This document contains a log for the majority of the work involved in my submission for the programming assignment “Semester 2 Coursework”, a summary for my game and a bibliography/references for the images used that I did not make.

**Index**

Page 1: index and summary

Page 2: test plan

Pages 3-7: work log

Pages 8-9: Bibliography and references

**Summary**

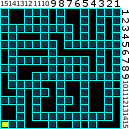
The game is a first person science fiction themed dungeon crawler in which the player must make it from corner of the map to the opposite corner in order to win.

To start the player is given some story text, option to enter a name for their score as the game records the number of enemies you defeat, number of times you enter a room, number of medpacks you find, the number of upgrades found and the player can choose their starting health using JRadioButtons.

Once the intro is done, the player is spawned in the top left corner of the map.

The player can turn right, turn left, move forward in the direction their facing, attack if there is an enemy and search the room for an item.

The map grid

The player navigation and map are coordinate based with a NESW (north, east, south and west) direction system with X and Y coordinates of the player’s and other entities positions being ints.

If the player encounters an enemy then they can only attack until the enemy is dead or the player is dead so the player must seek out weapon upgrades and health packs to increase their attack and health.

When the player wins or loses then will see a screen with a win or lose background image, their stats and some story text.

**Test plan**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Test | Purpose | Test data | Expected response | Actual response | Conclusion |
| Collision test | See if there are any gaps in the walls of the map allowing the player to walk into nothing/behind walls. | Walking around the map pressing the forward button when facing the wall, do this for each wall. | I will not be able to walk through a wall or outside the map. | I could not walk through a wall or outside the map. | The code for wall detection and map boundaries works as intended. |
| Medpack spawn test | See if all medpack have spawned in correct places. | Go to the positions where medpacks are and use them. | I will go to positions where the medpacks spawn and use them | I found the medpacks and used them. | Medpack placement code works as intended. |
| Upgrade spawn test | See if weapon upgrades have spawned in correct places. | Go to the positions where upgrades are and use them. | I will go to positions where the upgrades spawn and use them. | I found the upgrades and used them. | Upgrade placement code works as intended. |
| Enemy spawn test | See if enemies have spawned in correct places. | Go to the positions where enemies are and see if they are there. | I will go to positions where the enemies spawn. | I found the enemies where expected. | Enemy placement code work as intended. |
| Upgrade test | See if the upgrade system works as intended. | Get the weapon upgrades and see if the image, weapon name and attack value change as intended. | The upgrade will work correctly. | The upgrade worked correctly. | Weapon upgrade code works as intended. |
| Death test | See if death system works correctly. | Keep attacking enemies until I die. | The panel will change to show the players stats, an image saying “You have died” and an exit button. | The panel changed to show the players stats, an image saying “You have died” and an exit button. | Death code works as intended. |
| Win test | See if winning system works correctly. | Get to the win tile. | Panel will change to show a “You have escaped image”, some story text for the player escaping, players stats and exit button. | The panel changed to show a “You have escaped image”, some story text for the player escaping, players stats and exit button. | Win code works as intended. |
| Combat test | See if attacking works | Go to an enemy and attack, see if they die after repeated attacks. | An enemy will die after being attacked repeatedly. | An enemy dies after being attacked multiple times. | Combat code works as intended. |

**Work log**

29th of March

First person dungeon game

Monster AI: can be done with ifs and ints to determine next action

Monster health: unseen value, decreases when player attacks

Movement: grid with X and Y position, if direction = (direction value) then X (or Y) + (or -) 1, direction determines else (other direction values)

Direction: determined by string or char with N, S, E, or W, left and right buttons change value

Movement on grid: forward to go forward in current direction on grid

Current room: room is dependent on X Y coordinates on grid, moving changes grid coordinates by +1 in direction

View in current room: having images with names based on grid coordinates and direction, Nor\_X5\_Y2, Nor being north, 5 and 2 being x and y

Player health: Heart image with number, when taking damage the number goes down and healed goes up

Player attack damage: Random int with upper and lower limits determined by weapon.

Player weapon: Starts out with basic weapon

Room class contains information on current room, what is in it,

Enemy class contains info on enemy

31st of March

Worked on GUI for game.

Made buttons for left, right and forward, buttons do not connect to anything yet.

Made panel and frame.

Tried to get background but problems are occurring with absolute positioning, image only shows if .setLayout(null) is removed.

Tried to get image to show by assigning boundaries, also tried assigning sizes to all entities, no effect.

Looking into layout managers.

1st of April

Made system for changing the player’s direction and position, directions are represented by numbers 1 to 4.

Linked direction system to turn left and turn right buttons with a System.out.print to determine if the value is being changed, value changes successfully.

Linked position system to go forward button, position value changes successfully.

After a while of struggling with layout managers and image importation code I realised that images not showing in the frame when running the code, was due to me mixing up the position and size values when setting boundaries.

Absolute positioning is being used and the images now show in the frame with the buttons.

Modified the GUI event listeners so that the players view would change when turning left or right, currently this is just a white square with N, E, S or W to show direction.

As rooms are images with names based on direction, X position and Y position the latest position and direction data is used to determine the new image.

4th of April

Made JLabel, which would hold an image of the player’s weapons, currently just has the name of the starting weapon, which it gets from the string currentWeapon.

Made JLabel that has attack value of current weapon and put in GUI.

Made buttons for attacking and interacting (picking up etc) and linked them to action listeners.

Tried to implement a Switch Timer so that when there is no enemy and the player clicks attack, a message saying there is no enemy to attack appears for 1-2 seconds.

Could not figure out the timer system to implement and using thread.sleep also did not work as intended.

Made Rooms class to contain information on rooms.

Looked into a collection to store locations of where enemies and items are.

Looked at HashSet and TreeMap, going to use HashSet to store XY coordinates compounded into a single value, i.e. X5 Y7 would be 57.

5th of April

Made it so that whenever the player enters a room the Rooms class is checked to see if there is an enemy in the room.

The Rooms class is not getting the X and Y coordinates through the getter, both coordinates always appear as zero.

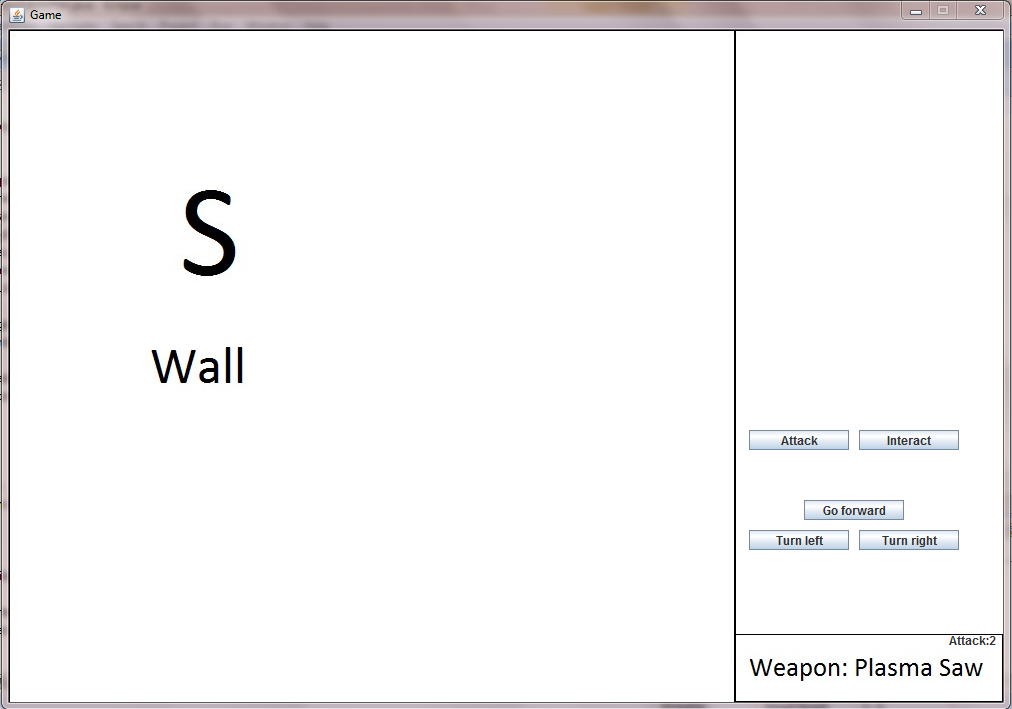
Resolved this by making the X and Y ints in the Player class static and calling them using Player.(method).

The HashSet in the Rooms class uses Integers so it does not recognise the X and Y coordinates ints, used wrapper to convert the int to an Integer in the Room class, works now and returns true if the players current position is the same as an enemy.

Changed the coordinate system in Player class so that instead of having two return methods, both coordinates are concatenated into a single int, when the coordinates are both zero then only zero is returned.

Decided that at this time the level is going to be 20\*20, some coordinates will be inaccessible and or walls that cannot be moved through.

Made is so that the player move into minus coordinates or over 20 on X or Y.

Made launcher class for starting game, previously launching was done from the GUI class.

Game currently looks like this:

Interact currently does nothing and a message saying nothing to attack will appear when pressed but will not disappear automatically.

Made a system whereby if the player’s current coordinates match that of a wall block then the play is moved back to their last position without the view changing.

Made a Processes class for frequently used processes like bringing up a temporary message with specified text.

Made and implemented a JLabel compass that will point if the direction the player is facing, JLabel changes when player turns left or right and uses the new direction value to determine the new image.

6th of April

Moved the temporary message process into the GUI class from the Processes class.

Made JLabels to have an image and number for showing the players current health.

Implemented some if and else statements so that the player cannot move forward, turn or interact while an enemy is in the room.

Found mistake with boundaries in Player class, fixed them.

The temp message JLabel was static and public, I changed it to use a setter, I realised other places I should be using setters and implemented them.

Now I get java.lang.StackOverflowError errors in any classes that call to each other, i.e. “private GUI gui = new GUI();” in the Player class and “private Player Act = new Player();” in the GUI class, trying to resolve this without making them static.

Started battle system, currently player and enemy can reduce each other’s health, turn based, player cannot attack while enemies turn is executing.

7th of April

Made it so that when a player reduces an enemy’s health to 0 or less than 0 the enemy’s image is removed and its position in the enemy HashSet is removed.

Labelled the code with // comments to explain what parts of the code do.

Made is so that when an enemy reduces the player’s health, the player health JLabel is updated to show the change.

8th of April

Started implementing a minimap along with a system to move a marker on the minimap to indicate the player’s position.

While doing this I found that there were some static variables, changed this and reworked code, after the reworking I found that an enemy no longer appear in its room, while looking into enemy problem walls that re not the boundaries can be walked through.

When setters are used the setters have no effect.

Having the Rooms class call to the player class using getters and or setters does nothing, I assume this is because both Rooms and GUI have “private Player Act = new Player();” causing two separate player instances to be made.

Fixed it and other issues that appeared while fixing.

Minimap system has been implemented and tracks player, but the sprite to indicate position is misaligned after making contact with a wall.

9th of April

Changed the compass images to reflect the direction the player moves on the minimap.

Fixed issue with player location on minimap becoming misaligned, wrong variable used.

Made it so that the player icon on minimap will point in current direction.

Made and implemented a system whereby a different image will be shown depending on the enemies tier (3 tiers) and a random number generator as each tier has two enemies.

Continued this system so that it changes the enemies attack and health depending on what tier it is.

10th of April

Changed the tier system so that the enemy’s attack will be a random number with an upper and lower limit each time they attack.

Began making a system for health items to replenish health and to get better weapons.

11th of April

Finished the system for changing the player’s health or weapon when picking a medpack or upgrade.

Made it so that the game records the number of times the player goes forward, number of medpacks collected and number of enemies defeated.

Started a layer with a text field for the player to put their name in.

12th of April

Finished the enter name screen, once name is entered the game begins.

Began making a system to show a game over screen and give the option to restart when the player dies along with showing their statistics.

Made system for game over screen with stats.

14th of April

Made a system for calling non-looping gifs and pausing code execution while the gif is playing, would be used for animations.

Changed the temp message system so that the message is appended to the first line of a text area.

Made list of things left to do.

Got images for weapons.

15th of April

Got images for attack button, interact button.

Got image and modified it to be compass.

Made some refinements to code.

Most actions will now put a message in the text area.

Got animated gifs to be used as attack animations.

16th of April

System of using GIFs is failing, Image is drawn but the last frame persists after the second use, only happens once sometimes.

Using animations is being discarded for the time.

Got images, put then to the GUI, refined code and began sorting UI.

Updated minimap image to suit theme.

Made modifications to GUI

17th of April

Improved game over screen with colour and font.

Got image for medpack, for restoring player health.

Changed game size from 20 by 20 to 15 by 15, changed minimap and code to reflect this.

Made background image for start screen.

Eclipse crashed and somehow removed all code past a certain point.

Repaired the damage caused by the crash.

Made some lore for the start screen.

Decided that instead of having images for medpacks and weapon upgrades they would just be a crate image.

Got image for crate and implemented.

Trouble-shooter weapon changing system, fixed weapon changing system.

18th of April

Made refinements to code, used methods where code was repeated.

20th of April

Designed map, implemented locations for enemies, walls, medpacks and weapon upgrades.

Changed the system for showing what the player sees in room, now game checks if the player is facing a hallway or a wall then showing the correct image.

Got images for hallway and wall.

Base game is done, going to look over it with the assignment brief for that which is not in it but can be included for higher mark.

Added 2 radio buttons to choose the starting health during the intro screen.

Optimised code using DRY principle.

21st of April

Combined references document and log document.

Made small balancing changes to game.

Changed minimap so that it only shows the tiles the player can go to and not every tile.

Labelled parts of code.

22nd of April

Finished labelling code.

Thought about doing Junit tests but the only variable input the game takes from the user is the name to a string and that will accept any character with no error.

For the game variables:

* Health and weapon level can only increase when the player gets an item to do so and they only appear on certain tiles and cannot be reacquired.
* Weapon level cannot increase to a value for which there is no weapon as there are four weapons with three upgrade items on the map.
* Starting health of the player will be one of 2 values, 20 or 999, there is no code in the game for it to start as anything else.
* Starting health and attack values for each enemy can only be one of 3 values, no code for them to be anything else.
* Random number generators have specified minimum and maximums, nothing else they could be.
* Wall, items and enemy positions have all been checked and they do not conflict and walls do not appear where they should not in the game, coordinate system is X and Y concatenated so a coordinate like 111 is X1 Y11 and X11 Y1 at the same time resulting in a wall at both of those positions, this is accounted for in the map.

24th of April

Made Junit test classes and test for Enemy, Rooms and Player classes that pass and fail, cannot make one for GUI as none of its method are passed to and return a value.

Made test scenarios for tests that I had already done.

25th of April

Made some more test scenarios for what I have already done.

Making a reset method for when the player wins or loses.

26th of April

Continued with reset method, for some reason the components re-added in are unresponsive.

Modified code so that it complies with coding standard document.

Finished version 1 of the game and this document, due to the time remaining and that I have no idea why the readded components are unresponsive I am submitting without the reset system.

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