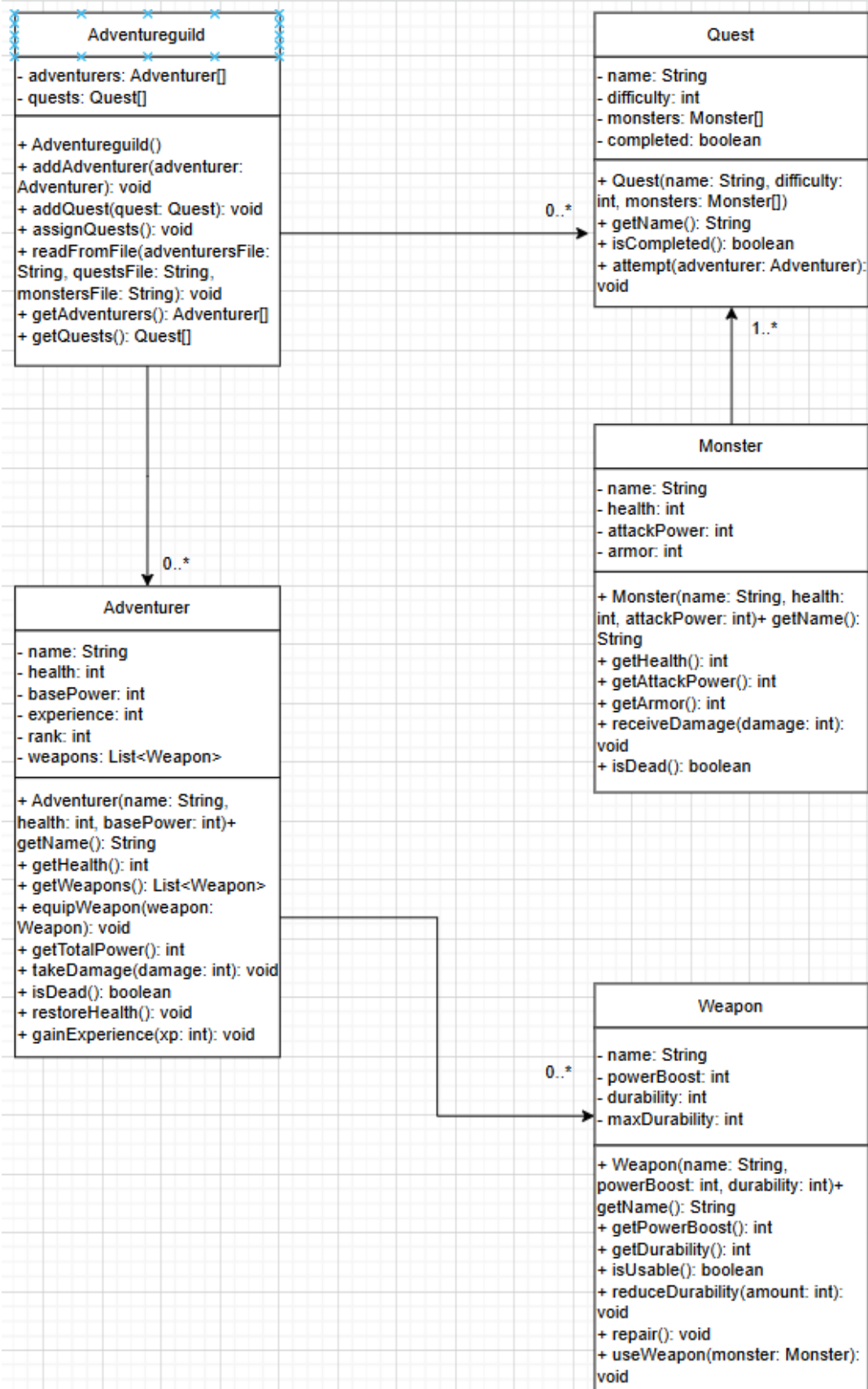
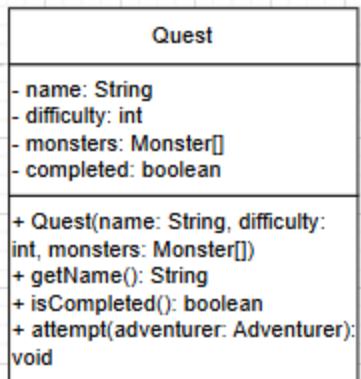


6 Adventurer's Guild In a world of adventure, a guild recruits adventurers to take on dangerous quests. Each adventurer arms themselves with weapons and faces formidable monsters to prove their strength. Weapons represent equipment that boost an adventurer's power. A weapon has a power boost, which increases attack strength, and a durability, which determines how many times the weapon can be used. The weapon can decrease its durability, and checks if it is unusable. The weapon can also return the power increase, if it is still functional. Monsters are the creatures that adventurers battle. They can be identified by a name, have strength, health, and armor. The monster reduces its health based on incoming damage and its armor, and can check if its health reaches zero (then it dies). The monster can also return its attack power and defense. An adventurer is a hero with a name, base power, experience, rank, health, and an inventory of weapons. They can equip weapons which boost their attack power. The damage of the adventurer's attack is calculated from its total strength= $\text{base power} * (10\% \text{ of rank}) + \text{total strength of weapons}$ . The adventurer's health can be decreased, and they can fall in battle if it reaches zero. After each battle, the adventurer fully restores their health. The adventurer use their weapons in combat, gain experience, and increment their rank and power up by 20% when enough experience is gained– which is when their experience is more than or equal to tenth of their rank. The adventurer can also initiate a quest for themselves. A quest represents a mission with a name, difficulty, a status to check if it's completed, and a list of monsters. The quest is done by an adventurer, who fights each monster sequentially. If an adventurer succeeds, the quest is marked complete. Otherwise, it is incomplete. The adventurer takes turns to combat the monster, alternating attacks until one is defeated. When the adventurer attacks, it uses its equipment first (so it loses durability), then attacks (damage = power - monster's armor), and if the monster is not defeated, they receive damage from the monster. A defeated monster will let adventurer gain experience. Guilds manage adventurers and quests. It has a list of adventurers and a quest board. The guild can add a new member and introduce new quests to the adventurers. The guild assigns a random adventurer to quests, letting them attempt challenges sequentially until all quests are completed. The main game runs the simulation. It establishes a guild, recruits the adventurers, equips them with weapons, and posts quests. Simulate, start the quests, and show the actions!

Input file examples  
adventurers.txt • Format Name Health Weapon\_Attack • Sample input  
Aragorn 50 30 Legolas 40 20 Gimli 60 40  
quests.txt • Format Name Difficulty Monsters •  
Sample input Defeat\_the\_Goblin\_King 70 Goblin\_Warrior-Goblin\_Warrior-Ogre-Goblin\_King  
Rescue\_the\_Village 50 Ogre-Ogre-Bandit\_Leader Slay\_the\_Dragon 100 Fire\_Dragon  
monsters.txt • Format Name Health Attack • Sample input  
Goblin\_King 70 100  
Goblin\_Warrior 40 50 Ogre 50 80 Bandit\_Leader 60 70 Fire\_Dragon 1000 200





```

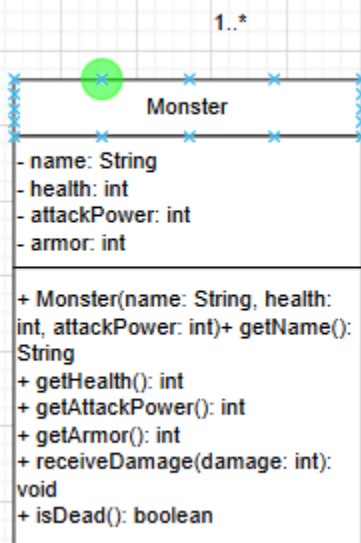
+ Quest(name: String, difficulty: int, monsters:
List<Monster>)
  this.name = name
  this.difficulty = difficulty
  this.monsters = monsters
  this.completed = false

+ getName(): String
  return name

+ isCompleted(): boolean
  return completed

+ attempt(adventurer: Adventurer): void
  for each monster in monsters:
    while monster is not dead and adventurer
is not dead:
      for each usable weapon in adventurer:
        use weapon on monster
      if monster is not dead:
        adventurer takes damage from
monster
      if monster is dead:
        adventurer gains XP
      if adventurer is dead:
        completed = false
      return
  adventurer restores health
  completed = true

```



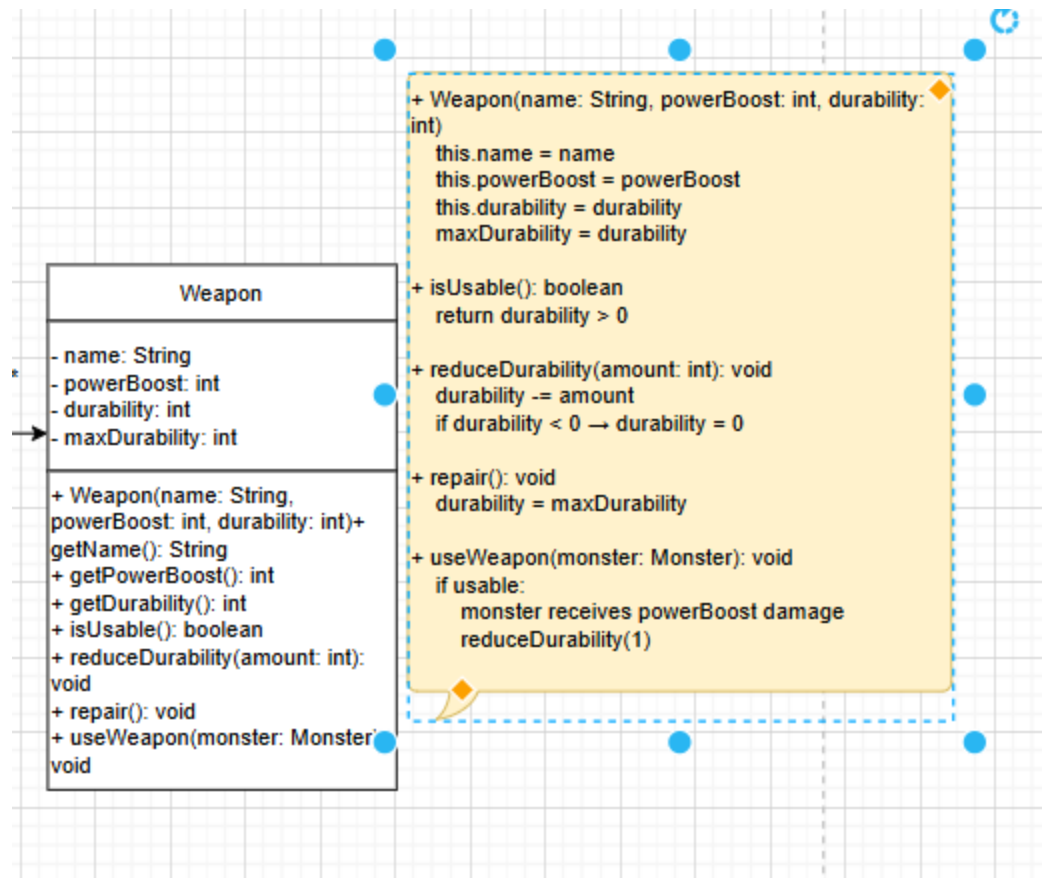
```

+ Monster(name: String, health: int,
attackPower: int, armor: int)
  this.name = name
  this.health = health
  this.attackPower = attackPower
  this.armor = armor

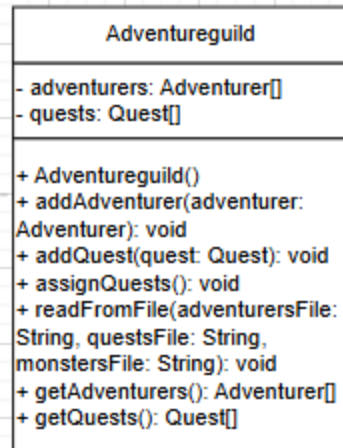
+ receiveDamage(damage: int): void
  netDamage = damage - armor
  if netDamage < 0 → netDamage = 0
  health -= netDamage
  if health < 0 → health = 0

+ isDead(): boolean
  return health == 0

```



```
+ addAdventurer(adventurer: Adventurer):  
void  
    adventurers.add(adventurer)  
  
+ addQuest(quest: Quest): void  
    quests.add(quest)  
  
+ assignQuests(): void  
    for each quest:  
        assign an adventurer  
        if adventurer completes it:  
            print "completed"  
        else:  
            print "failed"  
  
+ readFromFile(adventurerFile, questFile,  
monsterFile): void  
    readAdventurers(adventurerFile)  
    readQuests(questFile, monsterFile)  
  
+ getAdventurers(): List<Adventurer>  
    return adventurers  
  
+ getQuests(): List<Quest>  
    return quests
```



```
+ Adventurer(name: String, health: int,  
basePower: int)  
  this.name = name  
  this.health = health  
  this.basePower = basePower  
  experience = 0  
  rank = 1  
  weapons = new ArrayList()
```

```
+ getTotalPower(): int  
  power = basePower * (1 + 0.1 * rank)  
  for each usable weapon:  
    power += weapon.powerBoost  
  return power
```

```
+ takeDamage(damage: int): void  
  health -= damage  
  if health < 0 → health = 0
```

```
+ isDead(): boolean  
  return health == 0
```

```
+ restoreHealth(): void  
  health = 100
```

```
+ gainExperience(xp: int): void  
  experience += xp  
  if experience >= rank * 10:  
    rank++  
    basePower *= 1.2  
    experience = 0
```

0..\*

Adventurer

```
- name: String  
- health: int  
- basePower: int  
- experience: int  
- rank: int  
- weapons: List<Weapon>
```

```
+ Adventurer(name: String,  
health: int, basePower: int)+  
getName(): String  
+ getHealth(): int  
+ getWeapons(): List<Weapon>  
+ equipWeapon(weapon:  
Weapon): void  
+ getTotalPower(): int  
+ takeDamage(damage: int): void  
+ isDead(): boolean  
+ restoreHealth(): void  
+ gainExperience(xp: int): void
```

## User Descriptions

### Data input from file

GIVEN there are text files containing data for adventurers, monsters, and quests, formatted with values separated by spaces or dashes. AND the game application has started.

WHEN the Game Master selects to load data from files.

THEN the system reads adventurers, quests, and monsters from the corresponding files and initializes the guild with this information.

### Data input manually

GIVEN the game application has started.

WHEN the Game Master chooses to enter adventurer, monster, and quest data manually.

THEN the system first asks for the number of entries, then reads each corresponding input, and builds the guild and quest board accordingly.

### Quest completed successfully

GIVEN an adventurer has been assigned to a quest, and the quest contains at least one monster.

WHEN the adventurer initiates the quest and defeats all monsters in sequential battles. AND in each battle, the adventurer uses weapons (losing durability), calculates total power, and receives experience when defeating monsters.

THEN the quest is marked as completed, the adventurer's health is fully restored, and rank/experience are updated if applicable.

### Quest failed

GIVEN an adventurer has been assigned to a quest.

WHEN the adventurer initiates the quest but is defeated during one of the battles.

THEN the quest is marked as incomplete, and the adventurer is considered fallen in battle.

### No available quests

GIVEN the guild's quest board is empty or all quests have been completed.

WHEN the Game Master tries to assign a new quest.

THEN the system shows a message indicating there are no more available quests to assign.

No usable weapons

GIVEN an adventurer attempts a battle with no weapons left with durability.

WHEN they fight a monster.

THEN the adventurer only uses their base power for damage calculation, possibly reducing their chances of winning the battle.

Case diagram



