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CSC 1061

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Capstone Project Proposal

Program Title: Dungeon Escape: A Text-Based Adventure Game

Concept:

The proposed project is a text-based adventure game called "Dungeon Escape". This interactive fiction game allows players to explore various rooms, collect items, and engage in combat with monsters to escape from a dungeon. The game will be a console-based application written in C++.

Features

- **Multiple Rooms with Descriptions**: The game will have a series of interconnected rooms, each with unique descriptions to create an immersive experience.
- **Inventory System**: Players can collect, manage, and use items they find in the dungeon.
- **Combat Mechanics**: Simple combat mechanics will be implemented to fight monsters.
- **Story with Multiple Endings**: The game will feature a basic storyline with different endings based on the choices players make.

Example Scenario

Players will navigate through a dungeon, encountering various monsters, traps, and treasures. They must find keys to unlock doors and use items to overcome obstacles. The goal is to find the exit and escape the dungeon.

What will the program do?

The program will simulate a text-based adventure game where players explore a dungeon, interact with objects, and engage in combat with monsters. The game will maintain an inventory

system for players to manage items they collect. It will also feature a storyline with multiple pathways and endings based on the player's choices.

Who will use your program?
- Students learning C++ who are looking for a fun and interactive way to understand the application of various programming concepts.
- Text-based game enthusiasts who enjoy adventure games.

How will the program be of use to the intended users?
- Educational Value: Students and educators can use the game as a learning tool to understand C++ concepts such as classes, inheritance, polymorphism, and data structures.
- Entertainment: Game enthusiasts will enjoy exploring the dungeon and experiencing different story outcomes.
- Practical Application: The game provides a practical application of programming skills, allowing users to see how abstract concepts are used in real-world scenarios.

What data will be required by your program?
- Room Descriptions: Text data describing each room in the dungeon.
- Item Information: Details of items that can be collected, including their names, descriptions, and functions.
- Monster Details: Information about the monsters, including their names, descriptions, and combat stats.
- Player Data: Information about the player's current stats, including their location, inventory, and health.

Classes and Abstract Data Types
The game will define several classes to create a representation of the game's mechanisms:
- Room: Represents each room in the dungeon with descriptions and connections to other rooms.
- Item: Represents items that can be collected and used by the player.
- Monster: Represents monsters with which players can engage in combat.

- Player: Represents the player, including their inventory and health.

Concepts to Include

The program will incorporate at least three of the following concepts:

- Inheritance: Create a hierarchy for different types of items and characters (e.g., a base Character class with derived Player and Monster classes).
- Polymorphism: Use polymorphism to handle different item types and their interactions.
- Data Structures: Implement appropriate data structures such as vectors or linked lists to manage the inventory system and room connections.
  Recursion: Implement recursive functions for navigating through the rooms.

Conclusion

The "Dungeon Escape" text-based adventure game will provide a challenging and educational project for students learning C++. By incorporating multiple programming concepts and creating an engaging game experience, this project aligns well with the course requirements and offers practical application of theoretical knowledge.