RPG

The Scenario

You are developing a Role-Playing Game (RPG). All characters share basic traits, but different "classes" (Warrior, Mage) have unique abilities and specialized behaviors.

Part 1: The Base Class (`Hero`)

Create a base class named `Hero`.

- **Data Members (Protected):**
  - `string name`
  - `int health`
- **Constructor:**
  - Takes `name` and `health`. It should print: *"Base Hero [Name] has entered the world."*
- **Method:**
  - `void takeDamage(int amount)`: Reduces health by the amount.
  - `void display()`: Prints the name and current health.

Part 2: The Derived Class (`Warrior`)

Create a class `Warrior` that inherits from `Hero`.

- **Data Members (Private):**
  - `int armor`: An extra layer of protection.
- **Constructor:**
  - Takes `name`, `health`, and `armor`.
  - **Crucial:** You must pass the name and health to the `Hero` constructor using an **Initialization List**.
  - Should print: *"Warrior [Name] is ready for battle!"*
- **Method Overriding:**
  - Override `takeDamage(int amount)`: The Warrior's armor reduces damage.
  - **Logic:** `actualDamage = amount - (armor / 2)`.
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Part 3: The Derived Class (`Mage`)

Create a class `Mage` that inherits from `Hero`.

- **Data Members (Private):**
    - `int mana`: Used for special attacks.
- **Method:**
    - `void castSpell()`: Prints "Casting Fireball!" and reduces mana by 10.

The "Boss Battle" (Main Function Logic)

1. Instantiate a `Warrior` named "Thor" with 100 Health and 20 Armor.
2. Instantiate a `Mage` named "Loki" with 60 Health and 50 Mana.
3. **Test Overriding:** Call `thor.takeDamage(30)`.
    - *Calculation:* 30 - (20/2) = 20 damage. Thor should have **80 Health** left.