

Team 3

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CSE40746 - Advanced Database Projects

Final Design

Database

```
animal (  
    name PRIMARY KEY,  
    type FOREIGN KEY REFERENCES types(type) ,  
    type2 FOREIGN KEY REFERENCES types(type),  
    img  
)  
animal_moves (  
    animal PRIMARY KEY FOREIGN KEY REFERENCES animal(name),  
    move_1 FOREIGN KEY REFERENCES moves(name),  
    move_2 FOREIGN KEY REFERENCES moves(name),  
    move_3 FOREIGN KEY REFERENCES moves(name),  
    move_4 FOREIGN KEY REFERENCES moves(name)  
)  
effects ( name PRIMARY KEY, description, stackable )  
games (  
    game_id PRIMARY KEY,  
    username FOREIGN KEY REFERENCES player(username),  
    player_team FOREIGN KEY REFERENCES teams(team_id),  
    start_timestamp,  
    win_or_lose  
)  
player ( username PRIMARY KEY, pwdhash, secret, num_wins, num_loses )  
stats ( animal PRIMARY KEY FOREIGN KEY REFERENCES animal(name), health, attack,  
defense, accuracy, evasion, speed )  
moves (  
    name PRIMARY KEY,  
    base_damage,  
    base_accuracy,  
    effect FOREIGN KEY REFERENCES effects(name),  
    target,  
    effect2 FOREIGN KEY REFERENCES effects(name),  
    target2,  
    power_points,  
    critical_hit  
)
```

```

teams (
    team_id PRIMARY KEY,
    username FOREIGN KEY REFERENCES player(username),
    creation_time,
    animal_1 FOREIGN KEY REFERENCES animal(name),
    animal_2 FOREIGN KEY REFERENCES animal(name),
    animal_3 FOREIGN KEY REFERENCES animal(name),
    animal_4 FOREIGN KEY REFERENCES animal(name),
    animal_5 FOREIGN KEY REFERENCES animal(name),
    animal_6 FOREIGN KEY REFERENCES animal(name)
)
types ( type PRIMARY KEY, strong_against )

```

ER Diagram

(See attached)

Departures From Original Design

Due to considerations of timing and project scope, the team decided not to go forward with implementation of the multiplayer gameplay feature. This would have required a significant amount of work in learning and utilizing networking that we felt detracted from the main target of this project, database design and utilization. Here are some tables that we were planning to use for this feature that did not make it into the final design:

```

gamestates ( match_id, game_state )
waiting    ( username, creation_time )
matches    ( match_id, player1_username, player2_username, player1_team,
            player2_team, creation_time, winner_username )

```

The “matches” table was originally to serve the purpose of the “games” tables, but after deprecating multiplayer we created the simpler “games” table for stat tracking.

In lieu of multiplayer, the team expanded the functionality of the single player experience and also created a means by which users could view statistics of their previous matches.

Implemented Features

User creation

User login

User game statistics

- Wins

- Losses

Team Selection

- View stats of all animals

Single player

- Ability selection

- Animalmon swapping

- Battle Calculations (accuracy, critical, damage, etc)

- Basic AI

- Battle Log

- Visual representation of animals

- Game Logic (greying out buttons, Turn order, winning, etc.)

Planned Features

Browse

- Browse relevant game information such as lists of animals, moves, effects

Team Selection

- Save and load team compositions

Single Player

- Animal type weaknesses

- Battle status effects

