CSE101T Assignment 2

Character Training and Qualification Trial

Due: 7.11.2025 by 23:59

Deliverables

Submit a single Java file named `Assignment2.java` via **LMS System (Moodle)** by the due date and time specified. Late submissions will be subject to the course's late policy. Submissions via MS Teams **will not be graded.**

https://lms.akdeniz.edu.tr

Assignment Description

The Story

Your journey as a monster trainer enters its second stage. The monster you created in the first assignment now has its basic attributes, but it must undergo rigorous training to unlock its true potential. In this assignment, you will design a training simulator where you make strategic decisions to develop your monster, followed by a qualification trial to test its strength. The ancient **Stone Guardian** of the training grounds only permits monsters that have proven their abilities to advance to the next stage. This trial is not a final exam, but a rite of passage a gateway that earns your monster the right to form a team and embark on greater adventures.

Program Flow: Create, Train, and Qualify

The program must execute as a single, continuous narrative in three distinct parts:

1. **Part 1: Character Creation (Assignment 1 Logic)**: The program begins with the monster creation process from Assignment 1. The user provides a name, element, potential, and destiny number. If any input is invalid, the program terminates with an error.

2. **Part 2.1: Advanced Training (New Logic)**: Immediately after the monster's profile card is printed, the program transitions to the training phase. The final stats from Part 1 are used as the starting point. The user trains the monster for a chosen number of days.

3. **Part 2.2: The Guardian's Trial (New Logic)**: As soon as training concludes, the trial against the Stone Guardian begins automatically. The monster's stats at the **end of training** are used. The outcome determines if the monster is ready for the next stage of its adventure.

Your Task

Your primary objective is to build upon your working Assignment 1 code by adding the Advanced Training and Guardian's Trial modules, creating a single `Assignment2.java` file.

Part 1: Mechanics of Creation

This part is identical to Assignment 1. You must integrate your working code.

User Inputs for Creation

- `monsterName` (`String`)
- `elementChoice` (`int`: 1-3)
- `potentialChoice` (`int`: 1-2)
- `destinyNumber` (`int`: 1-10)

Calculation Logic for Creation

1. **Base Stats**: Start with HP=50, AP=10, DP=5.
2. **Elemental Bonus**: Add bonuses based on `elementChoice` (Fire: +5 AP, Water: +20 HP, Earth: +10 DP).
3. **Potential Boost**: If potential is "Rare" (`potentialChoice == 2`), add +10 to HP, AP, and DP.
4. **Destiny Number Effect**: Add the `destinyNumber` to the primary stat of the chosen element (AP for Fire, HP for Water, DP for Earth).

The final calculated HP, AP, and DP are passed to Part 2.

Part 2.1: Mechanics of Advanced Training

This section details the exact logic for the training simulation.

Core Variables to Track for Training

- `hp`, `ap`, `dp`: Initialized with the final values from Part 1.
- `level`: Initialized to **1**.
- `currentXP`: The Experience Points accumulated towards the next level. Initialized to **0**.
- `xpToNextLevel`: The total XP required to reach the next level (`level * 100`).
- `trainingFocus` (`int`): Stores the user's weekly strategic choice (e.g., 1:HP, 2:AP, 3:DP).

The Daily Training Algorithm

Your main training loop must follow this exact sequence for each day:

[label=0.]

1. **Check for a New Week**: If `(day - 1) % 7 == 0`, prompt the user to select a new `trainingFocus`.
2. **Calculate Daily XP Gain**: The monster always gains a total of **30 XP** per day.
3. **Add XP**: Add 30 XP to the `currentXP` variable.
4. **Print Daily Log**: Display the day's progress in the format:
   `Day X...  (XP +30) Total XP: [currentXP]/[xpToNextLevel]`
5. **Level-Up Check (Core Logic)**: Use a **`while` loop** with the condition `currentXP >= xpToNextLevel` to handle leveling up. Inside the loop:

   [label=(e)]

   (a) **Increase Level**: Increment the `level` variable by 1.

   (b) **Print Level-Up Message**: Announce the achievement:
   `*** LEVEL UP! Your monster is now Level [new level]!  ***`

   (c) **Award Stat Boosts**: Add a standard boost of **+10 HP, +5 AP, +5 DP**. Then, add an **additional +5 bonus** to the specific stat corresponding to the current `trainingFocus`.

   (d) **Carry Over Excess XP**: Update `currentXP` with the formula:
   `currentXP = currentXP - xpToNextLevel;`

   (e) **Set New Goal**: Update `xpToNextLevel` with the formula:
   `xpToNextLevel = level * 100;`

Part 2.2: Mechanics of The Guardian's Trial

This section details the rules for the qualifying fight against the Stone Guardian.

The Opponent: Stone Guardian

The Guardian is a non-player character with fixed stats. You must define these as variables in your code:

- **Guardian HP**: 150
- **Guardian AP**: 35
- **Guardian DP**: 15

The Battle Algorithm

The battle is turn-based and must take place within a single **`while` loop**. The loop continues as long as both combatants have HP greater than 0. **Your monster always attacks first.**

Here is the exact sequence of events **inside** one iteration of the battle loop:

[label=0.]

1. **Your Monster's Turn**:
   [label=(a)]
   (a) **Calculate Damage**: The raw damage is calculated with the formula:
   `damageDealt = Your Monster's AP - Guardian's DP`
   (b) **Apply Minimum Damage Rule**: If `damageDealt` is less than 5, set it to 5.
   (c) **Apply Damage**: Subtract `damageDealt` from the Guardian's current HP.
   (d) **Print Turn Result**: Announce the outcome:
   `> Your monster attacks and deals [damageDealt] damage!`
   `(Guardian HP: [currentHP]/150)`
   (e) **Check for Victory**: After attacking, check if the Guardian's HP is 0 or less. If it is, use the **`break`** keyword to exit the loop immediately.
2. **Guardian's Turn** (This turn only happens if the Guardian was not defeated):
   [label=(b)]
   (a) **Calculate Damage**: The raw damage is calculated with the formula:
   `damageTaken = Guardian's AP - Your Monster's DP`
   (b) **Apply Minimum Damage Rule**: If `damageTaken` is less than 5, set it to 5.
   (c) **Apply Damage**: Subtract `damageTaken` from your monster's current HP.
   (d) **Print Turn Result**: Announce the outcome:
   `> The Stone Guardian attacks and deals [damageTaken] damage!`
   `(Your HP: [currentHP]/[InitialHP])`

Determining the Winner

After the `while` loop ends, use a final `if/else` statement to declare the outcome.

- **If your monster's final HP is greater than 0**, print the victory message:
  `VICTORY! The Guardian deems your monster worthy. The path to new adventures is now open!`
- **Otherwise**, print the defeat message:
  `DEFEAT! Your monster has fallen. Return to training to prepare for the trial once more.`

Complete Example Output

A full run of the program should produce a continuous output similar to this:

Example Outputs

```
--- Welcome to the Digital Monster Creation Arena! ---

Let's create your first monster! Give it a cool name: CSE101T

Now, choose your monster's element. This choice will determine its core strength.
[1] Fire (Attack-oriented)
[2] Water (Health-oriented)
[3] Earth (Defense-oriented)
Your choice (1-3): 3

Every monster has a potential. Choose its potential:
[1] Normal (Standard stats)
[2] Rare (Bonus to all stats)
Your choice (1-2): 2

Finally, enter a number between 1 and 10 to influence its destiny: 4

Excellent choices! Your monster CSE101T is being created...

--- MONSTER PROFILE CARD ---
Name: CSE101T
Element: Earth
Potential: Rare

Health Points (HP): 60
Attack Power (AP): 20
Defense Power (DP): 29
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```

(a) Part 1

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--- Now, let's train your new monster! ---

How many days would you like to train your monster? 10

-- Training Week 1 --
Select your training focus for this week:
[1] Focus on Health (Bonus HP on level-up)
[2] Focus on Attack (Bonus AP on level-up)
[3] Focus on Defense (Bonus DP on level-up)
Your choice: 3
Day 1... (XP +30) Total XP: 30/100
Day 2... (XP +30) Total XP: 60/100
Day 3... (XP +30) Total XP: 90/100
Day 4... (XP +30) Total XP: 120/100
*** LEVEL UP! Your monster is now Level 2! ***
Day 5... (XP +30) Total XP: 50/200
Day 6... (XP +30) Total XP: 80/200
Day 7... (XP +30) Total XP: 110/200
-- Training Week 2 --
Select your training focus for this week:
[1] Focus on Health (Bonus HP on level-up)
[2] Focus on Attack (Bonus AP on level-up)
[3] Focus on Defense (Bonus DP on level-up)
Your choice: 1
Day 8... (XP +30) Total XP: 140/200
Day 9... (XP +30) Total XP: 170/200
Day 10... (XP +30) Total XP: 200/200
*** LEVEL UP! Your monster is now Level 3! ***

--- Training Results ---
+------------------+------------------+
|   Initial Stats  |    Final Stats   |
+------------------+------------------+
| HP: 60           | HP: 85           |
| AP: 20           | AP: 30           |
| DP: 29           | DP: 44           |
| Level: 1         | Level: 3         |
+------------------+------------------+
```

(b) Part 2