# **Fantasy Battle Arena: A Python Inheritance Challenge** ⚔️🏹🔥

**Difficulty Level: Intermediate**

## **📜 Storyline**

In the world of **Mythoria**, legendary warriors, mages, and archers battle for ultimate supremacy. Each fighter possesses unique strengths, weaknesses, and abilities.

You, as a **game developer**, have been tasked with building the battle mechanics for **Fantasy Battle Arena**—a turn-based combat game where different character classes **fight until only one remains standing**.

Using **inheritance and object-oriented programming (OOP)**, you must implement different fighters with distinct **attributes, attacks, and special abilities**.

## **🛠️ Your Challenge**

### **1️⃣ Base Class: Character (Superclass)**

All fighters in the game inherit from the **Character** class.  
- **Attributes**: - name: The name of the character  
- health: The total health points  
- attack\_power: The base attack strength  
- defense: Reduces incoming damage  
- speed: Determines turn order  
- **Methods**: - attack(target): Inflicts damage on an opponent  
- take\_damage(amount): Reduces health after applying defense  
- is\_alive(): Checks if the character is still alive

### **2️⃣ Warrior 🛡️ (Melee Fighter - High Health & Defense)**

A fearless close-combat fighter who thrives in battle.  
- **Additional Attributes**: - rage: Increases when taking damage, boosts attack power when full  
- **Special Ability**: **Berserk Mode** - If health < 30%, attack power **doubles**!

### **3️⃣ Mage 🔥 (Spellcaster - High Attack, Low Defense)**

A master of magic who can deal devastating damage at a cost.  
- **Additional Attributes**: - mana: Used for casting spells  
- **Special Ability**: **Fireball** - Deals **massive damage** but consumes mana and also slightly harms the Mage.

### **4️⃣ Archer 🏹 (Ranged Attacker - High Speed, Critical Hits)**

A precise sharpshooter who can take down foes from a distance.  
- **Additional Attributes**: - critical\_chance: A percentage chance to land a **critical hit**  
- **Special Ability**: **Precision Shot** - Has a **30% chance** to land a **Critical Hit** (deals **2x damage**).

## **⚔️ Battle Rules**

1. **Turn-based combat**:
   * The character with the highest **speed** attacks **first**.
   * If speeds are equal, the **player-controlled character** attacks first.
2. **Damage Calculation**:
   * **Final damage** = attack\_power - target's defense (minimum 1 damage)
   * Special abilities may **increase or decrease damage**
3. **Victory Condition**:
   * A character is **defeated** when health <= 0.
   * The battle **ends when only one character remains standing**.

## **🎯 Expected Gameplay Example**

🏹 Alex (Archer) shoots an arrow! Deals 22 damage.  
⚔️ Thor (Warrior) swings a sword! Deals 25 damage.  
🔥 Gandalf (Mage) casts Fireball! Deals 40 damage but loses 5 health.  
💀 Thor (Warrior) enters Berserk Mode! Attack power increased.  
⚔️ Thor (Warrior) strikes with double power! Deals 50 damage.  
🏹 Alex (Archer) lands a Critical Hit! Deals 44 damage.  
💀 Thor (Warrior) is defeated!  
🎉 Alex (Archer) wins the battle!

## **🏆 Your Task**

Implement a **Python program** that:  
✔️ Uses **inheritance** to extend the Character class into Warrior, Mage, and Archer.  
✔️ Implements **special abilities** for each character class.  
✔️ Simulates a **turn-based battle** system.  
✔️ Ensures that **defense, speed, and health** affect combat outcomes.