COMP 3700: Project 3—Dragon Game Part 1

Points: (100 points) -- **Deadline: 11:59pm March 15th, 2024**

Goals:
- To understand how important the to-do list before designing a use case diagram.
- To figure out the logical structure in a use case diagram.

1. Background

A customer wants a cool new video game, similar in style to popular video games like *World of Warcraft* or *Bioshock*. However, the customer recognizes the lack of significant funds and only has a resource poor computer to play this game on. Hence, the game will be a simple text-based adventure concerning a graduate student trying to navigate his way down Shelby Center. In this project, you will help the customer to design and implement a simple text-based game.

2. Requirement Details

2.1. Player

The "player" is represented by *at least* three attributes: *intelligence*, *time*, and *money*. If the player runs out of intelligence, time or money, the player dies. The goal of the player is to survive to the end of the "hall" with the highest combined total of the attributes as possible. "Score" is determined as the three attributes multiplied together.

2.2. The Hall

The player starts the game at the beginning of a hall, which is linear.

The "Hall" is a path that is at least twenty (20) steps long. After a move, the user should be told how far away from the goal they are (in steps). If the player survives to the goal square without any of the attributes falling to 0, they win. Their score should be displayed with a simple ASCII victory message. If the player dies, a "You Lose" message should appear indicating the cause of death (for example, if money falls to zero, you can say that the player starved to death because of poverty). All the attributes should start in some random range (e.g. 8-25).

2.3. Turns

Every turn, the player has (at least) 5 options to choose from:

- **Move**: The player moves one step in the grid, but risks an Encounter or a Puzzle. Moving also takes time.
- **Read technical papers** (boost intelligence): The player loses a fixed amount of time, but increases intelligence by a random amount
- **Search for loose change** (boost money): The player loses a fixed amount of time, but increases money by a random amount.
- **View character**: A simple display should show the character attributes and current position in the hall (ASCII is fine)
- **Quit the game** (shows the "You Lose" screen – optional mockery- and exits the program)

2.4. Encounter

Encounters: Every time the character steps, there is a random change of various events happening. You are free to change the probabilities as you see fit for "game balance," but here are some suggestions:

- 25% chance: nothing happens, you just move forward.
- 30% chance: You encounter a Puzzle (see Puzzle below)
- 10% chance: Encounter a professor. This loses a random extra amount of time, but may slightly increase intelligence.
- 10% chance: Encounter another graduate student. This loses a random amount of time.
- 15% chance: Attacked by grunt work! Lose both time and intelligence.
- 10% chance: Grade papers. Lose time, but gain money.
- 0% chance: Get a huge raise, gain lots of money! (This never happens).

2.5. Puzzles
Puzzles: Puzzles are different from normal encounters since they require interaction from the user. These don't necessarily have to be brilliant, but riddles or even edutainment light puzzles are fine. Examples:

- "What is 2 + 2:" For a correct response, Money + 1. For an incorrect response, Money -20 (you idiot).
- "What can you put in a barrel to make it lighter?" For a correct response, int+2. For an incorrect response, int-2.

2.6. Other options
You are free to add more details and rules to your game, but you must have at least the above specifications. Feel free to be creative – there are many opportunities to do so.

3. No Late Submission

· Late submissions will not be accepted and will result in ZERO without valid excuses, in which case you should talk to Dr. Li to explain your situation.

· GTA/Instructor will NOT accept any late submission caused by Internet latency.

4. Rebuttal period

- You will be given a period of two business days to read and respond to the comments and grades of your homework or project assignment. The TA may use this opportunity to address any concern and question you have. The TA also may ask for additional information from you regarding your homework or project.

5. Rubrics

5.1 Based on the game description above, you need the following information to design a use case diagram **(5 points each)**:

1. Project broken down into multiple small functionalities.
2. Identify the goal and priority.
3. Functionality Scope.
4. Identify relationship and association.
5. Identify Extension and Inclusion of use cases.
6. Identify Multiplicity
7. Naming Use Case and actors
8. Important note points

5.2 **Documents (20 points each list)**

Also, please submit three lists **in a single PDF file**: a) List of Actors of the Project; b) List of Use Cases/Activities; and c) List of System (Functionality list).

5.3 **Submission**

Please submit your project preparation work as a .pdf file

Project3_ firstname_lastname.pdf

Sample Usage

```
What's your name? Bob


============================================================
|                     Welcome, Bob!                        |
============================================================

1) Start a New Game of Dunstan and Dragons!
2) View top 10 High Scores
3) Quit

    Please choose an option: 2


The top 5 High Scores are:

Win 1337
CaseyZZZ 625
JonnieKill 400
Bob 75
Daisy 33
-no more scores to show-


1) Start a New Game of Dunstan and Dragons!
2) View top 10 High Scores
3) Quit


    Please choose an option: 1
```

Entering the Dungeon…

You have:

intelligence: 20
time: 25
money: $11.00

You are 20 steps from the goal. Time left: 25.

```
    1) Move forward(takes time, could be risky…)
    2) Read technical papers (boost intelligence, takes time)
    3) Search for loose change (boost money, takes time)
    4) View character
    5) Quit the game
```

```
        Please choose an action: 4




You have:

intelligence: 20
time: 25
money: $11.00

You are 20 steps from the goal.  Time left: 25.

        1) Move forward(takes time, could be risky…)
        2) Read technical papers (boost intelligence, takes time)
        3) Search for loose change (boost money, takes time)
        4) View character
        5) Quit the game


    Please choose an action: 2

You read through some technical papers.  You gain 3 intelligence, but
lose 2 units of time.

You are 20 steps from the goal.  Time left: 23.

        1) Move forward (takes time, could be risky…)
        2) Read technical papers (boost intelligence, takes time)
        3) Search for loose change (boost money, takes time)
        4) View character
        5) Quit the game


    Please choose an action: 1

You move forward one step, and…

NOTHING HAPPENS!

You spent one unit of time.

You are 19 steps from the goal.  Time left: 22.

        1) Move forward (takes time, could be risky…)
        2) Read technical papers (boost intelligence, takes time)
        3) Search for loose change (boost money, takes time)
        4) View character
        5) Quit the game


    Please choose an action: 1

You move forward one step, and…

YOU FIND SOME PAPERS TO GRADE.
```

You spent two units of time, but gained $3.00!

You are 18 steps from the goal. Time left: 20. You can move forward or backward.

        1) Move forward(takes time, could be risky…)
        2) Read technical papers (boost intelligence, takes time)
        3) Search for loose change (boost money, takes time)
        4) View character
        5) Quit the game

        Please choose an action: **1**

 You move forward one step, and…

PUZZLE: It's a riddling imp. I hate riddling imps. But fine, he asks: "Find the product of 8 and 8!"

    1) 16
    2) 64
    3) 256
    4) Uh…uh… no?

Choose wisely: **4**

The imp cackles "Oh yes. Yes indeed. Now you die."

TIME HAS FALLEN TO ZERO. YOU DIE.

<Print Score, adjust high scores>