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Dungeon Quest Game Report

Abstract

The Dungeon Quest Game is a Java Swing-based text adventure game that combines Object-Oriented Programming (OOP) principles and GUI design to offer an interactive and engaging dungeon exploration experience. The player navigates through rooms filled with random events like treasures, traps, and enemies, impacting their health and progress.

Introduction

The project aims to create an engaging dungeon game using Java Swing for the GUI and applying OOP concepts. Players explore a dungeon by choosing directions to move, encountering events that alter their health. The game showcases OOP principles, exception handling, and GUI design to provide a simple yet fun gameplay experience.

System Design

The game is designed around key classes:

- **Player**: Manages player attributes (health) and actions.
- **GameWindow**: Handles the GUI with components like `JTextArea`, `JTextField`, and `JButton`.
- **RandomEvent**: Generates events such as treasures, traps, and enemies, influencing the game's outcome.

The architecture ensures modularity and easy extension, with the game focusing on a **game loop** where the player chooses a direction to move and encounters a random event.

OOP Principles

- **Encapsulation**: Player attributes (health) are encapsulated within the `Player` class.
- **Inheritance**: The `RandomEvent` class has subclasses like `Treasure`, `Trap`, and `Enemy`.
- **Polymorphism**: The game uses polymorphic methods to handle different event outcomes.

Implementation

Key Features

1. **Randomized Events**: The player encounters treasures, traps, or enemies, each affecting health.
2. **GUI**: Built using Java Swing to enable user interaction with the game.
3. **Exception Handling**: Invalid user inputs (like non-numeric choices) are handled to prevent crashes.
4. **Health Management**: The player's health is impacted by encounters, and the game ends if health reaches critical levels (below 40).

Testing

Manual testing ensured functionality and addressed edge cases like invalid inputs. Exception handling was tested to ensure smooth gameplay.

Future Enhancements

Future improvements could include multiplayer support, enhanced graphics, and more complex gameplay mechanics.

Conclusion

The Dungeon Quest Game demonstrates essential programming concepts, including OOP, exception handling, and GUI design, offering a simple but enjoyable interactive experience. It serves as a foundation for more advanced game development project

Output Example

```
Welcome to Dungeon Quest Game!
Your current health: 100
Choose a direction: 1) North, 2) South, 3) East, 4) West
```

References: https://github.com/gabaugusto/dungeon-game , Chatgpt