BATTLE ENGINE: REMASTER

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INTRODUCTION

"Battle Engine" is a turn-based strategy game developed in Java. Players select and control bots to battle against each other in a series of five progressively challenging battles. The goal of the game is to defeat the opponent's bot by reducing its health points to zero using strategic moves. Players choose from a pool of four different bots, each with unique stats and abilities. Bots can perform various actions including attacks, stat boosts, and healing moves. The game aims to provide entertainment while encouraging strategic thinking and decision-making skills.

THE 4 W'S

- Who?
  - The game is designed for players who enjoy strategic and turn-based gameplay. Suitable for all ages and skill levels, from beginners to experienced gamers.
- What?
  - "Battle Engine" is a turn-based bots game where players select and control bots to engage in strategic battles.
- Where?
  - The game is a Java-based application that can be played on any computer with Java installed.
- Why?
  - To provide an entertaining and challenging gaming experience that promotes strategic thinking and to create a project that demonstrates the capabilities of Java in developing interactive games.

CONCEPTS

- Inheritance
- Polymorphism
- Abstraction
- Encapsulation
- Collections
- Exception Handling
- Serialization
- IO, etc.

RULES

Bot Selection:

- At the start of each battle, both players choose from 4 available bots.
- The selected bot by each player is hidden from the opponent.
- The remaining bots are visible to the opponent to aid in strategy.

Bot Stats:

- Each bot has four key stats: Speed, Attack, Defense, and Health Points. Each bot also has its own ‘Type’.
- Stats impact the effectiveness of moves and the order of actions.

RULES

- **Moves:**
  - **Each bot has 4 moves with Power Points (PP):**
    i. **Weak Attack: A basic attack.**
    ii. **Stronger Attack: A more powerful attack.**
    iii. **Boost: Randomly increases either attack or defense stats.**
    iv. **Healing: Restores a portion of the bot's health.**
- **Power Points (PP):**
  - **Each move has a limited number of Power Points.**
  - **Once a move runs out of PP, it cannot be used again in that battle.**
  - **If all moves run out of PP, the bot disfunctions and automatically loses.**

RULES

- Turn-Based System:
  - Players take turns selecting moves for their bots.
  - The bot with the higher speed stat acts first each turn.
- Winning Conditions:
  - A bot wins by reducing the opponent's bot health to zero.
  - The first bot to achieve this wins the battle.
- Game Progression:
  - The game consists of 5 battles, each progressively get more difficult.
  - Opponent bots get tougher with higher stats and improved strategies.
- Scoring:
  - If the player wins a battle, they earn 1 battle point. If they lose, they get 0.
  - The battle points across the 5 battles are accumulated to display the score.

BOTS: STATS, DAMAGE FORMULA

Stats:

- **Speed:** Determines who attacks first
- **Attack:** Determines how powerful the user attacks
- **Defense:** Determines how much damage the user takes
- **Health Points:** Determines how much health the user has.

Damage:

$$D = \left\lceil \left(\left(\frac{((2 \times \text{level} \times \text{critHit}/5)+2) \times \text{power} \times \frac{A}{D}}{50} \right) + 2 \right) \times \text{type1} \times \text{randomNumber} \right\rceil$$

Range of Random Number = 0.85 to 1.00

Probability of Critical Hit = 1 in 50

Probability of Missing a move = 1 in 30

TYPE EFFECTIVENESS

Attacking type ↓ / Defending type →	Normal	Fighting	Flying	Poison	Ground	Rock	Bug	Ghost	Fire	Water	Grass	Electric	Psychic	Ice	Dragon
Normal	1×	1×	1×	1×	1×	½×	1×	0×	1×	1×	1×	1×	1×	1×	1×
Fighting	2×	1×	½×	½×	1×	2×	½×	0×	1×	1×	1×	1×	½×	2×	1×
Flying	1×	2×	1×	1×	1×	½×	2×	1×	1×	1×	2×	½×	1×	1×	1×
Poison	1×	1×	1×	½×	½×	½×	2×	½×	1×	1×	2×	1×	1×	1×	1×
Ground	1×	1×	0×	2×	1×	2×	½×	1×	2×	1×	½×	2×	1×	1×	1×
Rock	1×	½×	2×	1×	½×	1×	2×	1×	2×	1×	1×	1×	1×	2×	1×
Bug	1×	½×	½×	2×	1×	1×	1×	½×	½×	1×	2×	1×	2×	1×	1×
Ghost	0×	1×	1×	1×	1×	1×	1×	2×	1×	1×	1×	1×	0×	1×	1×
Fire	1×	1×	1×	1×	1×	½×	2×	1×	½×	½×	2×	1×	1×	2×	½×
Water	1×	1×	1×	1×	2×	2×	1×	1×	2×	½×	½×	1×	1×	1×	½×
Grass	1×	1×	½×	½×	2×	2×	½×	1×	½×	2×	½×	1×	1×	1×	½×
Electric	1×	1×	2×	1×	0×	1×	1×	1×	1×	2×	½×	½×	1×	1×	½×
Psychic	1×	2×	1×	2×	1×	1×	1×	1×	1×	1×	1×	1×	½×	1×	1×
Ice	1×	1×	2×	1×	2×	1×	1×	1×	1×	½×	2×	1×	1×	½×	2×
Dragon	1×	1×	1×	1×	1×	1×	1×	1×	1×	1×	1×	1×	1×	1×	2×

CLASS LIST

- Battle
- Battle1
- Battle2
- Battle3
- Battle4
- Battle5
- BattleEngine
- Bot
- ConsoleColors
- DamageCalculator
- Main
- Move
- MusicPlayer
- TypeEffectiveness

DEMO

NEXT STEPS

BOARD GAME MODE (PVP)	Add a board-game mode where players can fight with each other instead of NPCs.
STORY BUILDING	Build a fun, mysterious and interactive storyline to keep the players engaged.

THANK YOU :)