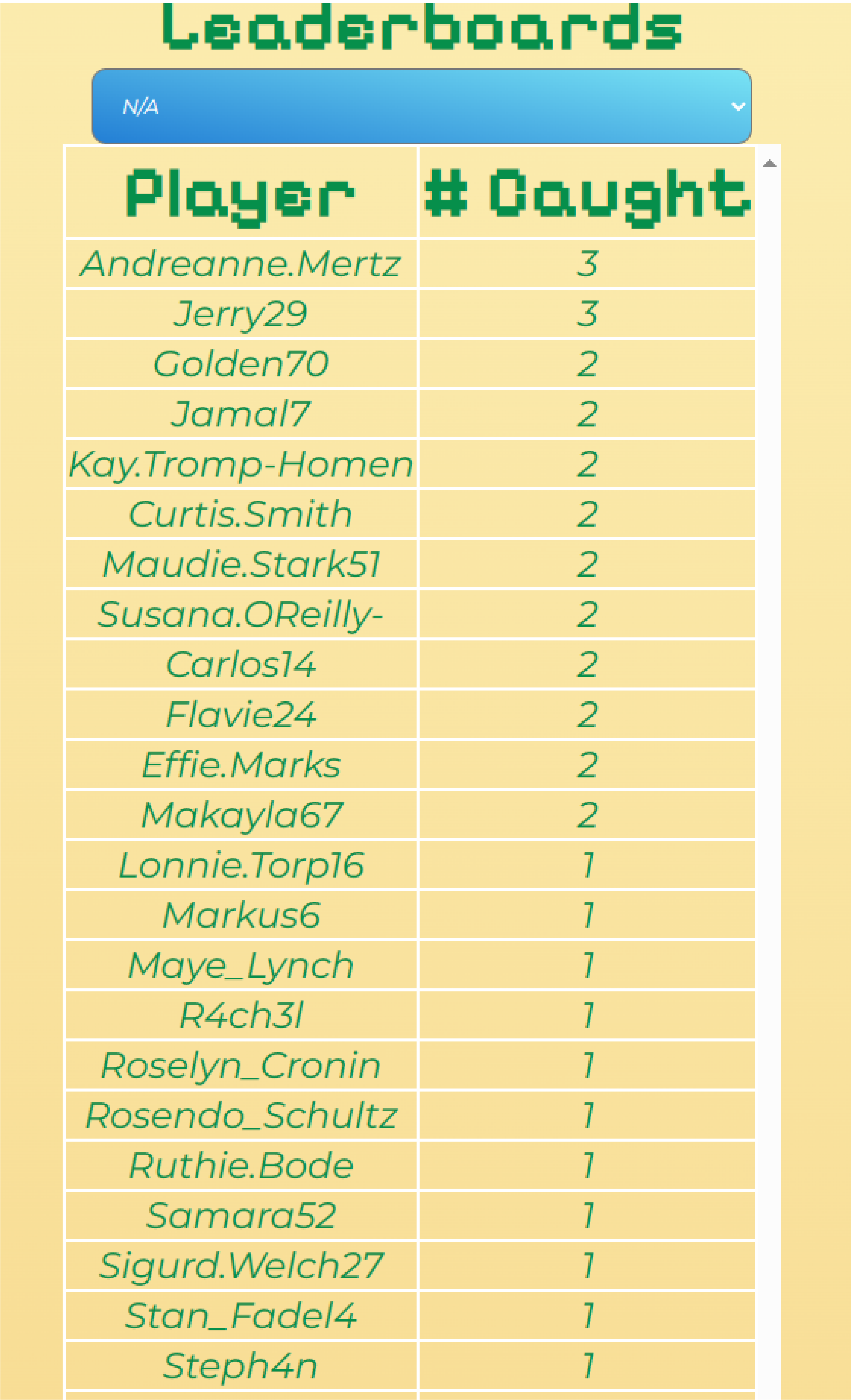


    -
    - During:



Players with most Pokemon
Max Rows: 100

    -
    - After:

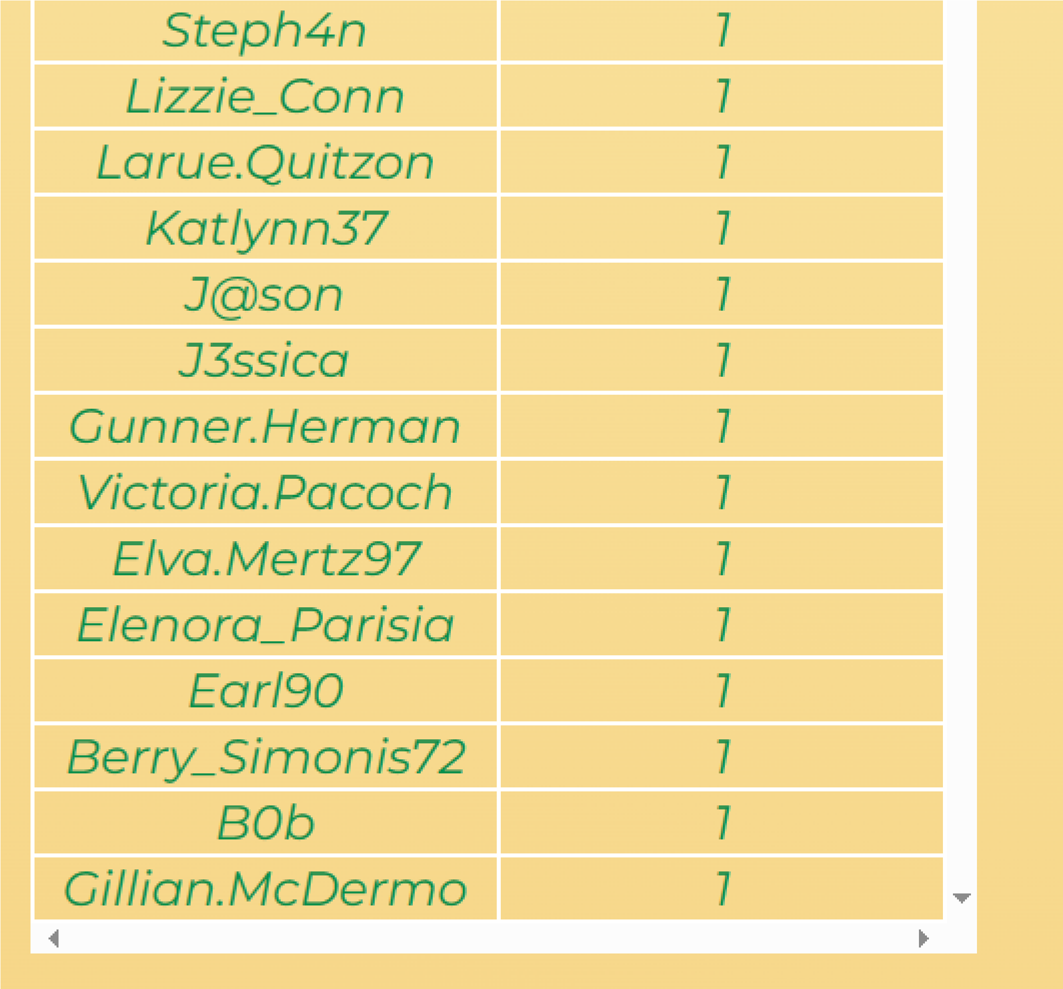


Leaderboards

N/A

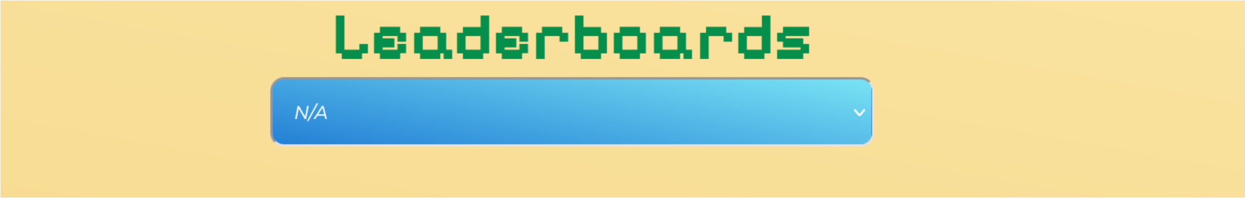
Player	# Caught
Andreanne.Mertz	3
Jerry29	3
Golden70	2
Jamal7	2
Kay.Tromp-Homen	2
Curtis.Smith	2
Maudie.Stark51	2
Susana.OReilly-	2
Carlos14	2
Flavie24	2
Effie.Marks	2
Makayla67	2
Lonnie.Torp16	1
Markus6	1
Maye_Lynch	1
R4ch3l	1
Roselyn_Cronin	1
Rosendo_Schultz	1
Ruthie.Bode	1
Samara52	1
Sigurd.Welch27	1
Stan_Fadel4	1
Steph4n	1

-



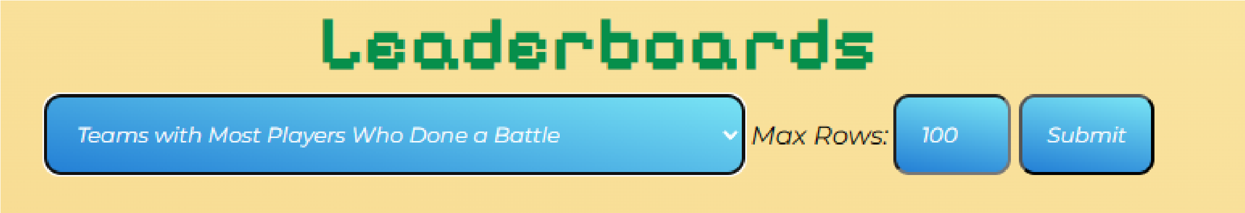
Steph4n	1
Lizzie_Conn	1
Larue.Quitzon	1
Katlynn37	1
J@son	1
J3ssica	1
Gunner.Herman	1
Victoria.Pacoch	1
Elva.Mertz97	1
Elenora_Parisia	1
Earl90	1
Berry_Simonis72	1
B0b	1
Gillian.McDermo	1

- **Nested Aggregation with Group By**
    - File location:
        - src/backend/Leaderboard.php
        - lines 119-131, 165-227
    - What:
        - shows the amount of players on each team who have battled at least once and orders from greatest to least
    - Before:



Leaderboards

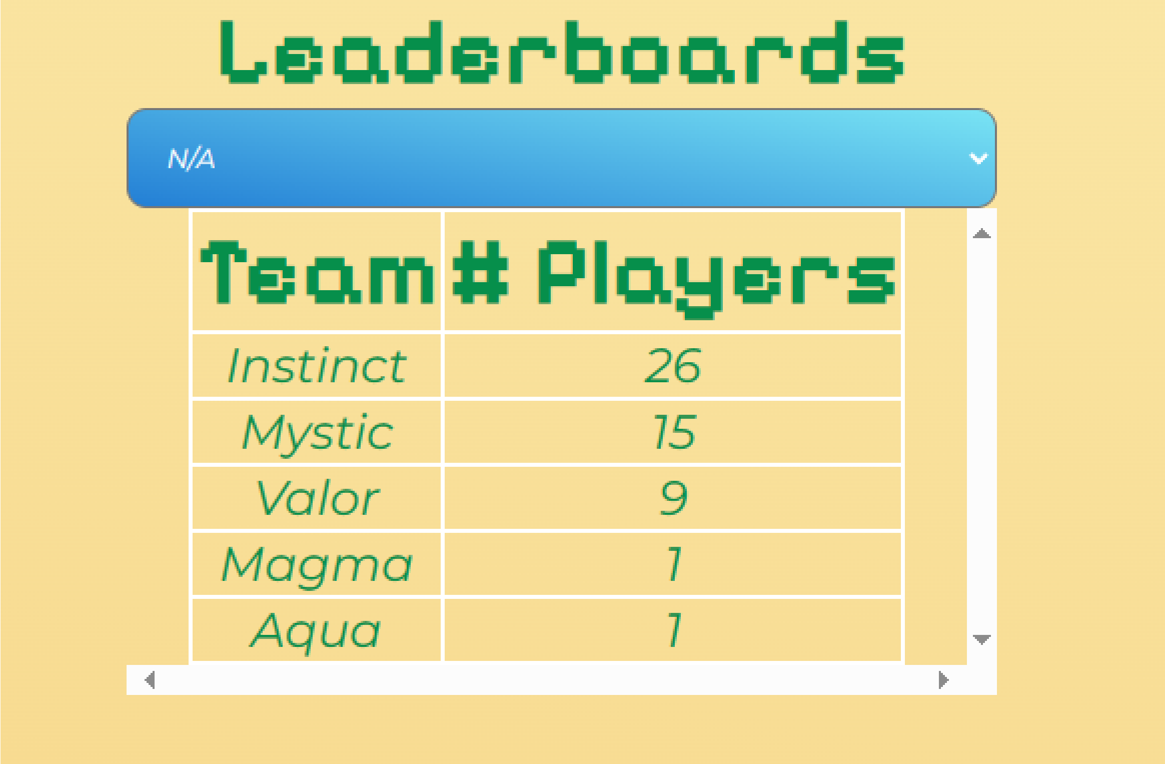
- During:



Teams with Most Players Who Done a Battle

Max Rows: 100

-
- After:

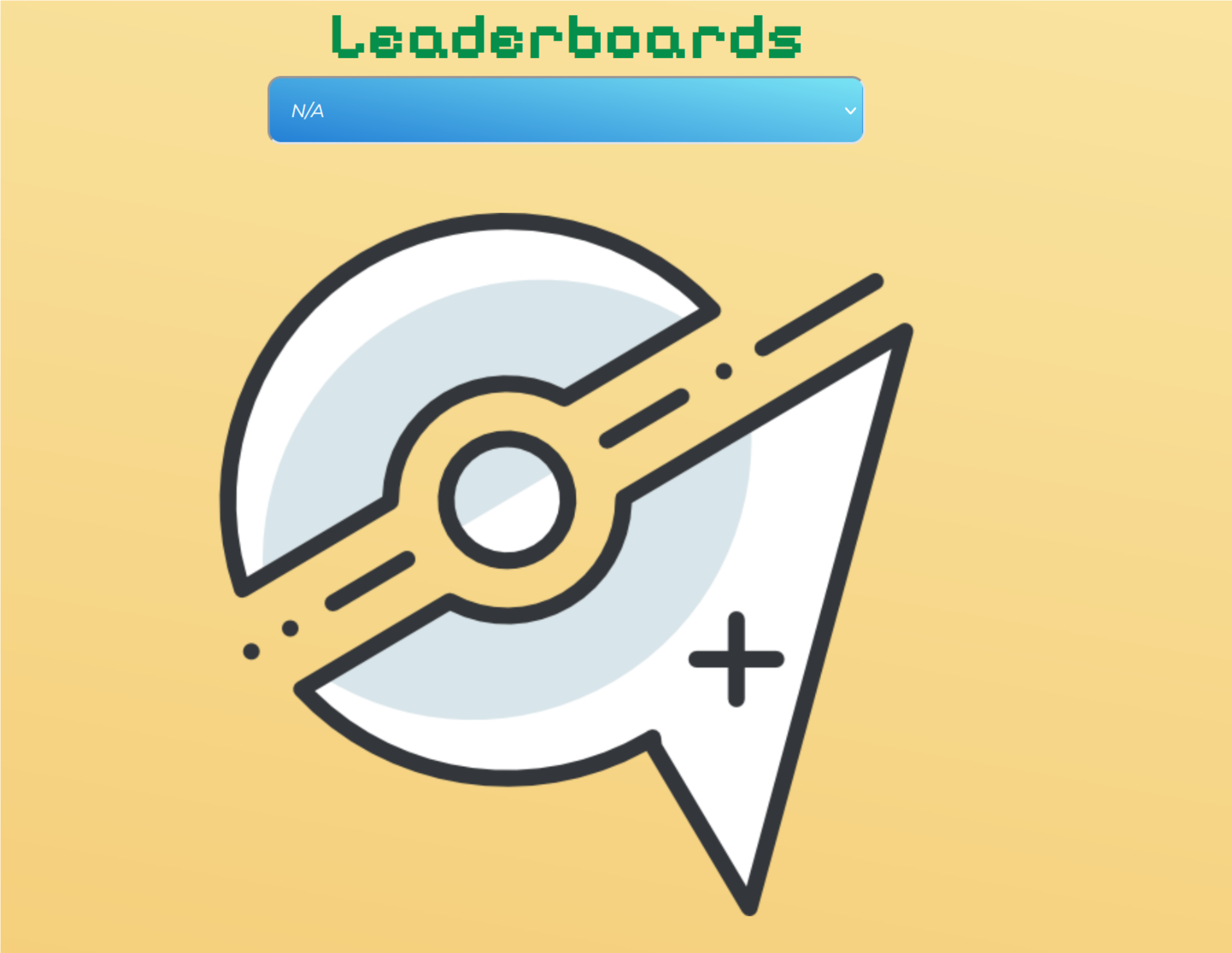


N/A

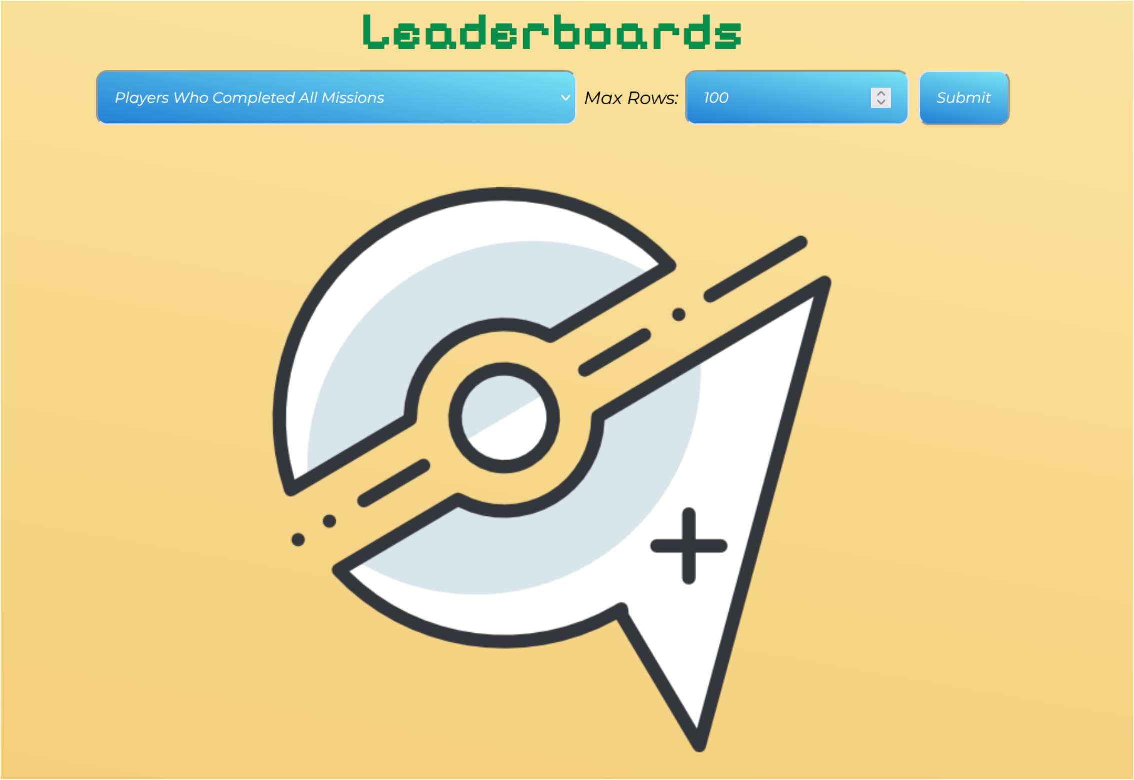
Team	# Players
Instinct	26
Mystic	15
Valor	9
Magma	1
Aqua	1

-

- **Division**
    - File location:
        - src/backend/Leaderboard.php
    - What:
        - Selects all players names who have completed every mission
    - Before:

- 

- During:

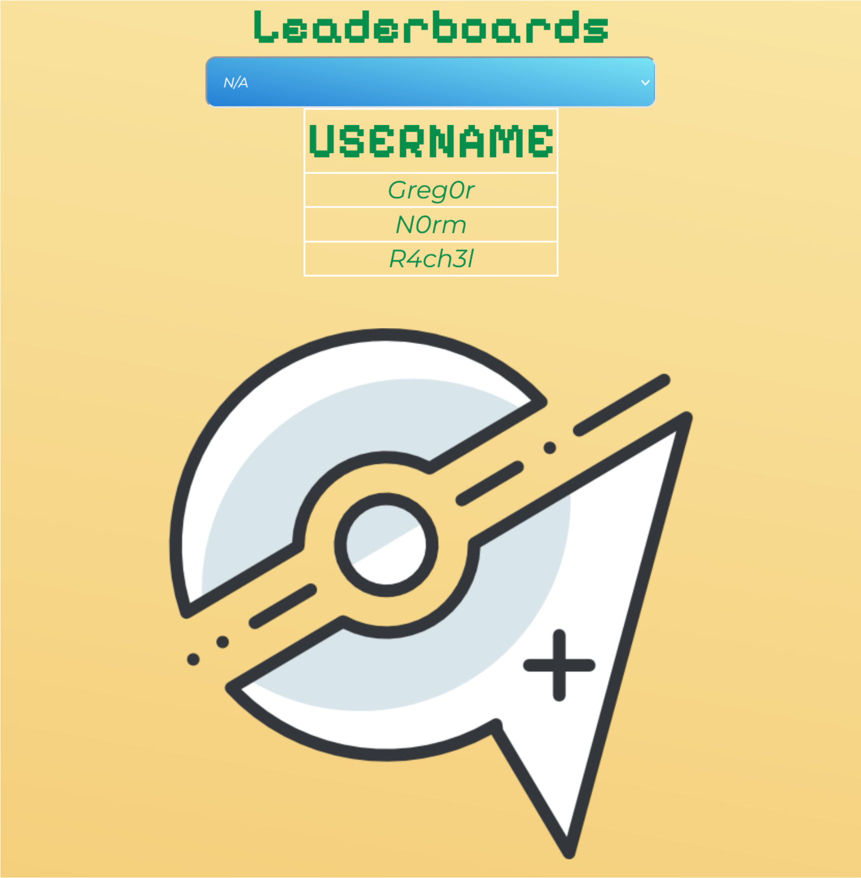
- 

Leaderboards

Players Who Completed All Missions

Max Rows: 100

- After:

- 

Leaderboards

N/A

USERNAME
Greg0r
N0rm
R4ch3l

README.txt

- added to repository