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Licence 2 informatique – 2022/2023

CERGY PARIS UNIVERSITÉ

SIS2076(3) – Examen n° 1

Object Oriented Programming

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Important

First of all, it is important to remember certain rules and good practices regarding the tests. First of all, the scale is only provided as an indicative. Secondly, no documents are allowed during the test. Computers, smartphones, tablets, calculators, and laptops are forbidden. In addition, only the teacher or his assistant is authorized to answer your questions during the test. You are also advised to read the entire carefully read the entire subject.

1 Project Overview

The objective of this project is to design and implement a role-playing game (RPG) in Java with an emphasis on object-oriented programming principles. The game should be designed in such a way that it is easy to add new character classes like a healer, and the implementation of an interface for care. Additionally, the game should allow a warrior character to have multiple weapons, one in each hand.

2 Project Requirements

- Design and implement the game in Java.
- Use object-oriented programming principles.
- Create a class diagram of the program.
- Implement a system to easily add new character classes (e.g., a healer).
- Implement interface (e.g., for care) .

3 Expected Deliverables

At the end of the project, students are expected to deliver :

- The Java code for the game.
- A class diagram of the program.
- Documentation that explains how to run the game, how to add a new character class, and how the interface for care and multiple weapons system works.

4 Group Work and Report Submission

This project is designed to be completed in groups of five students. It is intended to encourage collaboration, team problem-solving and the exchange of ideas. Each group is required to submit a final report (5pages).
The report should document the design and implementation process of the game, challenges encountered, how they were overcome, and a reflection on the project outcome. It should also include the class diagram and an explanation of how new classes such as a healer can be added.

The clarity and completeness of this report are essential and will be a significant part of the final evaluation.

5 Evaluation

The project will be evaluated on the following criteria :

1. Project Documentation (Total 15 points)
- Readability (0-5 points) : Code is clean, easy to read, and well-organized.
- Comments (0-5 points) : Code includes comments explaining how more complex blocks of code work.
- README File (0-5 points) : The README includes instructions for how to run the project, an overview of the code structure, and the game rules.

2. Object-Oriented Programming (Total 25 points)
- Class Design (0-15 points) : Classes are well-designed and logically organized.
- Encapsulation/Information Hiding (0-5 points) : Class attributes are properly encapsulated, and getters/setters are used appropriately.
- Inheritance and Polymorphism (0-5 points) : The project effectively uses inheritance and polymorphism where appropriate.

3. Game Mechanics (Total 25 points)
- Gameplay (0-10 points) : The gameplay is smooth and user-friendly.
- Expansion System Implementation (0-10 points) : The expansion system is implemented correctly, providing the ability to add new features and gameplay elements without breaking the existing code.
- Bug-Free (0-5 points) : There are no major bugs that hinder gameplay or cause the program to crash.

4. Graphical User Interface (Total 25 points)
- Layout (0-10 points) : The graphical user interface is well-organized and intuitive.
- Responsiveness (0-15 points) : The interface is responsive and updates properly based on gameplay.

5. Advanced Java Topics (Total 10 points)
- Networking (0-3 points) : If applicable, the project uses networking effectively to allow for multiplayer games or data storage.
- Database Management (0-3 points) : The game properly stores and retrieves data (e.g., player scores, game state) from a database.
- Exception Handling (0-4 points) : The code effectively handles potential exceptions, avoiding crashes and providing informative error messages where necessary.

Good Luck...