

6 Adventurer's Guild 6.1 Additional functionality The Adventurer's Guild has expanded its operations with advanced combat systems, equipment management, and quest logistics to better prepare its members. Each guild is now offering a repair service to restore weapons' durability. The Guild now offers three specialized weapon types that extend the base weapon system. Swords excel in melee combat, delivering powerful strikes with a 20% chance of inflicting critical hits that double damage output — though they lose 2x durability points. Bows specialize in range combat, providing precision attacks that bypass 30% of enemy's armor, with durability reduction proportional to the target's armor durability. Staffs harness magical energy, launching spells with a 25% chance to halve a monster's strength, with durability consumption proportional to the staff's strength.

6.2 State diagram The Guild's equipment system now tracks weapons through four distinct states that affect combat performance. In the new state (100% durability), weapons provide their full power bonus with a 10% "first use" bonus damage effect. After first use, weapons transition to the used state (50-99% durability), maintaining standard performance with their regular power boost. With continued use, weapons enter a damaged state (1-49% durability), with their power boost reduced to 75%. When durability reaches zero, weapons transition to broken state, becoming unusable. The next time a warrior attempts a quest, they try to repair their weapons by spending experience points proportional to each of weapons' power — if successful, the weapon returns to the new state.

6.3 Scenarios to model with sequence diagrams 6.3.1 Scenario 1: Successful Quest Completion When an adventurer attempts a quest, they first equip appropriate weapons. During monster fights, the adventurer uses their strongest non-broken weapon, dealing damage based on calculated power against monster armor. As the adventurer defeats monsters, they gain experience that increases rank and base power by 20% when experience reaches threshold values. After defeating all monsters in the quest's list, the quest is marked as complete, and the 12 adventurer recovers full health.

6.3.2 Scenario 2: Equipment Failure During challenging quests against high-health monsters, weapons sustain damage with each use, decreasing durability. As durability falls below 50%, the weapon enters the damaged state, reducing power by 25%. If durability reaches zero during combat, the weapon provides no power boost. This sudden power reduction may leave the adventurer unable to overcome the monster's armor value, causing them to take damage without dealing any in return. If defeated, the quest attempt fails, and the adventurer must recover before attempting another quest.









