Operation Contracts for Rokue_Like

1. Move Hero
Contract CO1: moveHero

    Operation: moveHero(direction: String)
    Cross Reference:

- Use Case: Move Hero

Preconditions:

- The Hero is in a hall.
- The direction is valid (up, down, left, right).

Postconditions:

- The Hero's position is updated to a new location based on the direction.
- The system confirms the Hero's new position.

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2. Search for Rune
Contract CO2: searchObject

    Operation: searchObject(objectID: Integer)
    Cross Reference:

- Use Case: Search for Rune

Preconditions:

- The Hero is adjacent to the object.
- The object is clickable and within the hall.

Postconditions:

- If the object contains the rune:
    - The Rune is marked as found.
    - The exit door is unlocked.
- If the object does not contain the rune:
    - A "not found" message is displayed.

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3. Collect Enchantment
Contract CO3: collectEnchantment

Operation: collectEnchantment(enchantmentID: Integer)
Cross Reference:

● Use Case: Collect Enchantment

Preconditions:

● An enchantment is present within the hall.
● The Hero is adjacent to or within range of the enchantment.

Postconditions:

● The enchantment is added to the Hero's inventory or applied immediately.
● The enchantment is removed from the hall.

4. Use Enchantment

Contract CO4: activateEnchantment

Operation: activateEnchantment(type: Enum)
Cross Reference:

● Use Case: Use Enchantment

Preconditions:

● The specified enchantment is present in the Hero's inventory.

Postconditions:

● The effect of the enchantment is applied, gives a succes message (e.g., Cloak of Protection activates).
● The enchantment is removed from the inventory if it has limited uses.

5. Timer Countdown

Contract CO5: countdownTimer

Operation: countdownTimer()
Cross Reference:

● Use Case: Timer Countdown

Preconditions:

● A hall has been entered and the timer is active.

Postconditions:

- The remaining time is decremented.
- If the timer reaches zero:
  - The game ends with a "Game Over" screen.

6. Unlock Door
Contract CO6: unlockDoor

Operation: unlockDoor()
Cross Reference:

- Use Case: Unlock Door
Preconditions:

- The Hero has found the rune in the hall.
Postconditions:

- The exit door is unlocked.
- A success message or sound effect is played.

7. Progress to Next Hall
Contract CO7: progressToNextHall

Operation: progressToNextHall()
Cross Reference:

- Use Case: Progress to Next Hall
Preconditions:

- The Hero has unlocked the exit door.
- The current hall is completed.
Postconditions:

- The Hero is transitioned to the next hall.
- The new hall is initialized with its respective objects, monsters, and rune.

8. Game Over
Contract CO8: endGame

Operation: endGame(reason: String)
Cross Reference:

- Use Case: Game Over

Preconditions:

- The Hero's lives have reached zero, or the timer has expired.

Postconditions:

- The game ends.
- A "Game Over" screen is displayed with the reason for failure.