Here is a conceptual level class diagram for the case-study:

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| GamePlayer |

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| - name: String |

| - healthPoints: int |

| - strengthPoints: int|

| - moneyOwned: int |

| - skills: List<Skill> |

| - items: List<Item> |

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+---------------------+ +---------------------+ +---------------------+

| AI | | Item | | Skill |

+---------------------+ +---------------------+ +---------------------+

| | | - name: String | | - name: String |

| | | - description: String| | - description: String|

| | | - value: int | | - skillType: String |

| | | - isWeapon: boolean | +---------------------+

| | | - isContainer: boolean| |

| | | - isConsumable: boolean| |

| | | - healthBonus: int | +---------------------+

| | | - strengthBonus: int| | Location |

| | | | +---------------------+

+---------------------+ +---------------------+ | - terrainType: String|

| | | - healthCost: int |

| | | - items: List<Item> |

| | | - characters: List<Character> |

| | +---------------------+

+---------------------+ +---------------------+ |

| Character | | Container | |

+---------------------+ +---------------------+ |

| - name: String | | - maxItems: int | |

| - healthPoints: int | | - items: List<Item> | |

| - strengthPoints: int| +---------------------+ |

| - moneyOwned: int | | |

| - skills: List<Skill>| +---------------------+ |

| - items: List<Item> | | Interaction | |

| - location: Location| +---------------------+ |

+---------------------+ | - character1: Character| |

| - character2: Character| |

| - tradeItems: List<Item>| |

| - tradeMoney: int | |

| - interactionType: String | |

| - combatWinner: Character | |

| - combatLoser: Character | |

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In this diagram, each box represents a class, and the arrows represent the relationships between them. The class diagram shows the classes involved in the role-playing game software, their attributes, and the relationships between them.

The main classes in the diagram are GamePlayer, AI, Character, Item, Skill, Location, Container, and Interaction.

GamePlayer and AI represent the two types of characters that can be present in the game. Character is the superclass for both GamePlayer and AI. It contains attributes that are common to both, such as name, health points, strength points, money owned, skills, and items.

Item represents the items that can be found in the game, such as weapons and consumables. It has attributes like name, description, value, and bonus for health or strength.

Skill represents the skills

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| Character |

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| - name |

| - health |

| - strength |

| - money |

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| + move() |

| + interact()|

| + pickUp() |

| + drop() |

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| NonMagicalCharacter | | MagicalCharacter |

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| | | - magicalSkill: Skill[] |

| | | - skill: Skill[] |

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| Skill |

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| NonMagicalSkill | | MagicalSkill |

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| | | - spellName: string |

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| Item |

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+----------------+ +----------------+ +-----------------+

| ConsumableItem | | WeaponItem | | ContainerItem |

+----------------+ +----------------+ +-----------------+

| - effect | | - damage | | - items: Item[] |

+----------------+ +----------------+ +-----------------+

| |

| +---------+----------+

| | Potion |

| +---------------------+

| | - duration: int |

| | - property: Property |

| +---------------------+

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+-----------------+

| Property |

+-----------------+

| - propertyName |

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In this diagram, the main class is Character which has attributes such as name, health, strength, and money. Character has methods such as move(), interact(), pickUp(), and drop() to move between locations, interact with other characters, pick up items, and drop items.

Character has two subclasses, NonMagicalCharacter and MagicalCharacter, which represent the different types of characters in the game. MagicalCharacter has an additional attribute called magicalSkill which stores an array of magical skills. NonMagicalCharacter and MagicalCharacter can have both Skill and NonMagicalSkill, MagicalSkill respectively.

Skill is an abstract class, with NonMagicalSkill and MagicalSkill as subclasses. MagicalSkill has an additional attribute called spellName, which stores the name of the spell.

Item is a class that represents the items in the game, such as Wand, Potion, Sword, Axe, Bread, and Backpack. Item has three subclasses, ConsumableItem, WeaponItem, and ContainerItem. ContainerItem has an additional attribute called items which stores an array of Item.

ConsumableItem has an attribute called effect

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| Character |<>---------o--| Game |

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| name: string | | characters: list |

| health: int | | locations: list |

| strength: int | | current\_time: int |

| money: int | |------------------|

+----------------+ | get\_current\_time |

| acquire\_skill()| | add\_character() |

| add\_item() | | remove\_character()|

| remove\_item() | | get\_characters() |

+----------------+ | add\_location() |

| remove\_location() |

| get\_locations() |

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| Location |

+-----------------------------+

| terrain\_type: string |

| health\_points: int |

| items: list |

| characters: list |

+-----------------------------+

| add\_item() |

| remove\_item() |

| add\_character() |

| remove\_character() |

| get\_items() |

| get\_characters() |

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+------------------------------+

| Item |

+------------------------------+

| name: string |

| type: string |

| is\_weapon: boolean |

| is\_container: boolean |

| is\_consumable: boolean |

| is\_magical: boolean |

| magic\_duration: int |

+------------------------------+

| use() |

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+------------------------------+

| Trade |

+------------------------------+

| trader1: Character |

| trader2: Character |

| trader1\_items: list of Item |

| trader2\_items: list of Item |

| trader1\_money: int |

| trader2\_money: int |

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| add\_item() |

| remove\_item() |

| add\_money() |

| remove\_money() |

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| Combat |

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| attacker: Character |

| defender: Character |

| result: string |

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| fight() |

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| MagicalSkill |

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| name: string |

| duration: int |

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| cast() |

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+------------------------------+

| NonMagicalCharacter |

+------------------------------+

| type: string |

+------------------------------+

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+------------------------------+

| MagicalCharacter |

+------------------------------+

| type: string |

| magical\_skills: list of |

| MagicalSkill |

+------------------------------+

| add\_magical\_skill() |

| remove\_magical\_skill() |

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+-----------------------------+

| WizzoGame |

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| characters: list of |

| NonMagicalCharacter and |

| MagicalCharacter |

| locations: list of Location |

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| add\_character() |

| add\_location

Here is a conceptual level class diagram for the role-playing game software platform based on the given requirements:

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| Character |

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| name: string |

| health: int |

| strength: int |

| money: int |

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| HumanPlayer | | AIPlayer |

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| | | |

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| control() | | control() |

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| Skill |

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| name: string |

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+---------------+

| Item |

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| name: string |

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| Weapon | | Container |

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| damage: int | | capacity: int|

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| Consumable | |

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| duration: int | |

+---------------+ |

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+---------------+

| Potion |

+---------------+

| property: int |

+---------------+

+--------------+

| Location |

+--------------+

| terrain: enum|

| healthCost: int|

+--------------+

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+----------------+

| GameMap |

+----------------+

| locations: 2D |

+----------------+

+---------------+

| Interaction |

+---------------+

| initiator: Character |

| responder: Character |

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+----------------+ +----------------+ |

| Combat | | Trade | |

+----------------+ +----------------+ |

| attack() | | proposeTrade() | |

+----------------+ | acceptTrade() | |

+----------------+ |

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+----------------+

| TradeOffer |

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| items: List<Item> |

| money: int |

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In this diagram, each box represents a class, and the arrows represent the relationships between the classes. The classes are organized into groups based on their roles in the game:

* Characters are the entities that populate the game. They can be controlled by human players or by the AI.
* Human players and AI players are subclasses of the Character class, representing the different types of controllers.
* Skills are abilities that characters can acquire during the game.
* Items are objects that characters can carry and use during the game. There are three types of items: weapons, consumables, and containers.
* Potions are a subclass of consumables that have special properties.
* Locations are the hexagonal spaces that make up the game world.
* The GameMap class manages the locations in the game world.
* Interactions represent the events that can occur between characters in the game. There are two types of interactions: combat and trade.
* The TradeOffer class represents the items and money that a character is offering in a trade.