CM10228 Coursework 2
Dungeon of Doom - Part 3

March 8, 2017

1 Introduction

Due Date: 19.00 on 27th March 2017

Overall, your mark in Programming 2 is composed of,

1. 50% coursework,
2. 50% exam.

The coursework component (part 1. above) is made up of three exercises (CW1, CW2 and CW3) each of which will build upon the last. These are as follows,

1. CW1: **Dungeon of Doom Part 2:**
   Extending code from CM102227 CW2 –or the supplied code- to allow multiple concurrent, networked agents in one dungeon (Java).
2. CW2: **Dungeon of Doom Part 3:** Adding a GUI (Java).
3. CW3: **Dungeon of Doom Part 4:** Extending game logic (C).

This document provides requirements for the second coursework (CW2). CW2 is worth 2/5th of the coursework component (i.e. 20% of your total mark for the unit).

2 Coursework Specification

2.1 Core Requirements

This assignment asks you to make further extensions to the Dungeon of Doom game. More specifically, it asks you to implement your own Graphical User Interface (GUI) using the Java AWT and Swing API's.

NOTE: Although there are GUI design tools available for Eclipse, Netbeans etc. these often generate code which is hard to extend, maintain and do not follow good OO design etc. It is recommended that you do not use such GUI design tools to complete this assignment as you will most likely loose the majority of the marks allocated for "OO design, formatting and clarity".

To meet the core requirements you should implement the following,

1. **DoD Human Client GUI** - Create a GUI which displays the dungeon as known to the player and allows them to control their avatar. You should include as a minimum,
   (a) GUI elements to display the dungeon known to the player
   (b) GUI elements to input the IP address and port number of a DoD server
   (c) a button to connect to the DoD server and other GUI elements to report if the connection was successful or not
   (d) buttons (or other GUI elements of your choice) to let you control the avatar in the dungeon
   (e) a button to allow you to quit the application/game cleanly
2. **DoD Server GUI** - Create a "god's eye view" view that lets you watch everything that happens in the dungeon. This is unlike the player's view, which only shows what is known to the player. You should also include GUI elements to,
   (a) allow the user to "blank" the "god's eye view"
   (b) allow the user to enter or select a new port for the server
   (c) display the current IP address and port number of your server

You can choose to add this new functionality to 1. the code you submitted for CW1 in CM10228 or 2. to use our example code available on Moodle. NOTE: if you do choose to extend our example code the options available to you are reduced but you can still achieve a good pass.

2.2 Core Requirements - Automated Testing

Important: The code you submit will be tested using a test suit which, will check your GUI implementations for both DoD client and server. To allow us to run this test suit your submitted code **MUST** use the classes below which are included in our given code on Moodle.

1. **DODServerGUI:** - launches the server GUI using the port number supplied as a default value.

   Usage: java DODServerGUI <portnumber>

2. **HumanClientGUI** - launches the human player client GUI using the hostname and port number supplied as default values.

   Usage: java HumanClientGUI <hostname> <portnumber>

3. **BotClientGUI: (Only needed if the DoD Bot GUI Advanced Feature is chosen)** - launches the bot player client GUI using the hostname and port number supplied as default values.

   Usage: java BotClientGUI <hostname> <portnumber>

Failure to follow the submission specifications, would result a *-10* penalty applied to the final mark.

2.3 Advance Features

In order to potentially get full marks on the coursework you will also need to include ONE advanced feature from the list below.

2.3.1 DoD Bot GUI

Implement a new GUI which allows you to spawn multiple bots as clients. This includes GUI elements to,

1. input the IP address and port number of a DoD server
2. launch one or more new bots as clients connecting to the specified DoD server
3. view all bots that have been launched by the user
4. view the look window of a selected bot
5. control how fast or slow it goes i.e. controls how long it sleeps between moves

2.3.2 Integrate Chat into the Human Client GUI

Add GUI elements for the chat system in your Human Client GUI. (NOTE: if you have only implemented SHOUT then you will not be able to complete most of this advanced feature). This includes,

1. scrollable chat text where text from this player and other players is clearly identifiable
2. ability to SHOUT messages to all other players
3. ability to view names (or ID's) of other players
4. ability to select a player to send a private message to
5. chat updates in real time

2.3.3 Advanced DoD Server GUI

Add GUI elements to implement the advanced features of the DoD Server GUI below,

1. allow new gold to be added to the map
2. to move a player from their current location to a new location
3. view all of the chat messages being sent via the DoD server (both public and private)
4. buttons to save chat logs and the move history for the current game to a text file
5. include radio buttons which allow you to turn the actual serving for clients (the listening) on and off i.e. when toggled on the server will accept new clients and when toggled off the server will refuse new connections

2.4 One Final Suggestion

Note that we are not asking for any documentation of your requirements-gathering and design for this coursework, but you may find that doing these properly still helps you perform the tasks above, regardless of whether anyone looks at the output. You may also want to show these requirements and/or design documents to the tutors in lab in the early stages of development just to get feedback about whether you are on the right track.

3 Submission

By the date/time specified above, you should upload a zip file. The name of the zip file should be in the form:

CW2-<bucs username>.zip
e.g. CW2-abc123.zip

The zip file must contain a project folder, titled *Project*, containing your source code and any resources files needed. You should not include packages or other subfolders. No compiled code nor non-needed files, i.e. version control files, should be included.

4 Marking Scheme

Criteria	Max Score	Description
Core Specifications		
DoD Human Client GUI	25	a GUI which displays the dungeon as known to the player, allows them to control their avatar, to input an IP address and port number, connect to DoD server, report connection success/fail messages and to quit game
DoD Server GUI	25	a GUI which displays a "god's eye view" view to let you watch everything that happens in the dungeon, blank the view, enter a new port number for the server, display IP address and port number of the server.
Commenting, OO design, formatting and clarity	25	Code uses clean code practices, object-oriented programming techniques, and is consistently commented.
One of the Advance Features		
DoD Bot GUI	25	Implements features specified to allow a user to spawn multiple bots as clients
Integrate Chat into the Human Client GUI	25	Implements features specified for a chat system in the Human Client GUI
Advanced DoD Server GUI	25	Implements features specified for the advanced DoD Server GUI