**Pokémon Battle System Documentation**

**Overview**

This Pokémon battle system is a turn-based combat simulator where two Pokémon fight using various moves. The system currently includes type effectiveness, damage calculations, and a move selection interface. Planned features include Pokémon switching, a healing system via a bag, and move PP tracking.

**Current Features**

**1. Type Effectiveness**

* Uses a 2D type effectiveness matrix.
* Multipliers determine if a move is super effective, not very effective, or neutral.
* Implemented via the returnTypeMultiplier function:
* float returnTypeMultiplier (moveBehavior move, Pokemon opponent)
* {
* Typing movetype = move.moveType;
* Typing opponentType1 = opponent.type1;
* Typing opponentType2 = opponent.type2;
* float multiplier = typechart[static\_cast<int>(movetype)][static\_cast<int>(opponentType1)]
* \* typechart[static\_cast<int>(movetype)][static\_cast<int>(opponentType2)];
* return multiplier;
* }
* Originally had a bug where NONE type was previously assigned as FAIRY, causing incorrect calculations.

**2. Damage Calculation**

* Only Attack and Defense stats are used (Special stats are ignored for now).
* HP calculation formula:
* int calculateBattleHP (Pokemon pkmn1)
* {
* int HP = ((2 \* pkmn1.basehp \* pkmn1.level) / 100) + pkmn1.level + 10;
* return HP;
* }

**3. Move Selection & Execution**

* Each Pokémon has four moves.
* Moves deal damage based on type effectiveness and attack/defense stats.
* Secondary effects are planned but not yet implemented.

**Upcoming Features**

**1. Pokémon Switching System**

* Allows the player to swap Pokémon mid-battle.
* Will consider move priority and potential penalties (e.g., losing a turn).

**2. Bag System (Healing Only)**

* Allows the use of healing items during battle.
* Items restore HP based on predefined values.
* Will integrate into the battle UI as an option.

**3. Move PP System (Planned)**

* Each move will have limited uses (Power Points).
* Moves will be disabled when their PP reaches zero.

**4. Secondary Move Effects (Planned)**

* Moves may have effects like status changes, stat boosts, or debuffs.
* Will be added to the move execution function.

**Notes**

* The battle system is currently in a functional state with room for expansion.
* Focus remains on core mechanics before adding complexity like Special stats or advanced AI.
* Debugging so far has resolved issues related to type effectiveness and move execution.

This documentation will be updated as new features are added.