

From a Java programming standpoint, these requirements outline the necessary classes, their attributes (fields), behaviors (methods), and the relationships between them (like inheritance, association, and composition).

Character Requirements

These requirements define the actors in the game world. This points to a main Character abstract class with several concrete subclasses.

- * The game must be populated by characters.
- * Characters can be either player-controlled or AI-controlled. This suggests an inheritance structure, for example, PlayerCharacter and AICharacter classes that extend a base Character class.
- * All characters must have a name, health points, strength points, and an amount of money. In Java, these would be attributes (fields) in the Character class, such as String name;, int healthPoints;, int strengthPoints;, and double money;.
- * A character can be at only one location at any given time. This defines a one-to-one association between a Character object and a Location object.
- * Characters must be able to acquire skills, with no limit on the number of skills they can have. This implies a one-to-many relationship, best implemented in Java with a List<Skill> or Set<Skill> attribute within the Character class.
- * Characters must be able to move to an adjacent location during a game turn. This would be a method, like move(Location destination).
- * When a character's health reaches zero, it dies. This is a state change that would trigger other actions.
- * Upon death, a character drops all items and money it is carrying. This would be a behavior or method, onDeath(), that transfers the character's inventory to the location's inventory.

Item & Inventory Requirements

These requirements detail the objects characters can own and use. This suggests an Item parent class with various specialized subclasses.

- * A character can carry a maximum of two items directly. This could be implemented with a fixed-size array or a list with a size constraint in the Character class.

- * Some items are weapons. This points to an inheritance relationship: a Weapon class would extend the Item class.

- * Some items are containers (like a backpack), which can hold other items. A Container class would also extend Item and would contain a collection of other Item objects (e.g., List<Item>), representing a composition relationship. This allows a character to indirectly carry more than two items.

- * Some items are consumable. A Consumable class would extend Item.

- * Consuming an item can increase a character's health or strength, or grant temporary special properties. This indicates a consume(Character target) method in the Consumable class.

- * Once an item is consumed, it is destroyed. The consume() method would need to handle the object's removal from the game.

World and Location Requirements

These requirements define the game's environment. This suggests World and Location classes.

- * The game world is made up of many locations. A World class would likely hold a collection of all Location objects.

- * Each location is a hexagon with six sides, which dictates that each location can have up to six neighbors. This is crucial for implementing character movement.

- * Each location must have a terrain type and a traversal cost (in health points). These would be attributes of the Location class. The terrain type could be implemented using an Enum in Java (TerrainType.FARMLAND, TerrainType.DESERT, etc.).

- * Locations can contain items and money that characters can pick up or drop. This means the Location class needs its own inventory, such as a `List<Item>` and a double for money.

Interaction Requirements

These requirements define how characters engage with each other. This could be handled by an Interaction interface with different implementing classes.

- * Characters at the same location can interact.

- * There are two types of interaction: combat and trading. This suggests two classes, Combat and Trading, that might implement a common Interaction interface.

- * Combat: Health points are lost based on strength, skills, weapons, and a random factor. A method like `executeCombat(Character attacker, Character defender)` would contain this logic.

- * Trading: Characters can offer sets of items they are willing to trade. One character can then offer money or items for a desired item. The other character can accept or reject the trade. If accepted, the items/money are exchanged. This requires a complex set of methods to manage offers and the exchange of goods.

"Wizzo" Game-Specific Requirements

These are extensions to the general platform, illustrating how the core design can be specialized for a specific game.

- * There are two main character types: magical and non-magical.

- * Magical characters include Wizards and Elves.

- * Non-magical characters include Humans and Dwarves.

- * This is a clear inheritance hierarchy: `MagicalCharacter` and `NonMagicalCharacter` would extend `Character`, and specific types like `Wizard` would extend `MagicalCharacter`.

- * Some skills are magical skills, like casting a spell. This suggests a `MagicalSkill` class extending `Skill`.

- * Only magical characters are allowed to have magical skills. This is a business rule that must be enforced in the code, for instance, by overriding an `addSkill()` method in the `MagicalCharacter` class.

- * Specific terrain types are defined: farmland, desert, marsh, and water.

- * Specific items are defined: wands, potions, swords, axes, bread, and backpacks. These would be concrete classes extending the appropriate base `Item` types (e.g., `Sword` extends `Weapon`).

- * Potions give a special property (invisibility, invincibility, endurance) for a fixed duration when consumed.