

Monpoké¹ Coding Exercise

Estimated Time about 3 hours

Thanks for your interest in Focused Labs! As part of your interview process, we want to give you an opportunity to showcase your programming chops on your terms. Choose whatever programming language and stack that you wish. Make sure your solution is well tested and tests are included in your submission!

Please either follow standard build processes for your tech stack or include any necessary instructions for running your program and/or tests. Our team should be able to easily clone your repository and run the program and tests.

Summary

- The game consists of 2 teams, each team has a variable number of Monpoké.
- Each Monpoké has 2 attributes, HitPoints (HP) and Attack Power (AP).
- The 2 teams engage in a simple turn-based battle.
- A team's turn can be either choosing a Monpoké OR attacking with their currently chosen Monpoké.
- Attacking Monpoké depletes the enemy Monpoké HP for the value of their AP.
- A Monpoké is defeated when its HP is less than or equal to 0.
- The game ends when all of a team's Monpoké have been defeated.

We ask that you build a program that plays the game! The program should accept text commands given over standard input. Each input command should echo the expected output to standard out. The program should allow for:

1. Creation of 2 teams and their respective Monpoké
2. The battle begins and teams take turns back and forth
3. A winner is determined

Commands

Input	Output
CREATE <team-id> <monpoké-id> <hp> <attack>	<monpoké-id> has been assigned to team <team-id>!
ATTACK	- <current-monpoké-id> attacked <enemy-monpoké-id> for <current-monpoké-id-AP> damage!

¹ The name of the game is **Monpoké**. While some may draw parallels to another popular game, "Pokémon", we can assure that Monpoké is a legally distinct game that has a simple turned-based battle system...

ICH00SEYOU <monpoké-id>	<monpoké-id> has entered the battle!
* when a monpoke is defeated	<enemy-monpoké-id> has been defeated!
* when all monpoke on a team are defeated	<team-id> is the winner!

Rules

Team and Monpoké creation

- The first CREATE command for a Monpoké implicitly creates the team.
- Teams can create Monpoké in any order.
- Teams have multiple Monpoké
- The battle stage starts when the first ICH00SEYOU command happens.
- Validation
 - Pokemon must have 1 HP or greater
 - Pokemon must have 1 AP or greater
 - The battle can not begin until there are two teams

Battle

- The team that was created first takes the first turn
- A turn is either choosing a Monpoké or attacking with the currently chosen Monpoké
- The first turn of each team must be choosing a Monpoké
- Attacks do damage equal to the attack value to the currently chosen enemy Monpoké
- A Monpoké is considered defeated when it's HP is 0 or lower
- When a Monpoké is defeated the owning team's next turn must be choosing a new Monpoké
- Validation
 - A team can not choose or attack with a Monpoké
 - Who is not on your team
 - Who is not currently chosen
 - Who is defeated

Game Ends

- When all of a team's Monpoké are defeated

Input

- Commands are well-formed but might be against the rules. No need to handle special characters or typos in the commands themselves

- In the event that a game violates the rules, the program should exit with exit code 1
- Commands are space-delimited and arguments are positional
- The game should be able to take input from a file or from standard in, ie
 - `monpoke inputfile`
 - `monpoke < inputfile`
- Output happens after all the commands are fed in