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Leonardo's Chronicles

Technical Report

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Executive Summary

The purpose of this document is to outline and to show how one person can go from writing, developing and publishing his/her own mobile RPG on any Android platform. There are several tools out there that developers need to be fully aware of when choosing which path to go on. From the ground up approach of Android studio, to the tested Unreal Engine or, as I did, new iterations of existing engines: RPG Maker MV. In my case, I have decided to experiment with a brand new iteration of the RPG Maker environment with the goal of leveraging the innate portability capabilities of the tool. However, this did not come without its challenges as with new tools, one needs to be aware that the amount of resources available will be limited compared to more mainstream approaches. For this reason, I went for a cautious agile development approach that allowed me to work on short sprints where I was able to gain user feedback at the end of each iteration.

What I have kept in mind throughout the development is to stay true to the top RPG's such as the successful Square Enix's: Final Fantasy franchise¹ and SEGA's Defenders of Oasis².

The end goal, as mentioned above, is to produce an immersive user experience that will be available to gamers around the world via Google's Play store at zero costs and completely uninterrupted by advertisements or in-app purchases: "an old-school role playing game".

1 Introduction

This document will outline each step that took place in developing my project. The appendices provided will include the Project Proposal and my diaries beginning in October, ending in January – as per the midpoint presentation date.

1.1 Background

It has always been one of my dreams and ambitions to one day publish a creative work, be it a book, a cartoon series, a game. In the course of the past 4 years in college I have developed skills that allowed me to use my creativity and finally be in the position to publish my own creative work, via a different medium: hence came the RPG idea. The story itself is something I have been working on for a long time and have decided to convey via a handheld application. So rather than reading a story, people will be able to interact with it and live the adventure with the main characters and his companions.

1.2 Aims

The aim of this project is to have a polished application that will be worthy of people downloading it and hopefully investing hours in trying to compete it.

1.3 Technologies

The application is developed through different stages. The main development is carried out through a new games development engine called “RPG Maker MV” which was released in October 2015. The tool makes use of JavaScript and JSON mainly, which in turn makes the application easily portable to HTML5, Android (as in my case), iOS and Windows Phones. The development environment also requires some Photoshop or Gimp knowledge if one was to make some really unique sprites and environments. Despite this not being a must, I did find myself having to rely on Gimp when I had to customize the game’s appearance where what I wanted to achieve, would have not been possible “out of the box”.

The second part of development employs the use of apache ant server, the jdk library and sdk library inclusive of Google's latest API.

2 System Requirements

2.1.1 Functional requirements

1. The application must start when the user launches the application from his/her device.
2. The game must begin when the user selects “New Game”.
3. The player must be able to move his/her avatar throughout the virtual world.
4. A previously saved state must be loaded when the player chooses to do so.
5. The game must offer a battle system.
6. The game must offer a buy and sell system.
7. A quest must become completed once the player has met the quest requirements.

2.1.2 Requirement 1: Start Application

2.1.2.1 Description & Priority

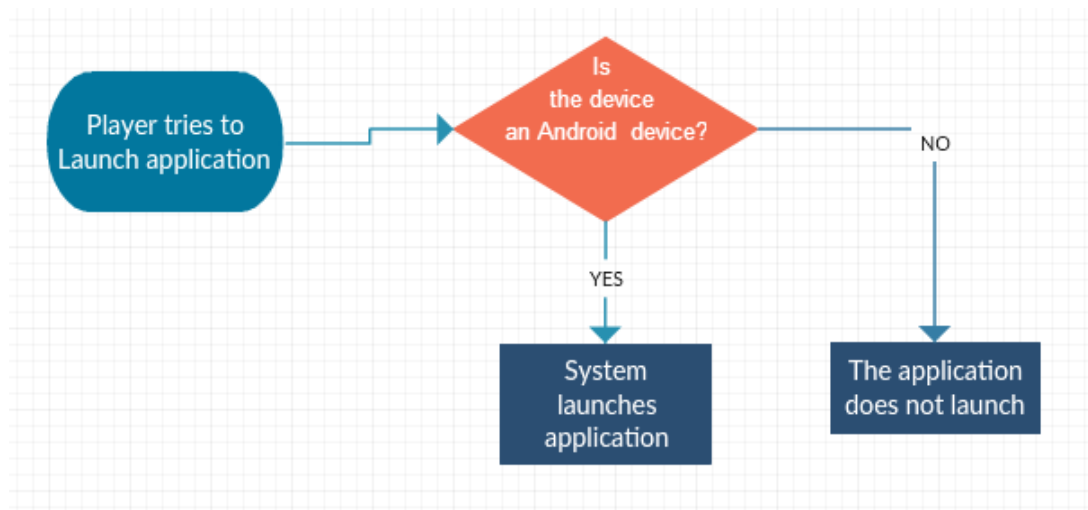
This is the most important requirement – the game cannot be played if the hardware cannot launch the application or if the player does not know how to launch the application.

2.1.2.2 Use Case

Scope

The scope of this use case is to describe how the player can launch the application.

Use Case Diagram



Precondition

The application was downloaded and installed on a piece of hardware that runs the Android OS.

Activation

This use case starts when a player wants to launch the application

Main flow

Typical Course Of Events	
Actor action	System Response
1. Player clicks on the game icon in his/her Android device application menu	2. Launches the application

Alternate flow

Alternative Course Of Events	
Actor action	System Response
1. Player clicks on the game icon in his/her Android device application menu	2. The application does not launch as the operating system is different from the prerequisites and requirement specifications.

Termination

This flow terminates once the system is booted up.

Post condition

The player will be brought to the application’s Main Menu and the system will enter a “wait state”.

2.1.3 Requirement 2: New Game

2.1.3.1 Description & Priority

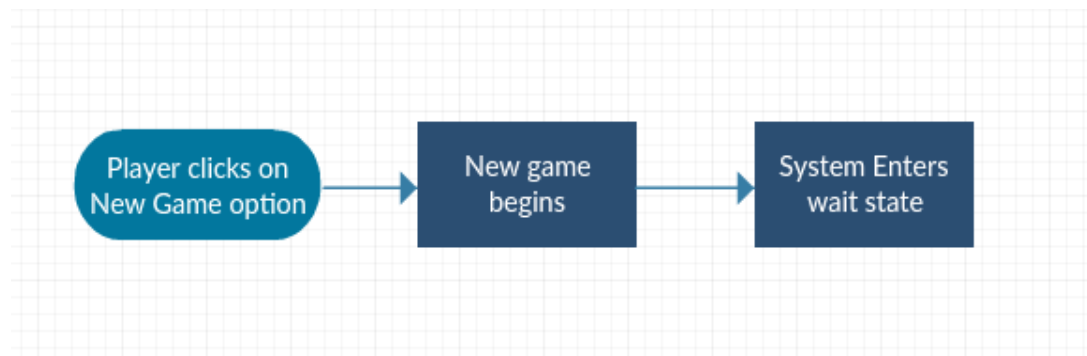
Second in the priority list is the New Game. Once the application has been booted up, the player must now be able to choose the “New Game” option in order to begin playing the game.

2.1.3.2 Use Case

Scope

The scope of this use case is to describe how the player can start playing the game, once the system has booted up.

Use Case Diagram



Precondition

The system is running and is in a wait state.

Activation

This use case will start when player launches the application.

Main flow

Typical Course Of Events

Actor action	System Response
1. Player clicks on the “New Game” option.	2. A new game session is launched.

Alternate flow

Alternative Course Of Events	
Actor action	System Response
1. Player DOES NOT click on the “New Game” option.	2. A new game session will not be launched.

Termination

This flow terminates once the player starts a new game or decides to load a previously saved game

Post condition

A new game will begin.

2.1.4 Requirement 3: Move Player Avatar

2.1.4.1 Description & Priority

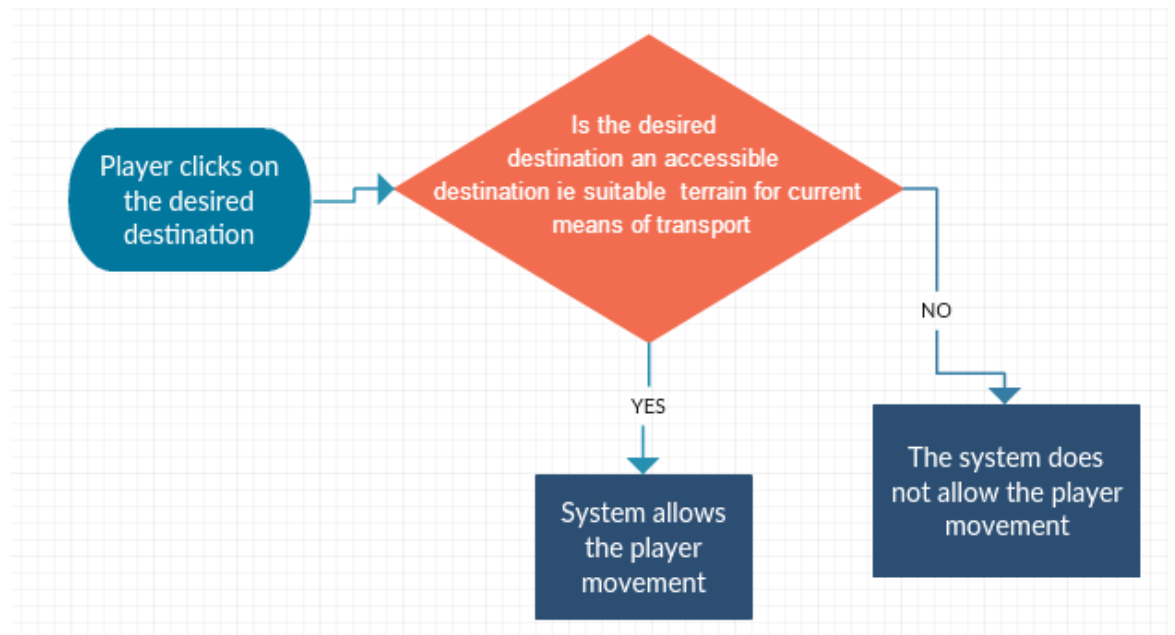
Next in the priority list is the Move Player Avatar requirement. At this point the application should be running a new game. The player should be able to move throughout the virtual world – otherwise he/she will not be able to progress with the game story.

2.1.4.2 Use Case

Scope

The scope of this use case is to allow a player to navigate through the virtual world and therefore play the game.

Use Case Diagram



Precondition

Either a new game or a loaded game must be running for the player to be able to move.

Activation

This use case activates when the player is in a location where movement is allowed.

Main flow

Typical Course Of Events	
Actor action	System Response
1. Player clicks on the HW screen to a location where he/she wants to move to.	2. The player avatar moves to the desired location.

Alternate flow

Alternative Course Of Events	
Actor action	System Response
1. Player clicks on the HW screen to a location where he/she wants to move to.	<p>2. Recognized the desired location as inaccessible.</p> <p>3. The Player is not moved.</p>

Termination

This flow terminates once the player has moved to the desired location.

Post condition

The system will enter a wait state.

2.1.5 Requirement 4: Load Game

2.1.5.1 Description & Priority

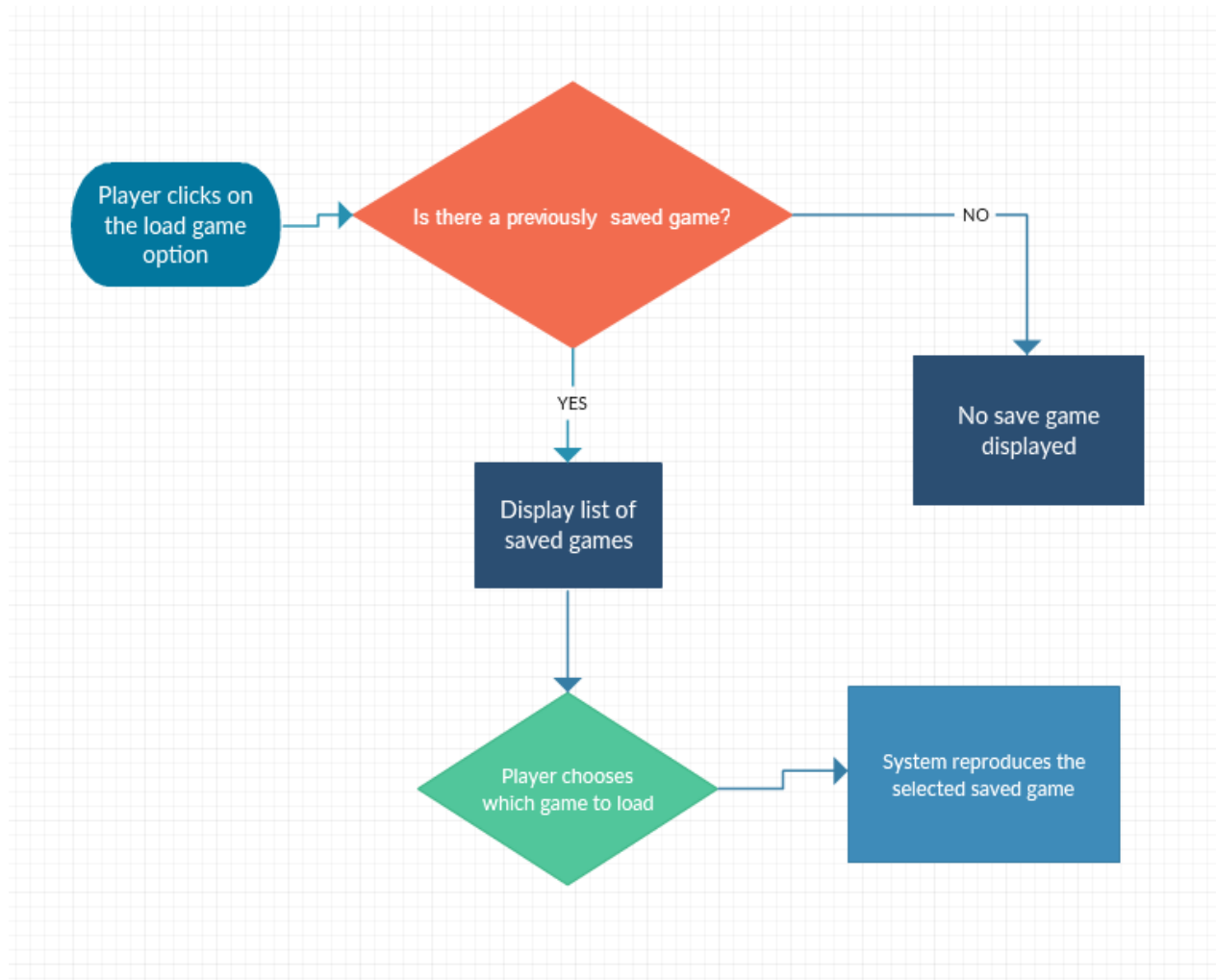
Next in order of priority is the Load Game. With this feature the player will be able to launch a previously saved game. This means that the player will be able to shut down the system and come back at a later stage, without losing any game progress.

2.1.5.2 Use Case

Scope

The scope of this use case is to describe how the player can load a previously saved game.

Use Case Diagram



Precondition

The system is running and is in a wait state.

Activation

This use case will start when player launches the application.

Main flow

Typical Course Of Events	
Actor action	System Response

1. The player clicks the “Load Game” option.	2. Displays a list of previously saved game states.
3. Player chooses which game state to load.	4. Reproduces the selected save game state.

Alternate flow

Alternative Course Of Events	
Actor action	System Response
1. The player clicks the “Load Game” option.	2. No previously saved game states are available.

Termination

This flow terminates once the player loads a previously saved game state or decides to start a new game OR is forced to start a new game due to a previously saved game not existing.

Post condition

Game will load and the system will enter a wait state.

2.1.6 Requirement 5: Battle

2.1.6.1 Description & Priority

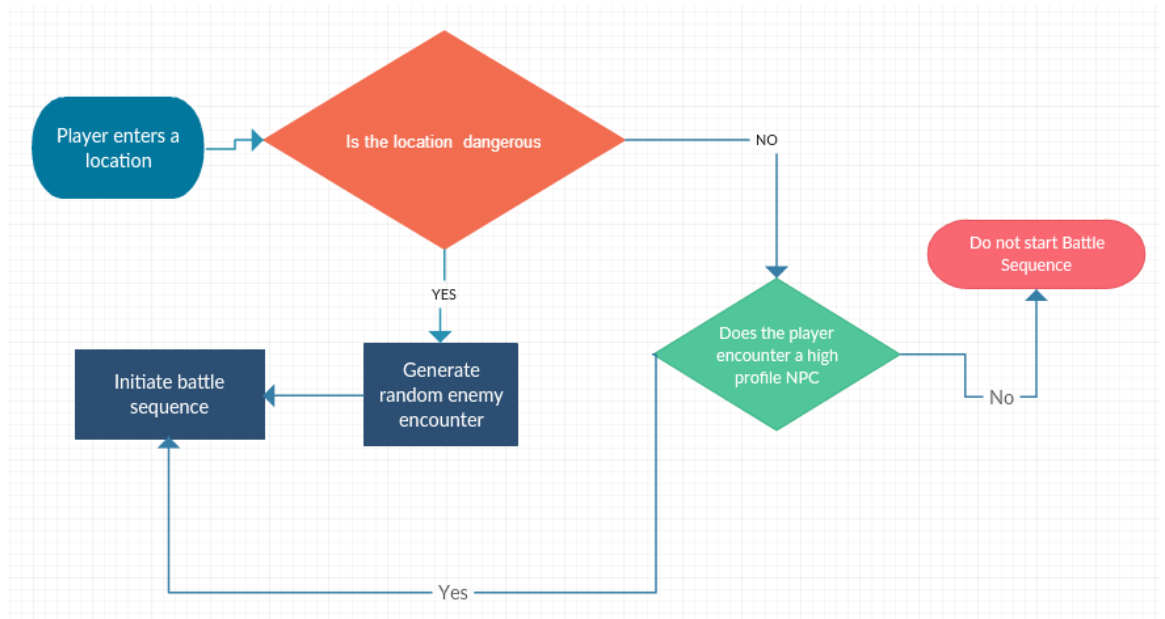
This feature can be seen as a mini game within the application. By exploring dangerous locations, the player will encounter enemies. This encounter will trigger the battle sequence. The battle sequence may also initiate at key points throughout the story when encountering high profile NPC’s.

2.1.6.2 Use Case

Scope

The scope of this use case is to describe how the player can load a previously saved game.

Use Case Diagram



Precondition

The player must be in a location where random enemy encounters is enabled or the player must come across a high profile NPC.

Activation

The player is in a location where random enemy encounters are enabled.

The player meets a high profile NPC in the game.

Main flow

Typical Course Of Events	
Actor action	System Response

1. The player enters a dangerous location.	2. Generates a random encounter.
	3. Battle sequence initiates.

Alternate flow

Alternative Course Of Events	
Actor action	System Response
1. The player meets a high profile NPC.	2. Battle sequence initiates

Termination

There are a number of ways in which this process can be terminated:

- The player's HP and HP of all party members reach 0.
- All enemies' HP reaches 0.
- The player and all party members flee from battle.
- All enemies flee from battle.

Post condition

The game will return to a wait state.

2.1.7 Requirement 6: Buy & Sell

2.1.7.1 Description & Priority

This is my favourite feature of the game. The virtual world will consist of towns and interactive locations. Each town and location can host merchants which the player will be able to interact with. By interacting with a merchant, the player will have a chance to buy goods or sell his/her own stock for a premium. Priority is set at 6 as

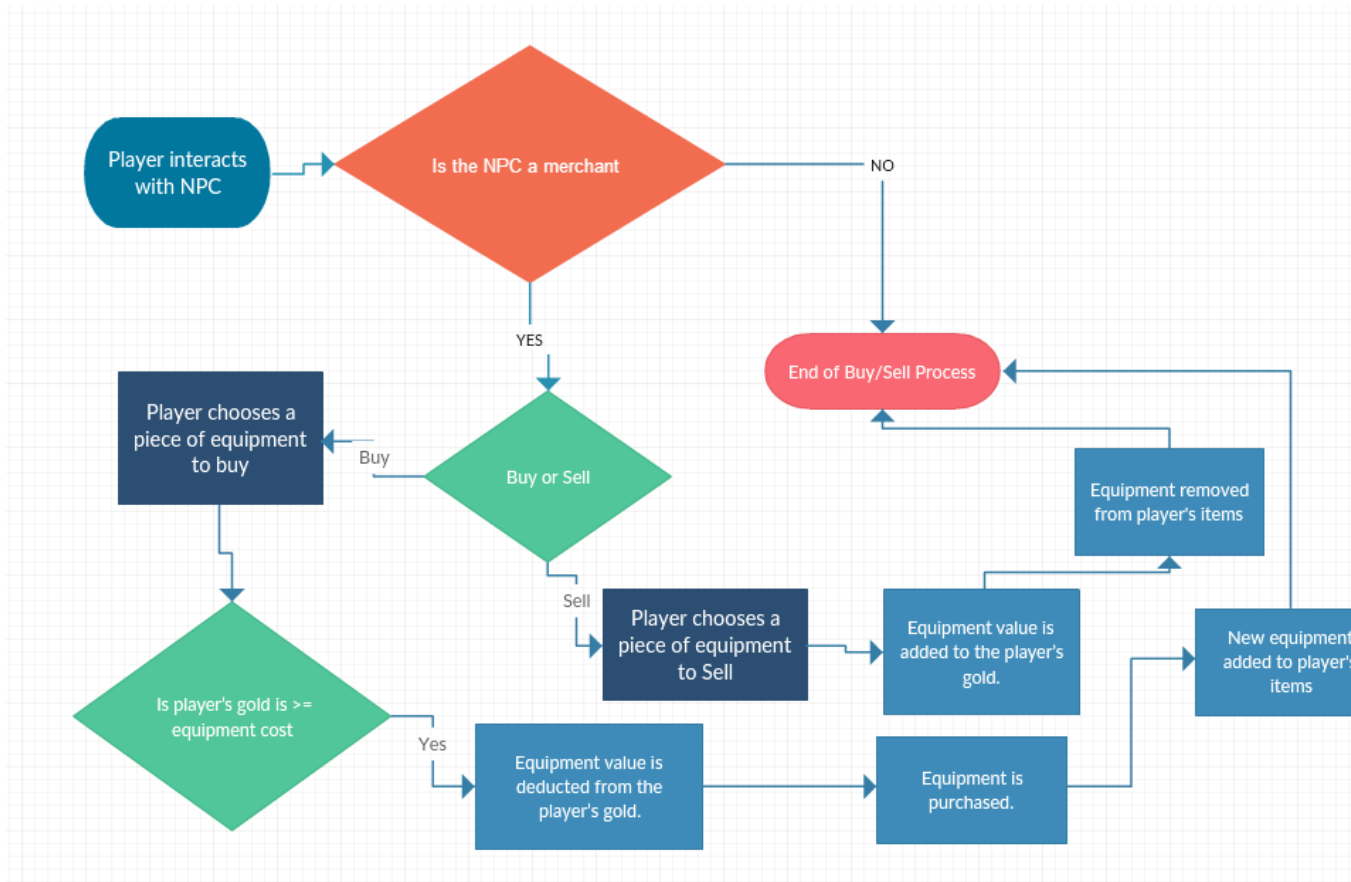
the game would still function without this however, it would not feel complete without it.

2.1.7.2 Use Case

Scope

To be able to either buy and therefore procure new equipment OR sell redundant equipment.

Use Case Diagram



Precondition

The player must encounter a NPC that serves as a merchant. These will be scattered across the virtual world.

Activation

The player interacts with the merchant NPC.

Main flow

Typical Course Of Events	
Actor action	System Response
1. Player interacts with NPC.	2. The NPC is a merchant.
3. Player chooses the buy option.	
4. Player chooses a piece of equipment to buy.	5. Checks if the player's gold is \geq equipment cost.
	6. Equipment value is deducted from the player's gold.
7. Equipment is purchased.	8. Adds equipment to player's items.

Alternate flow

Alternate Course Of Events	
Actor action	System Response
1. Player interacts with NPC.	2. The NPC is a merchant.

3. Player chooses the sell option.	
4. Player chooses a piece of equipment to sell.	5. Equipment value is added to the player's gold.
	6. Removes the piece of equipment from the player's items.

Termination

The transaction terminates when the player decides to quit the Buy and Sell menu. The player will not be forced to do so however he/she will do this intuitively when there is no purpose for them to interact with a specific merchant any further.

Post condition

The game will return to a wait state.

2.1.8 Requirement 7: Quests

2.1.8.1 Description & Priority

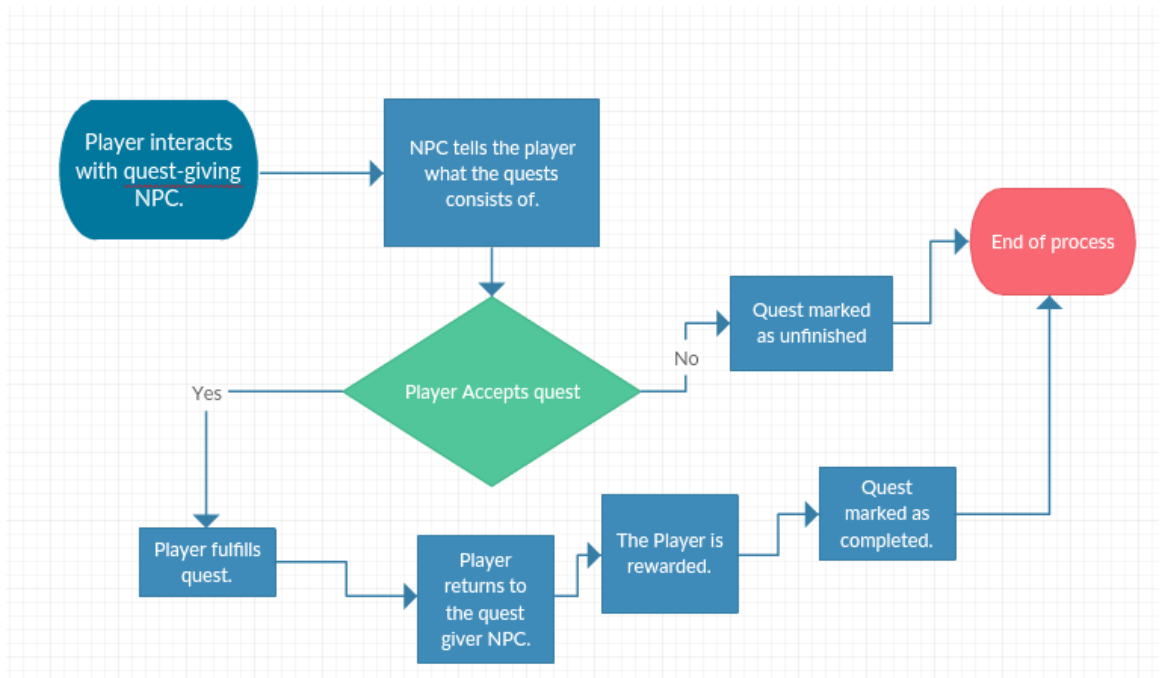
In order to progress through the story, the player will have to fulfill specific tasks. The tasks may consist in slaying a specific enemy or simply giving the correct answer to a specific riddle or puzzle.

2.1.8.2 Use Case

Scope

In order to set an end condition to the game, the player will face a set of specific quests.

Use Case Diagram



Precondition

The player must encounter an NPC or an event which will initiate a quest.

Activation

The player interacts with the NPC or the specific event.

Main flow

Typical Course Of Events	
Actor action	System Response
1. Player interacts with quest-giving NPC.	2. NPC tells the player what the quests consists of.
3. Player accepts the quest.	
4. Player fulfills quest.	
5. Player returns to the quest giver NPC.	6. The Player is rewarded.
	7. Quest marked as completed.

Alternate flow

Alternate Course Of Events	
Actor action	System Response
1. Player interacts with quest-giving NPC.	2. NPC tells the player what the quests consists of.
3. Player rejects the quest offer.	4. Quest will be marked as unfinished.

Termination

A quest will terminate once the player has fulfilled the requirements and has returned to the quest-giver NPC. The quest may also terminate if the player either chooses not to undertake the specific task OR the specific quest does not require the player to return to the quest-giving NPC.

Post condition

The player will be rewarded (gold or EXP) and game will return to a wait state OR and END GAME should the player complete the last quest in the story.

2.1.9 User requirements

After talking to the team of testers and players who I will be involving in this project, the below requirements is a reasonable description of what the users of a **JRPG** will expect from this application to be successful.

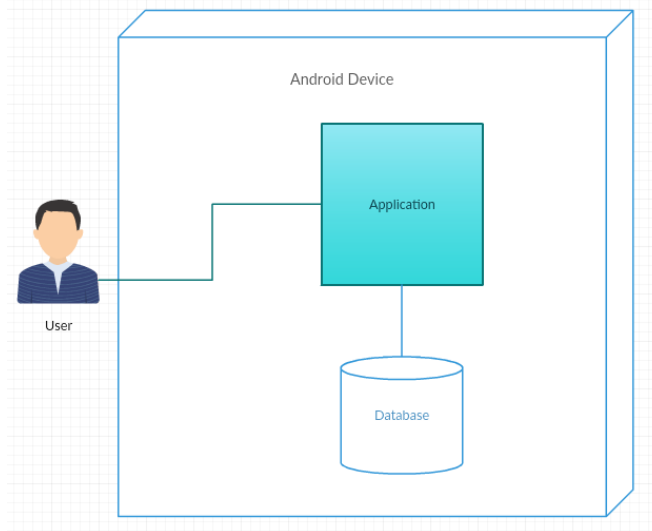
The **expectations**:

- An interactive game, that delivers a strong main story, made even more immersive by a virtual world that is strong on lore and fantasy elements.
- The game will have to involve the players in brain teasers and puzzles.
- A strong action element.
- Players need to be able to see their characters' skills grow and improve throughout the game, in order to keep the consumers interested in the product to see at least the main story right through.

- The game will allow users to customize character equipment as they see fit.
- The game will have to provide an “economy system” made up of in game currency and a series of different shops for each region of the virtual world.
- The game should deliver a total playing time of approximately 10 to 15 hours of playing time to consider having an application that is worth marketing at a later stage.
- An element of humor is also something that should be delivered and is something that the players would welcome.
- The finished product shall be delivered in the form of an Android application where a browser version would then be seen as a “nice to have”.

2.1.10 Design and Architecture

The following is a representation of the system architecture. The application will be hosted locally on a device running the Android OS. The application will have a back end DB that will store all the resources and game information. I went with this approach and not a web server approach due to the fact that with this architecture, the game remains secure and the player can play the game at no additional network costs should I have planned to create the game using HTML5 and host it on a server.



The DB is a No-SQL solution and will consist of a series of JSON files:

Access	Name	Date modified	Type	Size
plmgRPGM	.DS_Store	5/2/2016 12:21 PM	DS_STORE File	11 KB
ip	Actors.json	5/7/2016 3:52 PM	JSON File	2 KB
lide	Animations.json	5/7/2016 3:52 PM	JSON File	374 KB
i	Armors.json	5/7/2016 3:52 PM	JSON File	5 KB
laker MV	Classes.json	5/7/2016 3:52 PM	JSON File	17 KB
	CommonEvents.json	5/7/2016 3:52 PM	JSON File	1 KB
	Enemies.json	5/7/2016 3:52 PM	JSON File	18 KB
nents	Items.json	5/7/2016 3:52 PM	JSON File	7 KB
oads	Map001.json	5/4/2016 9:39 PM	JSON File	70 KB
es	Map002.json	5/4/2016 9:51 PM	JSON File	35 KB
	Map003.json	4/27/2016 10:27 PM	JSON File	14 KB
	Map004.json	4/27/2016 10:27 PM	JSON File	8 KB
	Map005.json	4/27/2016 10:27 PM	JSON File	14 KB
1	Map006.json	3/13/2016 6:08 PM	JSON File	41 KB
s	Map007.json	5/3/2016 11:22 PM	JSON File	43 KB
e	Map008.json	5/4/2016 9:53 PM	JSON File	60 KB
	Map009.json	4/27/2016 10:27 PM	JSON File	7 KB
	Map010.json	10/25/2015 3:10 PM	JSON File	4 KB

Each of the above serves as a DB table and is built using JSON. Below is an example of the table that stores “Armors”:

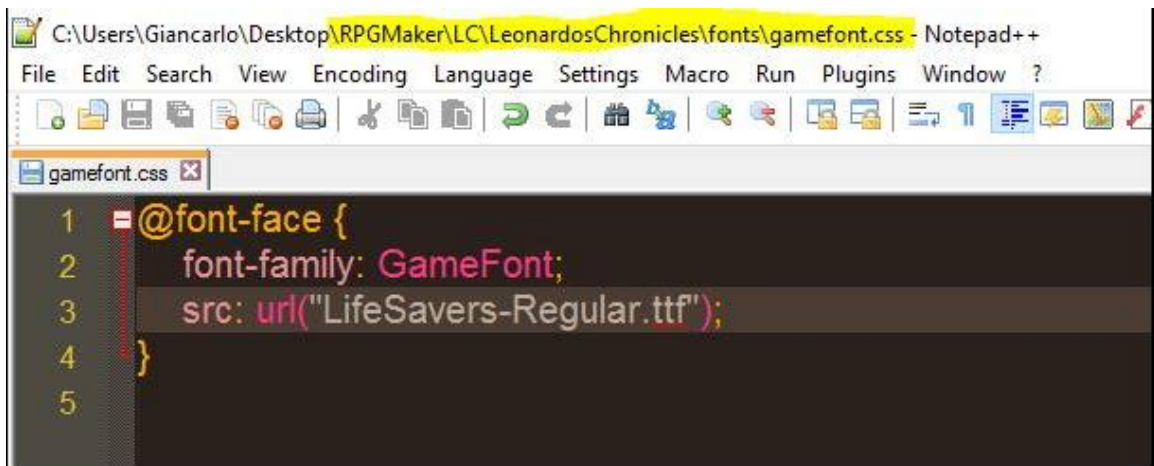
```
[
  null,
  {"id":1,"atypeld":5,"description":"","etypeld":2,"traits":{"code":22,"datald":1,"value":0},"iconIndex":128,"name":"Tin Shield","note":"","params":[0,0,0,10,0,0,0,0],"price":350},
  {"id":2,"atypeld":1,"description":"","etypeld":3,"traits":{"code":22,"datald":1,"value":0},"iconIndex":131,"name":"Tin helmet","note":"","params":[0,0,0,5,0,0,0,0],"price":250},
  {"id":3,"atypeld":1,"description":"","etypeld":4,"traits":{"code":22,"datald":1,"value":0},"iconIndex":135,"name":"Tin cuirass","note":"","params":[0,0,0,5,0,0,0,0],"price":200},
  {"id":4,"atypeld":1,"description":"","etypeld":5,"traits":{"code":22,"datald":1,"value":0},"iconIndex":145,"name":"Iron Ring","note":"","params":[0,0,0,0,5,5,0,0],"price":300},
  {"id":5,"atypeld":5,"description":"","etypeld":2,"traits":{"code":22,"datald":1,"value":0},"iconIndex":128,"name":"Iron Shield","note":"","params":[0,0,0,15,0,0,0,0],"price":500},
  {"id":6,"atypeld":1,"description":"","etypeld":3,"traits":{"code":22,"datald":1,"value":0},"iconIndex":131,"name":"Iron helmet","note":"","params":[0,0,0,8,0,0,0,0],"price":350},
  {"id":7,"atypeld":1,"description":"","etypeld":4,"traits":{"code":22,"datald":1,"value":0},"iconIndex":135,"name":"Iron cuirass","note":"","params":[0,0,0,10,0,0,0,0],"price":300}
]
```

3 Implementation

3.1.1 Customizing the engine

Apart from being the engine that best suited my vision of what the end product should have looked like, the second reason I chose to use RPGM MV as my development environment is that this tool is fully customizable and all scripts are built using JavaScript and CSS (mainly, however storage uses NoSQL approaches: JSON). There are various things which I customized with the ones giving the biggest impact being:

- editing engine fonts:
A feature that the engine does not advertise however this is exposed when looking at the file structure. Fonts can be edited through the “gamefont.css” file located in the fonts folder:

A screenshot of a Notepad++ window. The title bar reads "C:\Users\Giancarlo\Desktop\RPGMaker\LC\LeonardosChronicles\fonts\gamefont.css - Notepad++". The menu bar includes File, Edit, Search, View, Encoding, Language, Settings, Macro, Run, Plugins, Window, and ?. The toolbar contains various icons for file operations. The active window is titled "gamefont.css" and contains the following CSS code:

```
1 @font-face {
2   font-family: GameFont;
3   src: url("LifeSavers-Regular.ttf");
4 }
5
```

Something so small although with a huge visual impact.

Vanilla:



Custom



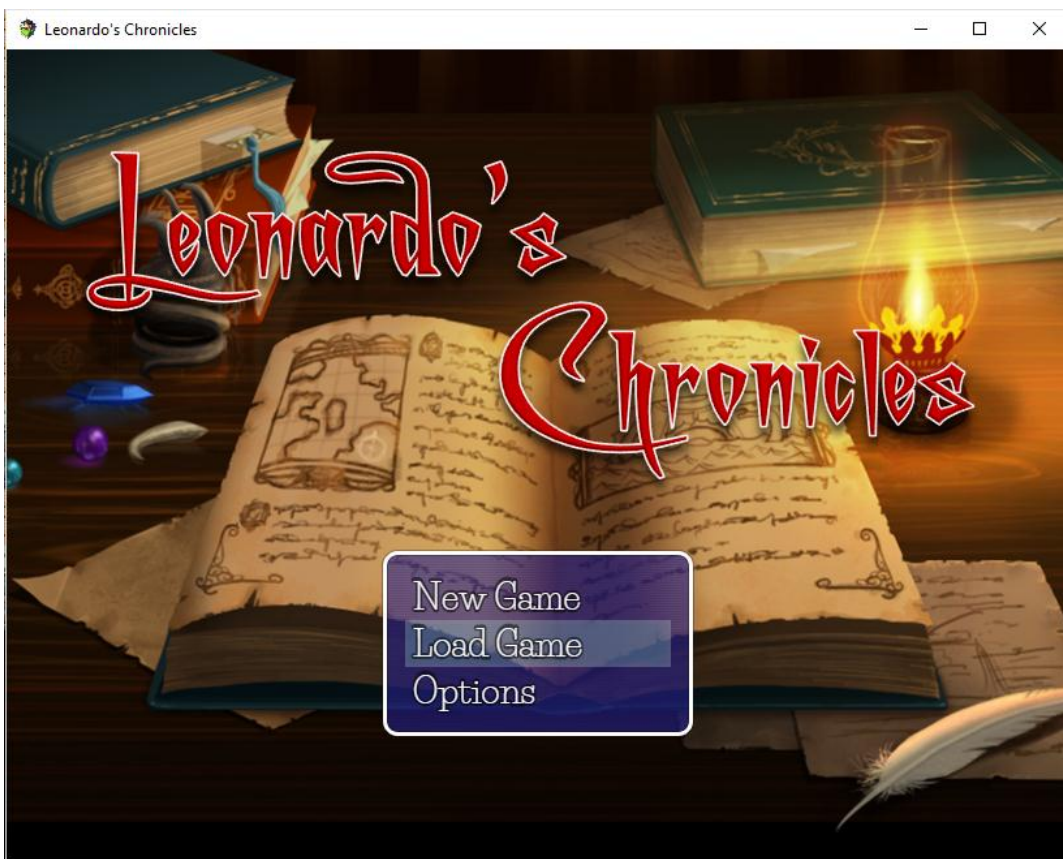
- creating my own game title:

By default the engine will write the game title over an image using the same font that is used for the in-game dialogues. This did not allow the freedom I needed in order to deliver a striking title therefore I decided to stop the engine from auto-designing the title text and instead edited my own font textures:

Vanilla:

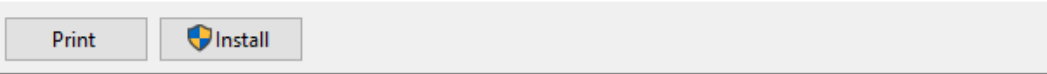


Custom:



- The base font I used for the title is called “A Charming Font” which is free under Creative Commons.

 A Charming Font Expanded (TrueType)



Font name: A Charming Font Expanded

Version: 1.03

TrueType Outlines

abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890... ' " (!?) +-*/=

12 The quick brown fox jumps over the lazy dog. 1234567890

18 The quick brown fox jumps over the lazy dog. 1234567890

24 The quick brown fox jumps over the lazy dog. 1234567890

36 The quick brown fox jumps over the lazy dog. 12

- What I changed in this font is added the 3D texture effect, we well as borders and shadows to give it a material effect:

The quick

The quick

4 Testing

4.1.1 Test Phase 1 - Prototype

Testing of the first prototype was carried out by gamers. Each has provided valuable feedback which will be evaluated and implemented in the next game iteration.

Each tester focused on each aspect of the game and noticed crashed and bugs for each event. What they also provided me with is a suggestion which they would have liked implemented in the next iterations. Some of these will be possible while I will strive to ensure that all bugs are addressed.

Below is the prototype testing results provided by Derek Casey and Graham Reynolds (Game Testers).

Derek Casey:

<u>Event</u>	<u>Type</u>	<u>Issue</u>	<u>Suggestion</u>
UI	Clarity	When in options menu before loading a save or choosing a game, it is not clear that 2Xfinger-tapping will bring you back to "new game, load game, Options" screen.	Maybe a short tutorial (the one that happens during the opening scene) could be added as an option under new game, load game, options "how to play"
Dialog	Story Context	N/A	Something I've seen in RPGs before is that when a key play, character is referred to in blue or green or whatever

			to draw the players attention to it. For example "I know for certain is that the guards here all bare the insignia of King Ernesto Guastafiesto "
Dialog	Spelling	"You just dained 10 EXP."	"You just gained 10 EXP."
UI	Kill protection	Pressing back soft key on phone/tablet causes app to close.	Addition of an "Are you sure you want to quit?" would be handy.
UI	Battle mode	n/a	Addition of being able to choose enemy by tapping enemy.
Dialog	Leonardo:	"I see... well... thank you for yout time you majesty..."	"I see... well... thank you for your time your majesty..."
Dialog	King Ernesto:	"Are you so naive to think that I.."	"Are you so naive to think that i..."
UI	Clarity	n/a	Suggestion: In the pause menu, it would be good to have the current location in the bottom beside current suiqd maybe?

Difficulty balancing	Spawn rate	The spawn rate of enemies when you fall through the trap door in the castle seems a little high for the first dungeon area. Risk of alienating the player (3 battles with maybe 6 square gap in a row)	
World	Bug	There's a piano in a restaurant where you meet Martin that activates a stairs spawning and dialog Leonardo "I SO meant to do that" - It implies you can go up the stairs but couldn't after trying from all angles, left area, returned, stairs event still active but could not enter stairs.	
Dialog	Clarity	If when renting from Martin you say "I don't have that type of money, Martin could respond saying "well come back when you do, I'll still be here" or something.	
Dialog	Continuity	After returning to Martin, the dialog has reset - Maybe he could say "Ah you're back, so you got the money?" or something.	
World	Martin	I had 170Squids in total and choose the Martin - Rent dialog again and this time chose to pay up" - The rental was successful despite only having 170sq. Squid reset to 0 following event.	
Dialog	Reaction to global	Talked to 1st NPC in snow town west when you get the boat. He said "muble camuble..." Ernesto responds saying "It's no use, the townspeople seem to speak a strange dialect that I don't seem to understand"	A little less exposition will build suspense/mystery factor of encounter with first NPC in this town - Maybe Ernesto could respond saying "excuse me?" or something. Then the second or

			third NPC he may conclude "It's no use, these people blah blah" etc... - Just stretch it out before he realises.
Crash	Crash event	Entered Demicles house in north west of snow town - Erensto was in 2nd square up from entrance on left. Music continued to play. Game non responsive to single, double, 2xfinger touch/tap. User recreated crash multiple times with different variables (Different weapons exquipped, castle skipped volume up, down, dash on/off etc...) unverisal occurence of crash, seems unaffected by user effected variables.	
World	Continuity	Castle can be skipped - Went straight to Sphitte village - talked to Martin - Leonardo knew who he was despite no dialog event in basement of castle etc...	
Difficulty balancing	Spawn rate	Escape has 100% sucess rate.	Escape rate maybe too high. Can undermine battle/sense of tension. Maybe reduce to a variable percentage proability of success. The range of probability could vary depending on enemy? (Example: Bat = 10% Escape failure probability)

Graham Reynolds

Type	Issue
------	-------

Grammar	<ul style="list-style-type: none"> a. Prophet – Says the witches name is both Mira and Mila b. Martin – “I can lend you by (a) boat” c. When you meet Jago, why does Igor say “the guy has learned his lesson Leo”? d. Double Attack – description – Attacks two random “enemies” with your equipped weapon. e. Note – might be the same with triple attack, didn’t check that part f. Beat Jago he calls you “Leonardo” g. Billy i. “(put out) in a good word” ii. Leo – “I’m curious” – after agreeing to help Billy iii. When giving the glacial fluid – “hereo you go Billy”
Gameplay	<ul style="list-style-type: none"> a. MP Potion – there is no way to replenish magic power. b. Make full screen – you should find a way to make the game full screen. c. Pete’s hose – the first time for the mission – why do you find a mumblicon in the treasure chest that does not help you?
Grammar	<ul style="list-style-type: none"> a. Apostrophe in game name – Leonardo’s - Actual game name not in-game name. b. Tapping on log dialogue <ul style="list-style-type: none"> i. “Other’s however” ii. “You just gained” c. Going to castle, talking to guard – “filthy tent” d. Talking to the king – <ul style="list-style-type: none"> i. “But I have time until the next execution . . .) ii. “I see . . . well . . . thank you for your time your majesty” iii. “ Are you so naive - not naive” e. Talking to prophet – <ul style="list-style-type: none"> i. “only normal to doubth yourself” ii. Was the Witch’s name Mira or Mila?
Gameplay	<ul style="list-style-type: none"> a. Does not show enemy health in fights b. Books in castle can’t be read - could contain hints to hidden treasure or lore. c. Any chance to talk to Igor or other companions? – Find out some of their history may be start a quest that would get them equipment or skill?

4.1.2 Test Phase 2 – Alpha

The alpha test phase was carried out by Fabio Luongo but like me, he also enjoys creative writing. His attention to detail was invaluable in the alpha testing phase as he was able to provide concise and useful user feedback, as well as being able to spot a number of bugs with the product:

Fabio Luongo

AREA	PROBLEM	FIX
All	Igor starts off with the gun 'Thunder'	Replace 'Thunder' with standard 'Pistol'
All	Skill description for triple skill omits MP cost required to cast	Add the MP cost required to cast skill in description
All	Dashing is sometimes active and sometimes not	Either completely deactivate or permanently activate dashing
All	Upon learning new skills, the player is not alerted	include message 'THIS SKILL has been learned' for all skills
All	Double Strike animation is incorrect	adjust animation for Double Strike
All	Item 'Tin helmet' the 'h' is not capitalised	Capitalise 'Tin helmet' to 'Tin Helmet'
All	Item 'Tin cuirass' the 'c' is not capitalised	Capitalise 'Tin cuirass' to 'Tin Cuirass'
All	Item 'Iron Ring' gives no stat boost. At all.	Add stats to item 'Iron Ring' or erase its useless existence
All	Party members not revived after battle	Ensure KO'd party members retain at least 1hp once a battle commences
All	Weapon Shop- Firebringer Axe description makes no sense	Fix description for Firebringer axe
All	Enemy item drop rate low	Increase item drop rate
All	Enemy Material drop rate low	Increase material drop rate
All	Items slightly expensive	Decrease cost slightly
All	Equipment lacking or too weak for Mila	Add additional equipment or power up existing
All - Mirko	Mirko does not possess poison-type skills	Add poison type skills to Mirko
All - Mirko	Mirko does not possess dagger-type skills	Add dagger type skills to Mirko

Battle	There is no space between the squid earned and the word 'Squid' after battle. eg: 30Squid were earned,	Add a space between the digits earned and the word 'squid'
Close to Meridia - Nina's Grave	Leo TEXT letter 'i' is missing from 'Where the Omni sphere s'	Add letter 'i' so text reads: "Where the Omni Sphere IS"
Close to Meridia - Nina's Grave	Luca never mentions Red Winter here yet party still knows where to go	Ensure Luca mentions the town of RED WINTER
Ernesto's Castle	Rendering issue with towers in corners	Ensure towers are properly constructed in tiles
Ernesto's Castle	Side buildings in courtyard inaccessible	Add rooms in buildings either side of the castle
Ernesto's Castle	Secret chest is inaccessible	Ensure player can reach hidden chest
Ernesto's Castle	After the player approaches the three knights, only the middle one speaks	Add dialog for other knights
Ernesto's Castle	After the middle knight moves, he does not speak	Add text for middle knight once he has moved
Ernesto's Castle	Ernesto TEXT 'i' not capitalised when referring to himself	Capitalise the letter 'i'
Leonardo's Camp	Immediately after the intro ends, Leonardo EMOTES	Remove EMOTES
Leonardo's Camp	All speaker names still present in speech bubbles	Remove speaker names in speech bubbles
Leonardo's Camp	Leonardo TEXT "Say Igor, did you happen TO see"	fix word 'OT' to 'TO'
Leonardo's Camp	During tutorial TEXT "otherS however"	Letter 'S' missing in the word 'OtherS'
Leonardo's Camp	Tutorial TEXT after interacting with log "Each time you meet youR"	Letter 'R' missing in the word 'youR'
Maguchi Prison - Courtyard	If player walks to Maguchi prison- there is no way to leave it. Even if the party members cannot enter the sewers. So that party remains stuck there	Add an exit to Maguchi prison
Maguchi Prison - Sewers	Music is incorrect.	Change music
Maguchi Prison - Sewers	The Screen is too dark	Remove Darkness effect

Maguchi Prison - Sewers	Spiders do not drop antidotes	Spiders must drop antidotes
Maguchi Prison - Sewers	After Boss battle, Mila Text does not fit into bubble	Adjust text so that it fits
Meridia	Glyph cannot be stood on from all sides	Ensure party members can stand on glyph from all sides
Meridia	Weapon shop- Magic item descriptions trail off-screen	ensure text fits into description bubbles
Meridia	INN isn't accessible	Allow access to INN
Meridia	Meridia's Armaments. upon entering shop, in top left it displays 'Meridia's Armamens'	Change from 'Armamens' to 'Armaments'
Meridia	Some houses not accessible	Allow access or add doors
Meridia	Sign in front of vegetable patch not responsive	Add text to sign
Meridia	Nina's House- Nina stepping animation missing	Add stepping animation for Nina
Meridia	Nina Text 'Jago the fire mage....the situation is WORSE' than I thought	Ensure text says 'Worse'
Meridia	Immediately after Nina speaks. Demicles TEXT: no punctuation present between the words 'WHERE' and 'HOW'	Add punctuation between words 'WHERE' and 'HOW'
Meridia	After events at Nina's house and darkness falls, party members still present in Nina's house if you re-enter.	Remove Sprites from Nina's house at this point
Meridia	Item shop doesn't sell antidotes	Add antidote to item shop
Meridia - Burned	Collisions in broken house allow player to step ON the house	Ensure player cannot walk through or ON houses
Meridia - Burned	Item shop missing and party is likely on the brink of death and with no items	Add item shop
Meridia - Burned	Jago TEXT: says 'Onmi Sphere'	Change to 'Omni Sphere'
Meridia - Burned	Jago final form needs more moves	Add additional moves to Jago- Final Form
Mumble Cave	Background during battles here is incorrect	Add appropriate background during battles here
Mumble Cave	Too few types of enemies	Add different enemy types

Mumble Cave	Jago TEXT after defeating him: "Leonardo"	Correct 'Leonardo's' name
Mumble Cave	Teleport Sphere Text is grammatically incorrect	Fix Teleport sphere text
Mumble Town	Signs within town are unresponsive	Add text to signs in Mumble Town
Mumble Town	Houses are inaccessible	Add rooms in houses
Mumble Town	Stairs in Pete's house lead outside instead of upstairs	Ensure stairs lead upstairs or remove stairs
Mumble Town	In Pete's house; Leo TEXT: "You have been --->A<--- great help Pete' should appear, Letter 'A' is missing	Add letter 'A' in 'You have been great help'
Mumble Town	Pete's house. Once Mumblicon is found Pete EMOTES	Remove EMOTE
Mumble Town	Exiting and re-entering Pete's house once the mumblicon is found; interacting with Pete maes him mention 'the mighty brew'	Correct Dialog
Mumble Town	Interacting with Demicles even after the Mumblicon is acquired still results in 'Mumble Mumble'	Ensure Demicles can be interacted with
Mumble Town	Demicles' house. Once Demicles opens secret passage. Demicles TEXT: 'OT' instead of 'TO' appears	Change 'OT' to 'TO'
Passage to Meridia	No music present	Add music, or ignore suggestion
Passage to Meridia	Passage to the right is 'on-click'	change from on click to on contact with
Passage to Meridia	After Passage music ends	Add music track
Passage to Meridia	After Passage party members are not present	Add party members that can be seen
Passage to Meridia	Nina TEXT '!' appears on next bubble on its own	adjust '!' so that it appears on the same bubble
Prophecy Cave	Prophecy cave' appears in top left upon entering. 'c' in 'cave' is not capitalised	Capitalise the letter 'c' in 'Cave'
Prophecy Cave	All TEXT: All speaker names appear in speech bubbles during Prohecy Cave	Remove speaker names
Prophecy Room	Sylph-lady never mentions Martin's name thus Leonardo should never be able to find him	Make sylph lady mention Martin's name

Prophecy Room	Towards the end of the interactions, the Sylph-lady EMOTES	Remove EMOTE
Prophecy Room	Leo TEXT 'What if I fail!' is a question and is lacking a '?'	Add '?' at the end of sentence
Prophecy Room	Player can walk into and onto the sigil behind the sylph-lady if it is approached from behind	ensure player cannot walk onto the sigil from behind
Shpitte	Sign above Lake Shpitte unresponsive	Add text to sign
Shpitte	Sign top right of map unresponsive	Add text to sign
Shpitte	House in top right of map not accessible	Add room in house
Shpitte	Emporium shop: Name of vendor appears	Remove name of vendor
Shpitte	Armour shop: name of vendor appears	Remove name of vendor
Shpitte	All items contained in the Emporium item shop lack item descriptions	Add item descriptions for items contained in the Emporium items shop in Shpitte
Shpitte	There are no NPCs in the INN	Add NPCs in the INN
Shpitte	After interacting with piano, secret stairs appear, yet they cannot be climbed	Add secret room after stairs
World Map	Unable to re-enter Leonardo's camp unless on-click	change from on-click to on-contact
World Map	Random Encounters too few	Increase random encounter frequency
World Map	Mumble Cave is accessible before talking to Pete	Lock Mumble Cave before talking to Pete
World Map	Hole beside Maguchi Prison	Unsure if fix needed

5 Graphical User Interface (GUI) Layout

The game will provide the player with 8 different GUI's:

- Main menu
- Save game
- Load game
- Buy and sell items
- Pause menu/View character stats/abilities and equipment
- Conversations panel
- Main game
- Battle menu

5.1.1 Main Menu

Main menu or welcome screen is where the player will “land” when launching the application each time.

This menu should provide the player with 3 different options:

- New Game
 - By choosing this option the player will begin a new game.
- Load Game
 - By choosing this option the player will be able to load a previously saved game.
- Options
 - The player can access the options menu in order to change some of the in-game parameters such as the following:
 - Set music and game sound FX volume
 - Speed up the player's in-game movement

Additional options may be added but are not defined at this stage.

Main menu:



5.1.2 Save Game

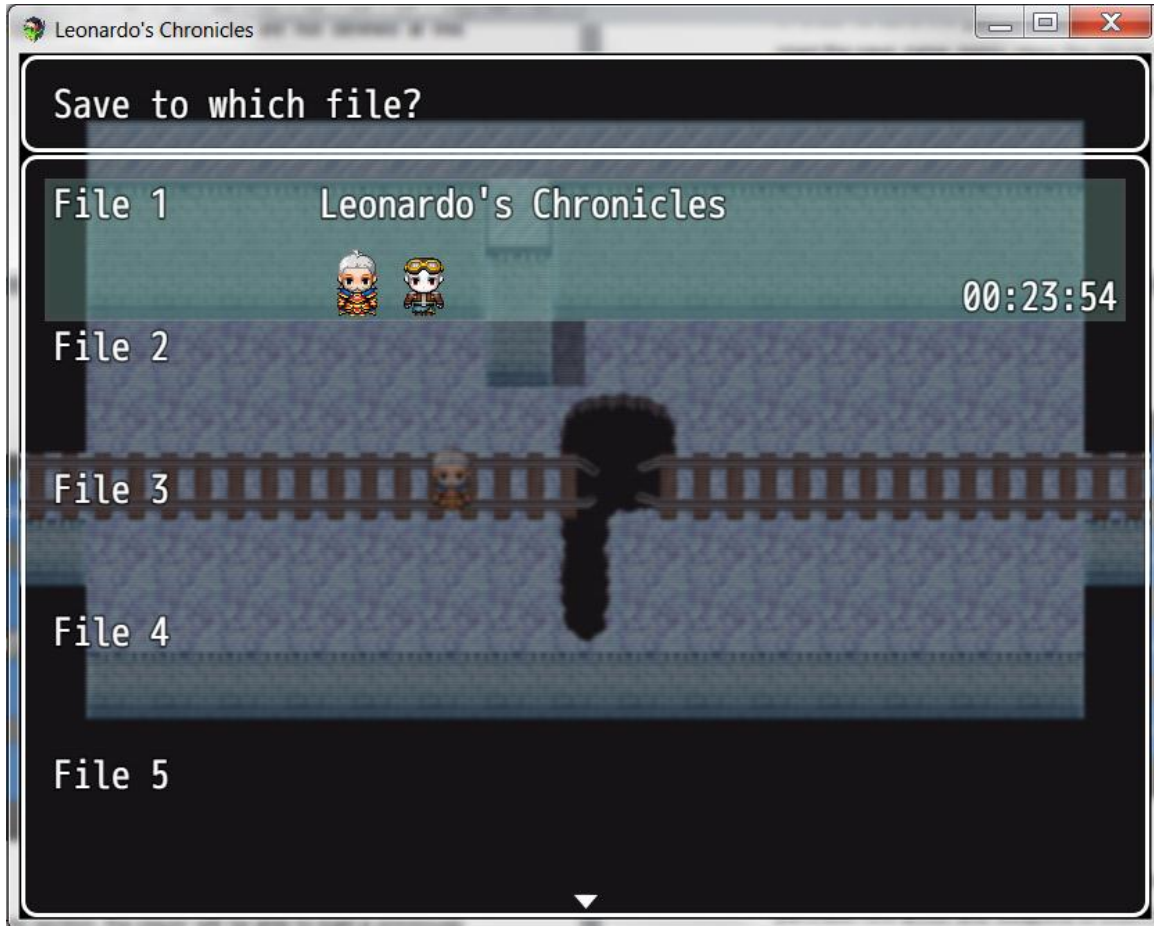
Once this project will be ready for deployment, I expect the full adventure to require several hours from the player in order to achieve 100% completion (completion of all side quests and the main story).

For this reason, expecting a player to complete the game in one session seems non-realistic and unattainable.

The game will therefore allow players to “save their game” or in other words, save the current game state to then be loaded again at any desired time.

In order to save the game, the player will access the in-game pause menu and open the save game menu. Here the player will have the choice to either create a new save game by choosing any “Empty save slots” or overwrite an existing saved game:

Save game:



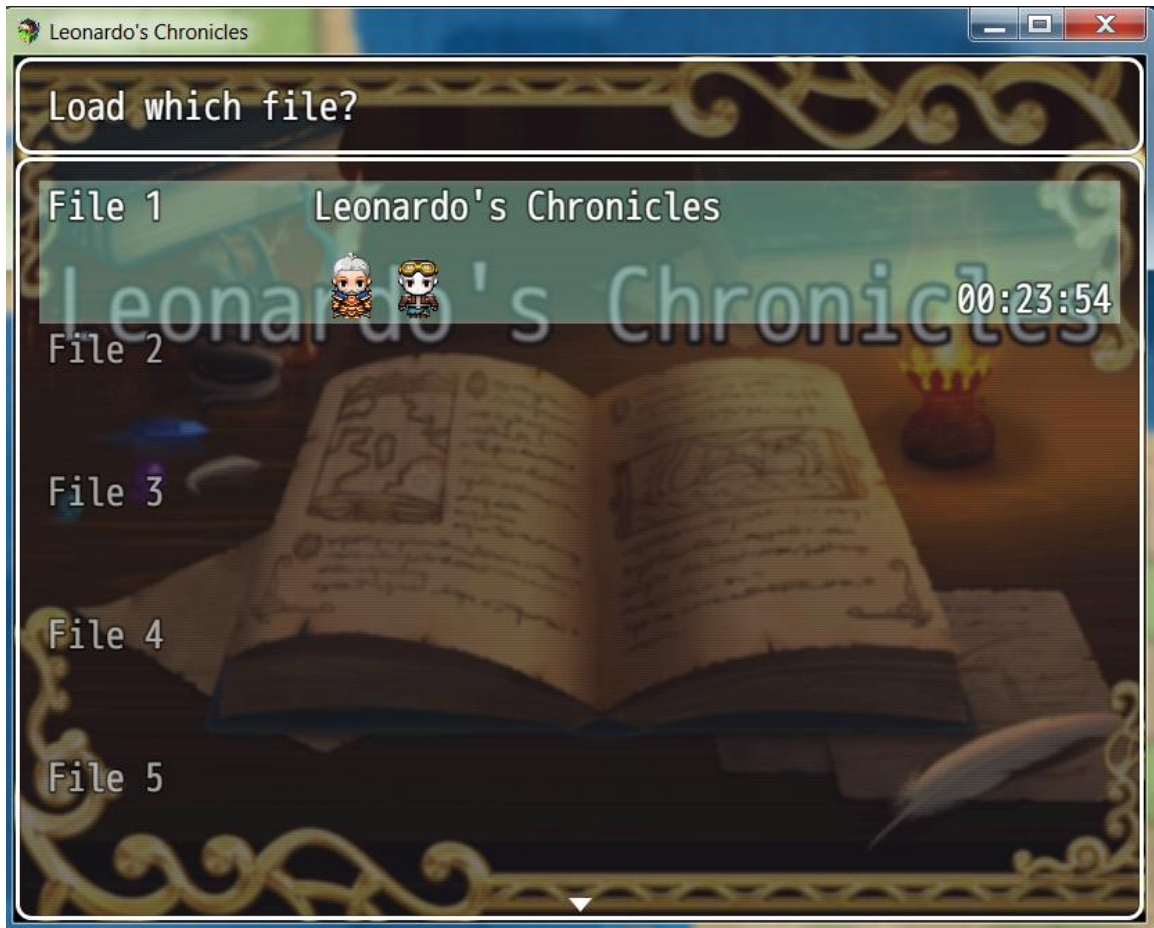
5.1.3 Load Game

As mentioned above, from this section, the player will be able to load a previously saved game if and only if a game state was saved in a previous session. This process is clearly outlined in the use case section above.

The load game screen should provide very basic information on the game state that is about to be loaded (if any saved states are available at all):

- Total time spent until the selected saved state
- Game party (characters acquired and unlocked along the adventure)

Load game (the ui is the same as the save game, the functionality and outcome is what differs):



5.1.4 Buy and sell items

Throughout the adventure, the player will have to replenish usable items, purchase new armor and weapons or even have to free up space in his/her inventory. For this reason, an in-game commerce system is required.

The player will therefore be able to buy and sell items however, the type of item which he/she can buy or sell from an in-game merchant will vary depending on the merchant that the player chooses to interact with. I would like to get to the point where the stock differs for each merchant even if those merchants belong to the same type. For instance, 2 merchants belonging to the "Items" group will have different stock. One will hold basic potions and basic items, while the other merchant will hold more valuable and expensive stock. The latter will be made available to the player as he/she progresses through the story.

The UI should however be the same for all types of merchants.

Buy and sell items:



5.1.5 Pause menu/View character stats/abilities and equipment

With this process, the player will be able to pause the game in order to enter a "break" state in the session. While in break mode, the player will be able to review the character's equipment, character skills, statistics and abilities earned so far in the game. As well as the above, the player will also be able to access the "save game", "load game" and "options" menus from within the pause menu.

Pause menu:

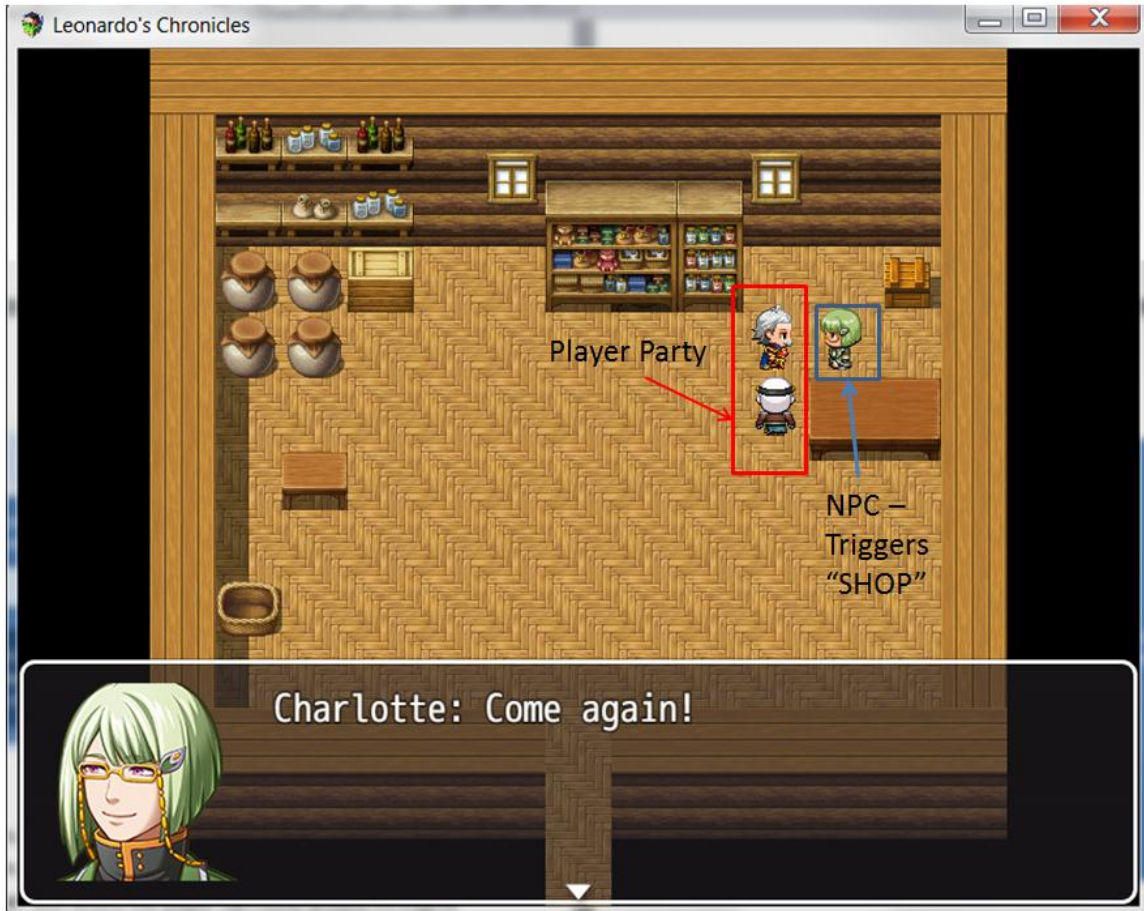


5.1.6 Conversation Panel

Despite the fact that this game will be a single player experience, the player will still interact with other characters which he/she will come across throughout the playthrough. These NPC's will very often be "triggers" to events such as puzzles and quests therefore the player will require an interface to interact with.

The below is how the conversation panel will look like.

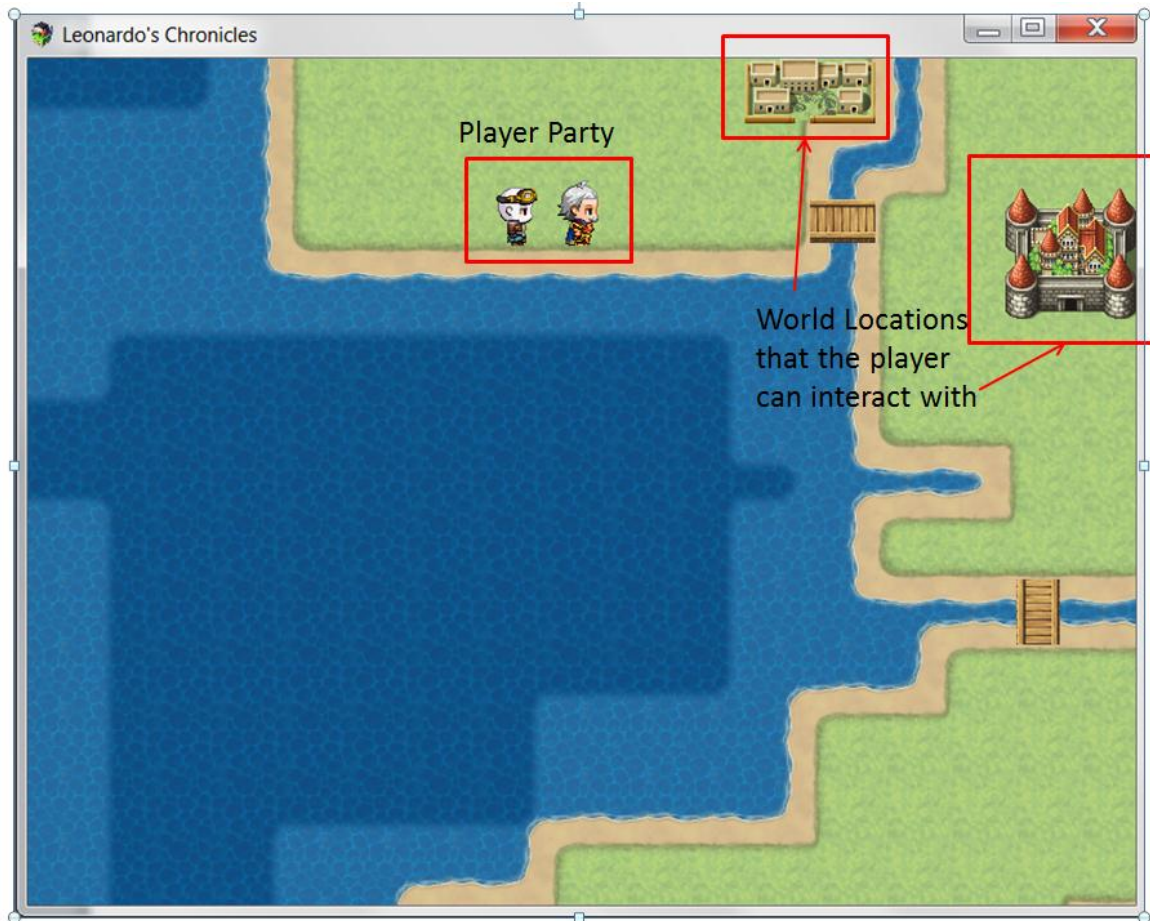
Conversation:



5.1.7 Main game

Unlike similar portable RPG's, this game will not use a "joystick" GUI and instead, it will rely on the touchscreen of the player's Android device. This means that the game itself becomes the main GUI where the player can move around throughout the virtual world by means of touching on the screen where he/she would like to move to.

Main game:



5.1.8 Battle Menu

While walking through specific locations and when meeting some specific NPC's, the player will initiate a "battle sequence". The battle sequence will consist of a mini game where the player and the player's party will have to face an enemy or many enemies. In order to win this battle, the player will have to defeat the enemy through a battle. The player should be able to choose an action via the UI and that choice will result in the player's avatar carrying out the specific action.

Battle menu:



5.2 Evaluation and User Feedback

Aside from the testing phase, the evaluation was carried out on several devices from PC, MAC, Mobile and Tablet.

As part of the evaluation, an additional tester, Fabio Luongo, took charge of playing the game throughout and provide a general user feedback.

An interesting finding was spotted while playing the game on Mac where some of the town-scape rendering does not match development expectations. This however does not pose an issue when playing on Android devices, which is afterall the intended target device.

The recommended hardware requirements have been set to the below, basing the analysis on the different types of Android devices used and performance on each.

Taking the HTC M8 specs as the recommended settings⁵

PLATFORM	OS	Android OS v6.0 (Marshmallow) recommended
	Chipset	Qualcomm MSM8974AB Snapdragon 801
	CPU	Quad-core 2.3 GHz (US/EMEA)/ 2.5 GHz (Asia, China) Krait 400
	GPU	Adreno 330
MEMORY	Internal	2 GB RAM recommended and at least 550MB free storage

5.3 User Feedback

I was quite happy with the feedback provided by the gamers which tried this but the real test will, without a doubt be a lot harsher than what my friends were able to tell me. I feel that the less positive, yet constructive comments will be the ones gamers will be most vocal about once feedback starts flowing in on Google Play.

Here are the comments received from my colleagues and friends:

"I really enjoyed the story. It started off a bit slow but it escalates as the game progresses"

"Great character design - each character feels and acts as a different person with different quirk"

"The game might be a bit too hard for casual gamers, gut then again the usual casual gamer will not invest hours into an RPG"

"People will enjoy not having to pay for in-app content but this also means that the idea cannot be monetized as is"

"Good visuals. Would have liked to be able to name my own character and party members - perhaps in the next installment of Leonardo's Chronicles? :)"

"I enjoy a game that can be both funny and serious. Enjoyed the riddles and puzzles!"

"A bit too much text at the beginning. Perhaps the on-screen training could be moved to the options or the settings menu. Otherwise enjoyable."

6 Conclusions

There are creative writers out there who have some astonishing ideas. These ideas are not always best conveyed through books and this is when a writer should look at other mediums.

What I tried to achieve with this game, was to deliver my (extra-college) work, via a visual experience that people can interact with. A game if you will.

The other games in this genre will usually charge players a premium for either better game content, no adverts or perhaps even for the game itself.

But what they'll find with my application is that they will be able to experience the full story, completely free. Better content will be made available within the game, as players progress through the story or if they enjoy the game so much, that they will spend additional time to work their way through the in-game puzzles...

In other words: I have tried to deliver an interactive story that will reward inquisitive and engaged users.

In my opinion, when someone enjoys working on a product, the enjoyment will come through to end users. The fact that I have thoroughly enjoyed developing this product reassures me that there will be users out there who will love the game.

Though in retrospective, there are things I would have done differently such as allowing players to pick their avatar's name, to make the experience more personal, however I also think that this should not hinder the experience and instead will let the players be open minded about meeting these new "personas".

The game has been made available on the Google Play store and is a product which I stand by.

7 Further development

After working on this project for the past few months, the next phase will be to create a port for the App Store.

However, before I can do this, I would like to first see what players will think of this product.

Although the feedback and comments from the testers has been crucial to the project's development, I still think that they held back on harsh and more direct feedback, given that they are also my friends.

I believe that the gaming community will lack in this subtlety, and instead be very vocal about what they will not like in the game. That feedback will further improve the product and make it worth further investment to publish it to the App Store.

In addition to the port, I would also like to develop a "companion app".

Many successful videogames nowadays (such as Bungee Studios': *Destiny*³ or Ubisoft's: *Assassin's Creed Black Flag*⁴ to name a few) all come with a companion application that allows players to track their game progress and find out more information about the game's universe and trivia.

My game uses a no-SQL database for storing player details such as appearance, character level, strength, name etc. in a separate JSON file for each data type. My idea would be to leverage the JSON files and link them to an Android application which the players can use to compare their game progress with friends who might also be playing the game.

The other feature that the application would offer is live news on upcoming new games which I will be releasing in the future thus turning the companion application into a marketing platform for **my future projects in games development...**

8 References

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9 Appendix

9.1 Project Proposal

Leonardo's Chronicles

Giancarlo Antonio Luongo, x12104248, x12104248@student.ncirl.ie

BSc (Hons) in Computing Year 4

Specialization: Networking and Mobile Technologies

October 17th, 2015

(Second submission following a change of Project idea)

9.1.2 Objectives

The objective of this project is to construct and deliver a working mobile application which will allow the user to experience, through a game, a short story which I have written. The game will be developed to be playable on mobile devices such as Android and possibly iOS (a nice to have, subject to Apple's deployment costs).

9.1.3 Background

Back in 2012 when I decided to back to education, I wanted to find out more about how software works and specifically how can someone create a working video game. 3 years on, and into my fourth and final, the college has unfortunately decided not to run a gaming specialization however, I was happy to see that the course did offer a mobile technologies. What this means is that my final project will aim to create and release to the Android store, a working mobile game application which will allow people to play my own short story.

I expect to provide the full story along with the project scope documentation, as an appendix.

9.1.4 Technical Approach

My Approach

Having worked on several different projects myself and considering the restrictive timeline we must adhere to on this specific project, I will be following an agile approach during the lifecycle of this deliverable.

The reason for the above is based on the fact that what I want to deliver, as I mentioned in my objectives, is a **working** mobile application.

One of the pitfalls of working solo on this sort of projects, is that one could easily find himself/herself hung up on the appearance of a button or what fonts to use, rather than getting a finished product out there.

By opting for an agile approach, I will address the risk of not achieving my goal my developing my product on an iterative approach, with more features added in each app iteration:

First iteration goals:

- Storyboard the entire story in a sequence which can be easily broken down into quests (game chapters)
- After the storyboard is complete, add additional quests which will bring the player to the next section of the story in a logical manner, ensuring that each section is seamlessly integrated with the next (this is in order to avoid players getting lost or stuck throughout the adventure)
- Create a world map within the game engine which will set the canvas for the adventure
- Create the relevant “town maps” **and main quest characters**
- Create the main “battle events” which the player will have to go through in order to complete the story
- Testing phase
- Collect feedback

Second iteration goals:

- Review the feedback from the first iteration and begin addressing any urgent issues
- Address any existing bugs and issues flagged by the game testers
- Flesh out the adventure with additional side quests
- Create “random battle encounters” which will add a level of complexity to the game
- Create “puzzles” within the game which the player will need to solve in order to acquire additional gear (equipment in the form of rings and armor pieces)
- Implement a fitting soundtrack to the game
- Testing phase
- Collect feedback
- Prepare prototype presentation
 - Try to deliver the prototype on 3 different devices (in order for the examiners to be able to try hands on)

Third iteration goals:

- Review the feedback from the second iteration and begin addressing any urgent issues
- Include additional side story content to extend the game duration
- Testing phase
- Collect feedback
- Address any potential issues
- Release the application to the Android market

Research

As part of my research, I will be studying and reviewing the material offered on the internet, and more specifically codeschool.com which I have found to be a great source of information.

This is a subscription based website that teaches advanced programming languages/markup techniques via online tutorials and lectures.

The research will focus on Ruby coding and courses on how to use my gaming engine of choice: RPG Maker MV to its fullest.

9.1.5 Special resources required

The downside of codeschool.com as my special resource requirement is that it will bring the project cost to approximately \$ 232.00 as codeschool.ie only offers advanced courses at a fee of \$ 29.00 per month.

As well as the above, I have also purchased a license for the game engine which cost me \$ 70.00. This will give me all rights to release the application to Android, iOS, Windows and Mac platforms.

Change made to this section before the final submission as additional expenses were logged:

Additional costs were later incurred to sign up as a developer in order to publish application through the Google Play store (\$25) and finally, an expense of \$150 for a 12 month license for Prezi, which is the presentation software I have used in the prototype presentation and which I hope to use in my final presentation.

The total project cost should amount to approximately \$ 477, which is a figure that is still within my project budget. I feel that the results will outweigh the cost of the material.

However, my aim will be to cover specific aspects of the application which is why I feel that sticking to a script will keep feedback more concise.

9.2 Project Poster

National College of Ireland

Leonardo's Chronicles

Giancarlo Luongo - BSHCE (Hons) in Computer Science

Project Description:
As a gamer who enjoys RPG's and as someone who enjoys creative work, I have decided for my final year project to be a hand held video game called Leonardo's Chronicles. The project is a role playing game aimed to any gamers who enjoy story fantasy games and appreciate an original story. The product is also available on PC and Mac to suit the gamers' preferences.

Main Technologies Used:
JavaScript, JSON, Java, Android Studio, RPG Maker MV, Gimp, HTML5, Intel XDK

Mac
PC

GET IT ON
Google Play

JS Intel XDK RPG MAKER MV GIMP JSON HTML5

The poster features a central illustration of an open book with a map and handwritten text, surrounded by various items like a blue book, a glowing lantern, and a quill. Below the main title, there are three screenshots from the game: a character in a purple robe, a character in a blue and white outfit, and a character in a red and white outfit. The bottom of the poster displays logos for the technologies used: JavaScript (JS), Intel XDK, RPG Maker MV, GIMP, JSON, and HTML5.

9.3 Project Plan

The following is the project plan which has been developed using Microsoft Project. For practicality reasons, only the project tasks will be appended to this document, while gantt chart will be provided in the Microsoft Project file which will be uploaded along with this document as an appendix. See below for Project Tasks:

Project Tasks and timelines:

Task Mode	Task Name	Duration	Start	Finish	% Complete	Predecessors
Manually Scheduled	Project Proposal & Project Plan Documents	18 days	Tue 15/09/15	Fri 02/10/15	100%	
Auto Scheduled	Project Proposal	9 days	Fri 18/09/15	Sat 26/09/15	100%	
Auto Scheduled	Project Plan	1 day	Sun 27/09/15	Sun 27/09/15	100%	
Manually Scheduled	Documentation Review and Upload	5 days	Mon 28/09/15	Fri 02/10/15	100%	
Manually Scheduled	Reflective Journal Entry	0.5 days	Fri 02/10/15	Fri 02/10/15	100%	
Manually Scheduled	Requirement Specification	35 days	Sat 03/10/15	Fri 06/11/15	100%	
Manually Scheduled	Continue Ruby Research	26 days	Sat 03/10/15	Wed 28/10/15	100%	
Manually Scheduled	Storyboard the entire story in a sequence which can be easily broken down into quests (game chapters)	21 days	Sat 03/10/15	Fri 23/10/15	100%	
Manually Scheduled	Requirement Specification Document	14 days	Sat 24/10/15	Fri 06/11/15	100%	

Manually Scheduled	Reflective Journal Entry	0.5 days	Mon 02/11/15	Mon 02/11/15	100%	
Manually Scheduled	Project Analysis & Design	28 days	Sat 07/11/15	Fri 04/12/15	100%	
Manually Scheduled	Application iteration	1st 22 days	Sat 07/11/15	Sat 28/11/15	100%	
Manually Scheduled	After the storyboard is complete, add additional quests which will bring the player to the next section of the story in a logical manner, ensuring that each section is seamlessly integrated with the next	5 days	Sat 07/11/15	Wed 11/11/15	100%	
Manually Scheduled	Create a world map within the game engine which will set the canvas for the adventure	3 days	Thu 12/11/15	Sat 14/11/15	100%	
Manually Scheduled	Create the relevant "town maps" and main quest characters	7 days	Mon 16/11/15	Sun 22/11/15	100%	
Manually Scheduled	<i>Attending Kevin Bridges Live in Dublin- No college Work</i>	<i>1 day</i>	<i>Mon 23/11/15</i>	<i>Mon 23/11/15</i>	N/A	
Manually Scheduled	Create the main "battle events" which the player will have to go through in order to complete the story	3 days	Mon 23/11/15	Wed 25/11/15	100%	

Manually Scheduled	Test application paying attention to bugs	2 days	Thu 26/11/15	Fri 27/11/15	100%	
Manually Scheduled	Collect Testing Feedback	1 day	Sat 28/11/15	Sat 28/11/15	100%	
Manually Scheduled	Project Analysis & Design	6 days	Sun 29/11/15	Fri 04/12/15	100%	
Manually Scheduled	Reflective Journal Entry	0.5 days	Wed 02/12/15	Wed 02/12/15	100%	
Manually Scheduled	Midpoint & Prototype Presentation	64 days	Sat 05/12/15	Sat 06/02/16	100%	
Manually Scheduled	Application 2nd iteration	61 days	Sat 05/12/15	Wed 03/02/16	100%	
Manually Scheduled	Review the feedback from the first iteration and begin addressing any urgent issues	5 days	Wed 25/11/15	Sun 29/11/15	100%	
Manually Scheduled	Polish the game locations (add more details to locales)	5 days	Mon 30/11/15	Fri 04/12/15	100%	
Manually Scheduled	Flesh out the adventure with additional side quests and Implement potential features mentioned by testers during the 2nd iteration testing phase	10 days	Sat 05/12/15	Mon 14/12/15	100%	
Manually Scheduled	Introduce additional player items such as weapons and armours	6 days	Tue 15/12/15	Sun 20/12/15	100%	
Manually Scheduled	Review the character progression system	3 days	Mon 21/12/15	Wed 23/12/15	100%	

Manually Scheduled	<i>Christmas Even and Christmas - No College Work</i>	2 days	Thu 24/12/15	Fri 25/12/15	N/A	
Manually Scheduled	Create “random battle encounters” which will add a level of complexity to the game	5 days	Sat 26/12/15	Wed 30/12/15	100%	
Manually Scheduled	<i>New Year Parties and Exam Study time - No College Work</i>	10 days	Thu 31/12/15	Sat 09/01/16	N/A	
Manually Scheduled	Create “puzzles” within the game which the player will need to solve in order to acquire additional gear (equipment in the form of rings and armour pieces)	5 days	Sun 10/01/16	Thu 14/01/16	100%	
Manually Scheduled	2nd Testing Phase	2 days	Fri 15/01/16	Sat 16/01/16	100%	
Manually Scheduled	Collect Testing Feedback	1 day	Sun 17/01/16	Sun 17/01/16	100%	
Manually Scheduled	Implement a fitting soundtrack to the game	5 days	Tue 19/01/16	Sat 23/01/16	100%	
Manually Scheduled	<i>Rest if all the above is complete</i>	1 day	Sun 24/01/16	Sun 24/01/16	100%	
Manually Scheduled	Introduce a shops system	8 days	Mon 25/01/16	Mon 01/02/16	100%	
Manually Scheduled	Prepare the prototype on at least 3 different devices for demo	2 days	Tue 02/02/16	Wed 03/02/16	100%	

	purposes (at least one device)					
Manually Scheduled	Prepare for the Presentation	2 days	Thu 04/02/16	Fri 05/02/16	100%	
Manually Scheduled	Prototype Presentation	1 day	Sat 06/02/16	Sat 06/02/16	100%	
Manually Scheduled	Project Final Documentation & Code	95 days	Sun 07/02/16	Wed 11/05/16	100%	
Manually Scheduled	Application 3rd iteration	53 days	Sun 07/02/16	Wed 30/03/16	100%	
Manually Scheduled	Review the feedback from the second iteration and begin addressing any urgent issues	5 days	Sun 07/02/16	Thu 11/02/16	100%	
Manually Scheduled	Include additional side story content to extend the game duration	14 days	Fri 12/02/16	Thu 25/02/16	100%	
Manually Scheduled	Expand custom items set	5 days	Fri 26/02/16	Tue 01/03/16	100%	
Manually Scheduled	Add more detail to the game locations (additional details in stores and towns)	10 days	Wed 02/03/16	Fri 11/03/16	100%	
Manually Scheduled	Testing phase	5 days	Sat 12/03/16	Wed 16/03/16	100%	
Manually Scheduled	Collect Testing Feedback	2 days	Thu 17/03/16	Fri 18/03/16	100%	
Manually Scheduled	Address any newly flagged potential issues	2 days	Sat 19/03/16	Sun 20/03/16	100%	

Manually Scheduled	Final testing phase	5 days	Mon 21/03/16	Fri 25/03/16	100%	
Manually Scheduled	Release the application to the Android market	3 days	Sat 26/03/16	Mon 28/03/16	100%	
Manually Scheduled	Technical Report Finalisation		10/05/16	10/05/16	100%	
Manually Scheduled	Upload final Documentation		11/05/16	11/05/16	100%	

9.4 Monthly Journals

Month: October

A recap on October...

To summarise the month in one sentence: **a turbulent month which should however refocus my project.**

Sunday 11/10/2015: While scoping out my original idea, I came across an existing carpooling web application which delivers the same service outlined in my proposal as well as a paying method for added security.

The issue does not stop there however. It turns out that my current employer supports and sponsors the existing application which means that, as per my contract of employment, I legally cannot develop an application which may result in competition to a client.

That evening this issue was flagged to Eamon as a high risk, and that a potential "U Turn" on the proposal was on the cards.

Tuesday 14/10/2015: After being assigned to my supervisor, I have reached out to him explaining the situation and I am waiting for his feedback to see if he is on board with a new idea and backup project: the idea is to create an Android game using a gaming development platform called RPG Maker MV which will support Ruby as a language as well as a suit of "drag and drop" functionalities, very much like Android SDK in NetBeans or the web application developer in Visual Studio.

The license for this tool will cost me €70.00 however paying this license will allow me unlimited use of the resources and the ability to deploy my finished product directly to the Android store.

Later that evening, my supervisor (Manuel) gave the **OK**: we are finally good to go and my final project will be a mobile RPG.

Sunday 18/10/2015: I was in college for 2 hours to change my original project proposal and timelines for each deliverable. This is documentation that I needed during my first meeting with Manuel, which would take place the following day.

Monday 19/10/2015: I got to meet Manuel who in one hour managed to provide me with a number of ideas on how to tackle the game's production and research. One of the most important ideas he provided me with is to interview the people that would actually play the game and not only rely on the feedback provided by the testers (which I will be working with in each of the game's iterations).

This approach will be of huge benefit as I will then have ideas and feedback from a variety of different aspects: the software engineering side from the testers and game and experience side from the actual gamers.

Tuesday 20/10/2015: Following Manuel's advice, I have scheduled to meet 3 friends today: Brian, Darryl and Jayvee. Darryl would have been the more RPG gamer who was able to give me pointers on games which he had played in the past and that really stood out to him.

The game which really got him and a lot of current gamers, "hooked" on RPG's is a game called "Defenders of Oasis":



- What really struck me about this game is how many game developers followed this approach. At a crude level, this is what I am planning my application to resemble: an old school feel but with more polished graphics.
- The other thing that I will change in my game is how the battles take place. In Darryl's example, the battles are taken head on (bottom right hand corner of the screenshot above).
 - The way I would like my game to play out is with a side view battle meaning that the player should be able to see his/her own character as well as the enemy they are fighting. My favourite series of JRPG's did this in the early 90's and looked like the following (taken from Final Fantasy 4):



- As you can see, the 8bit graphics feel persists throughout the examples and is an element that I would like to keep within my game. I want people to experience what I experienced playing RPG's while growing up. The 8bit, old school look brings me back to my childhood days when playing with a SEGA Game Gear or the first Gameboy's later on.
- The second aspect mentioned by Darryl of why he felt "Defenders of Oasis" was the best RPG he ever played, is related to where the adventure takes place. The game takes place in a more Arabic setting which means that the type of music used also **matched the locales**. This is something I also feel strongly about in having a good music score that matches the towns and countries that the player is visiting (within the game). This is an element that I need to retain in my game in order to make the adventure more immersive.

Brian on the other hand gave me plenty of ideas on the use of "side quests" in my game. Quests and tasks that do not impact the game progression directly, but nonetheless add to the player experience. Knowledge of these tasks will emerge to the players, only by investigating all the towns that exist in the game world, and by interacting with all the towns people.

This approach strives to again create a more immersive experience for the players, as well as adding more content to the game and hopefully more play time.

Another point made by Brian was that RPGs don't need to be serious to be good. This means that he really enjoys stories that provide some humour. Again an element which I love while playing games.

His example was a game called "Castle Crashers" and how the developers use humorous animations to make the game fun:



The above is a screenshot of one of the bosses from "Castle Crashers". The idea is that of a ferocious, blood thirsty feline beast guided a bear-like rider. The outcome is a big fat cat with its rider looking a lot like a small panda: the use of humour to "de-dramatize" the game's seriousness.

This is something I would also like to introduce, my approach will however be focused more on the characters themselves rather than their look (or perhaps both – something I will need to experiment further).

Jayvee's feedback:

Jayvee is a work colleague and also a gamer. He introduced me today to a game called "Ragnarok Online": a free to play online RPG available on PC.

The game strikes him because of its difficulty element. It is not an easy game and progression comes from completing difficult tasks such as defeating tough opponents. The other element that brings difficulty is classes. This means that the playable characters can all have different roles in a battle. For instance, some characters might be healers and therefore deal no

damage to opponents but instead, keep the player's characters alive throughout a difficult battle. Likewise, a knight class will be needed in order to inflict damage upon the opponent.

Another element that I loved from researching this example is the Asian and almost Japanese feel to some of the environments. Something that I hope to recreate in my game given that I am fascinated by Japanese culture. What I would like to reproduce is at least one town in my game which conveys strong Japanese themes. Below are some examples from Ragnarok Online:



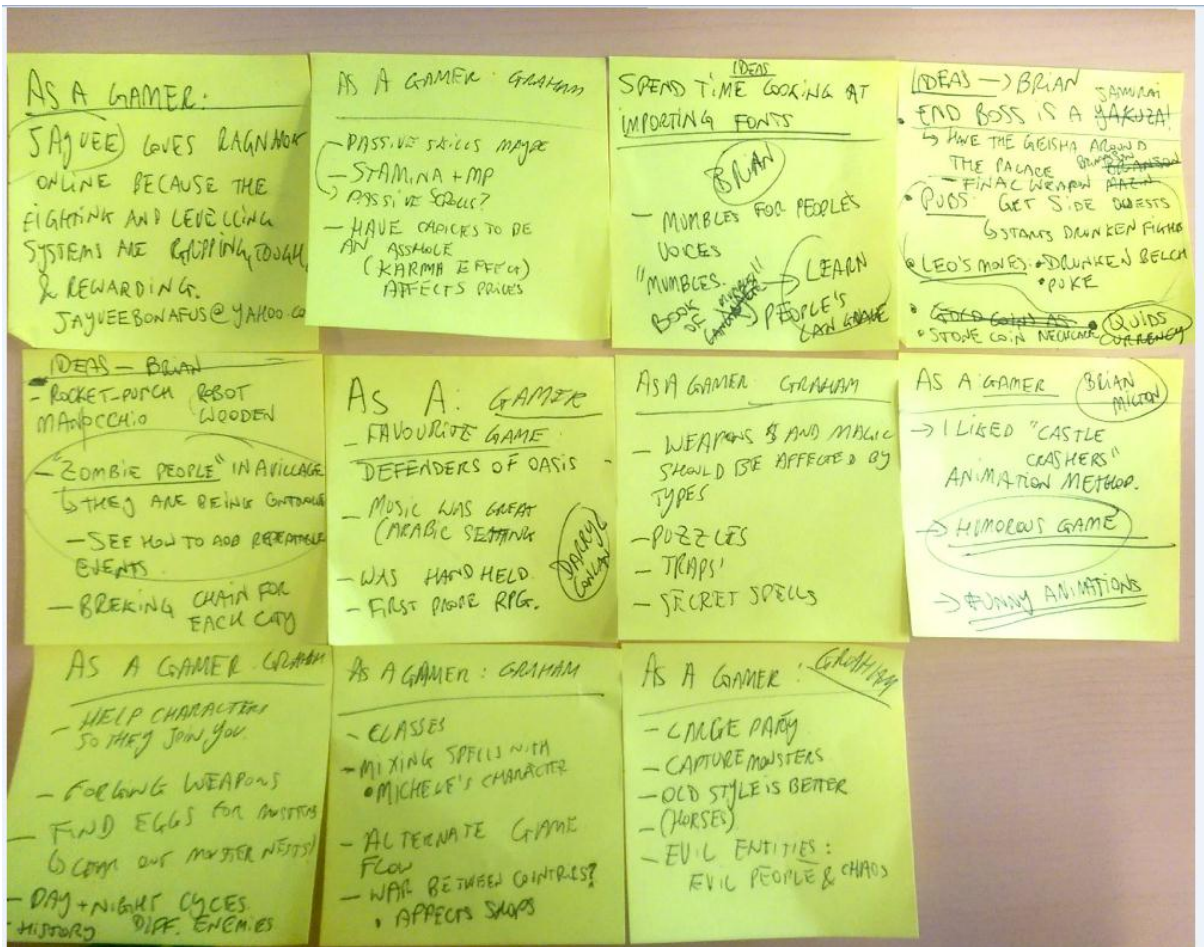


Wednesday 21/10/2015:

- Today I managed to meet another one of the testers that will join this project. His name is Graham and like myself, considers himself a hardcore gamer (when not otherwise in work). Graham managed to give me further insight to some of my ideas. One in particular that struck me was the concept of having to aid characters in the game, so that they could ultimately join your team. My original idea was that, at key points within the story, additional characters would join the player's team, unconditionally. What Graham suggested was to introduce a small quest for each character, that the player will have to complete if he/she wishes that character to join the adventure.
- The second task that I achieved today was to conceptualize the world in which this game will take place and how the main story should translate in its geography. Below is my first concept:



Below are the suggestions and ideas gathered from the meetings held with each tester:



Thursday 22/10/2015:

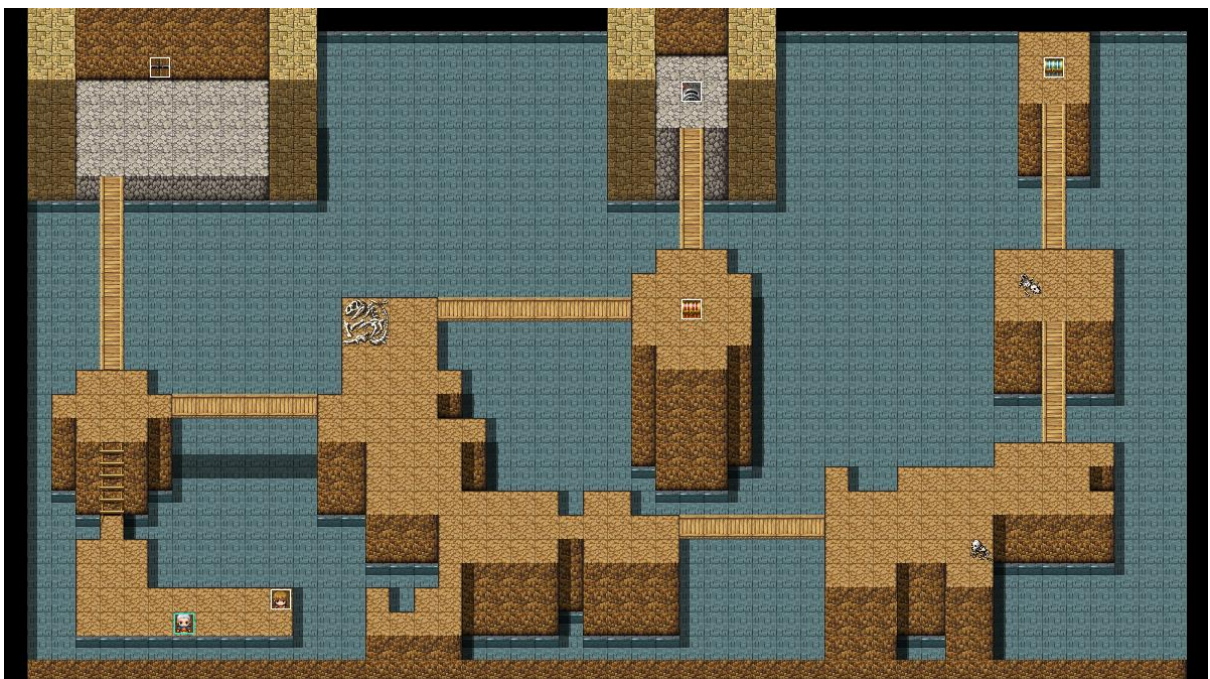
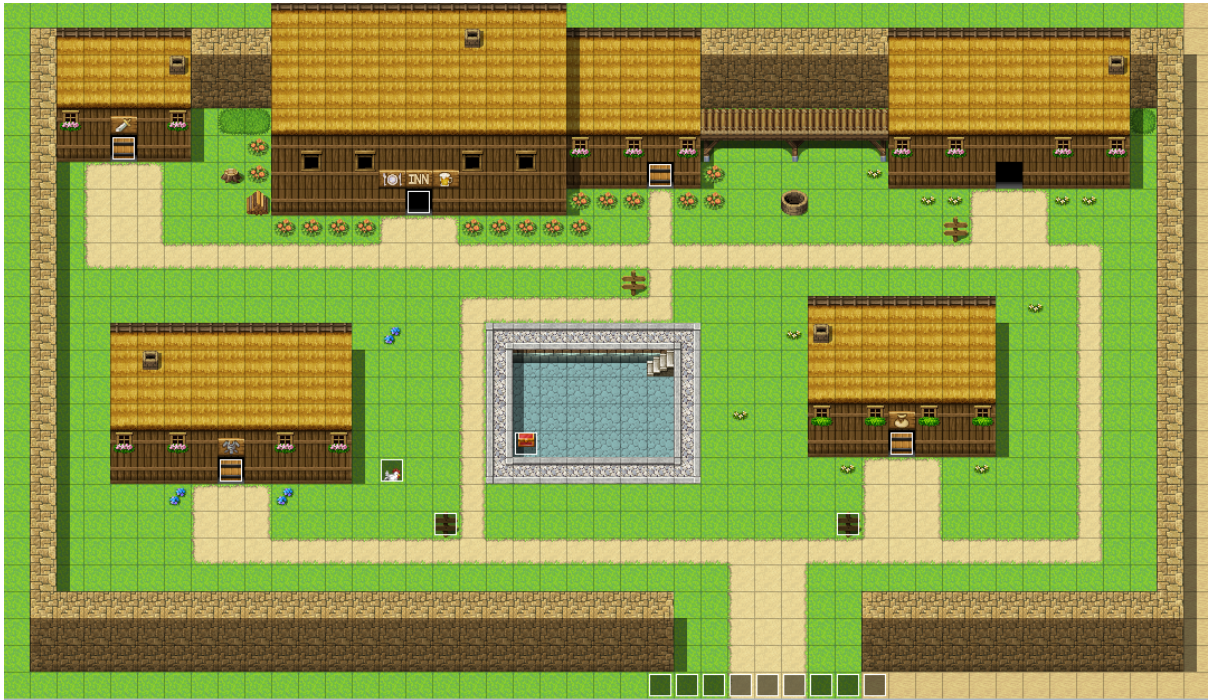
I have managed to replicate my initial world map concept into my project:



Each point of interest then expands in its own map and the size of the player icon would be equal to 1 square of the above map (to give a concept on the size and scale).

Friday 23/10/2015:

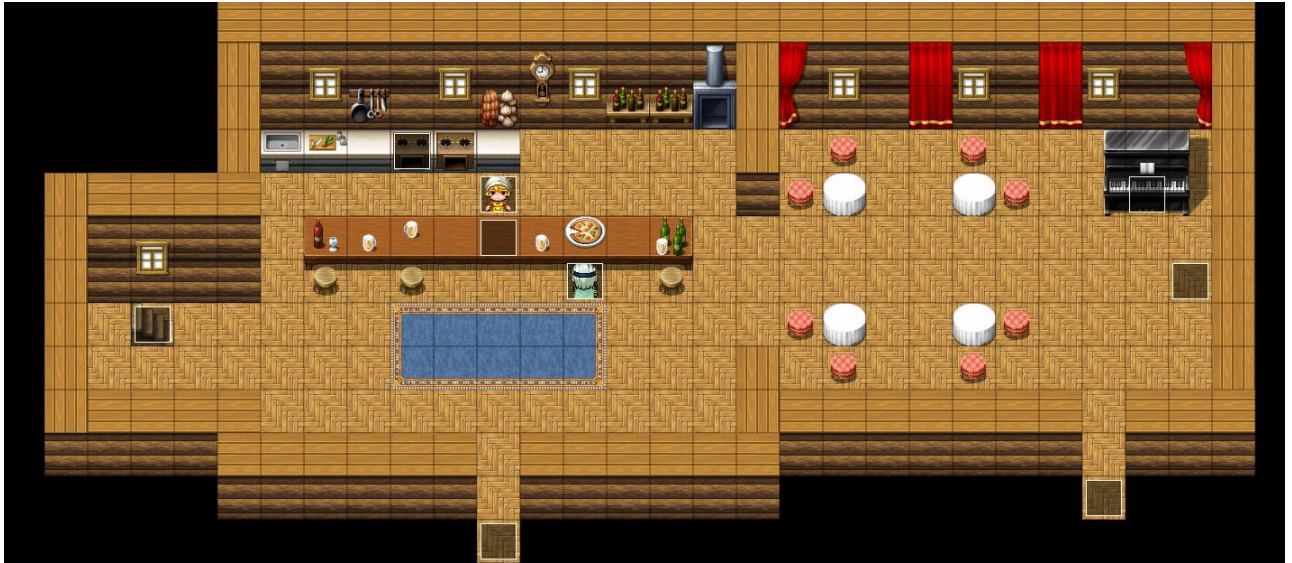
Began creating one town and one dungeon, no real detail yet however this will do for my prototype stage



Saturday 24/10/2015:

Creating locations is becoming more straight forward the more I practice however, what increases the workload is how each location interacts with others. For instance, in a town each construction/building should be accessible. By this I mean that the player should be able to enter each building. Once inside a building, more time should then be invested in creating an “indoors” map and possibly NPC’s (non-playable character) which the player will interact with.

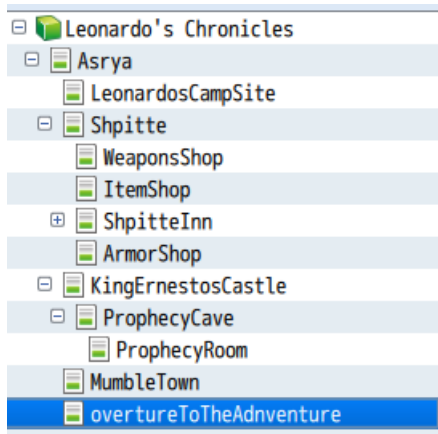
Below is an example of one of the shops in my first town:



In order to provide this level of detail in creating each map, I must invest hours in the design of both events and modelling. The above room took approximately an hour to build while the two characters in the screenshot are both events. The logic for both the events took approximately 2.5 hours to create.

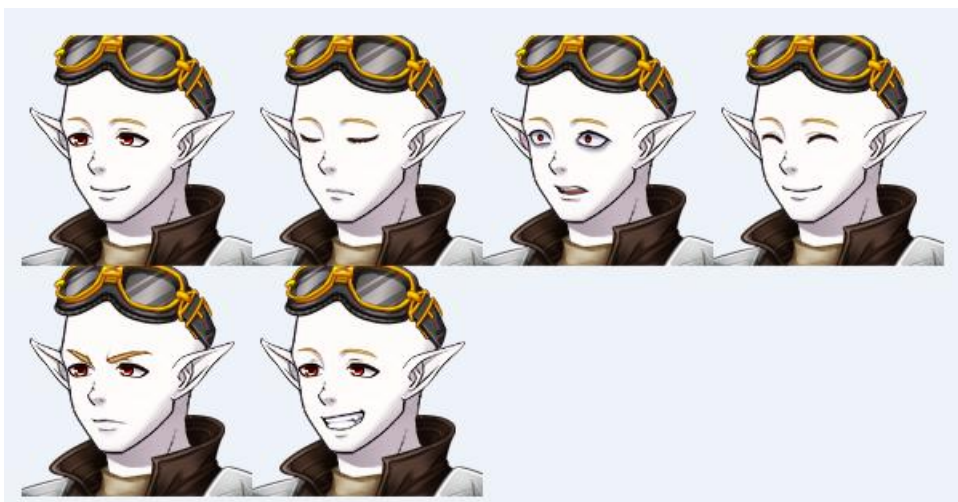
Sunday 25/10/2015:

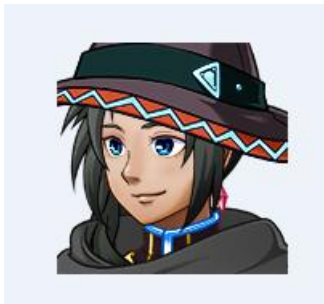
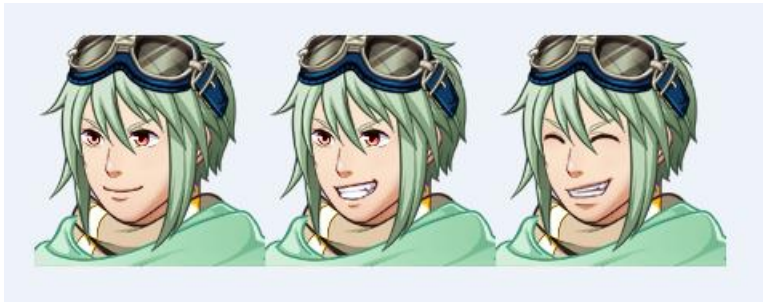
I have now created a number of maps. Some are more detailed than others. Each of the below is a map or an event which serves a logical purpose in the story progression.



Monday 26/10/2015 to Saturday 31/10/2015:

I have created a number of the main characters which will be used throughout the story. Below is sample selection. The different expressions will be used at different times though each quest where the character should seem angry, surprised or sad about a specific event:





My Reflection

I am currently going through a huge learning curve. Although the process of making my own game is amazing, I am finding it very tough to sometimes express my thoughts and expectations through the game engine. This is where a lot of my time is spent at the moment which is ensuring that the final product will be a fair representation of what I want this story to be.

Intended Changes

November will be a much tighter month in terms of available hours also because November 2nd is when I start a new job which will require a lot of my time. For this reason I need to refocus my efforts and spend less time on details and more time in ensuring that my prototype will deliver a good application and not only parts of a working game.

Supervisor Meetings

Date of Meeting: 19/10/2015

Items discussed:

- Game development approach.
- Feedback techniques
- The importance of using resources from different backgrounds to provide a more robust piece of software
- How to make better use of Agile as a project management tool
 - How to best utilize my time in each Sprint
 - Don't over-allocate time within each iteration. Know when to move on to the next iteration.

Action Items: Ask lecturers for an update on the Supervisor situation

Month: November

A recap on November...

November saw a great deal of progress in the application with the game beginning to take shape with great feedback being provided by people trying the software and by the supervisor meeting.

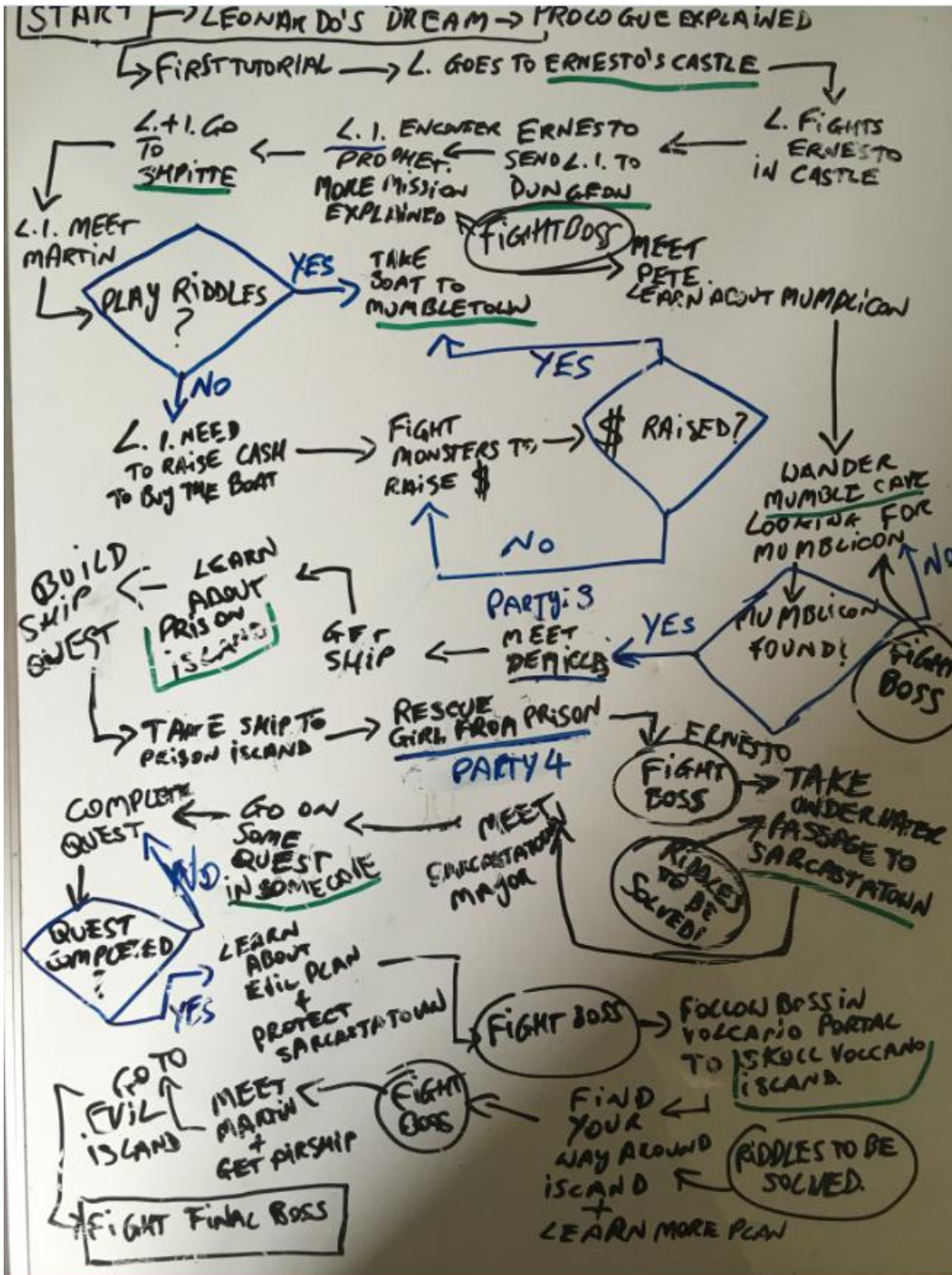
Sunday 01/11/2015:

November started off with work being done in college – as part of the 4th year project I have been setting aside time each week to physically go into college to work for approximately 3 to 4 hours, specifically on Sundays.

The first two weeks of December are therefore spent in expanding the game story and finally on November 17/11/2015 narrowing down each key event into a workflow to be implemented in the game logic.

Sunday 17/11/2015:

Below is the main game events logic that is to be followed during development:



Friday 20/11/2015:

Meeting with my supervisor who managed to accommodate my work schedule and meet me in the office. Items discussed mentioned in the "Supervisor Meetings" section below.

Sunday 22/11/2015 to Friday 27/11:

Further work put into maps development and quest design.

Saturday 28/11/2015 and Sunday 29/11/2015:

I “pitched” my game idea to 5 gamers and 5 non gamers letting them try the software and seek some feedback on the game content and how easily a user can learn how to use it.

Feedback was excellent: the gamers found the **2 hours** of playable game thus far to be entertaining, fun and witty.

The non-gamers were also impressed with the story and found it to be intuitive and intuitive in its use.

My Reflection

I am happy to have made the decision to change my initial project idea and go with an idea that means more to me than just trying to hopefully get a good grade. Instead, I am working on a project which I would like to see through to its completion to the point where I can publish it and have the people around the world use it and provide feedback. So far I am proud with the quality of the work.

Intended Changes

Although I am happy with the game content, I still do not see the existing maps as the finished work. Much more detail will have to go into each map in order to make the game seem more appealing. This is not a functional requirement in itself however; I would like to make sure to have some degree of details while creating each map, in order to make the final overhaul work easier before publishing.

Supervisor Meetings

Date of Meeting: 20/11/2015

Items discussed:

- The game so far
- Ideas on how to display the on screen software training (which I had implemented by this stage)
- Ideas on how to make items which the player can interact with more obvious than others in order to make the game easier for non-players

- Last but not least, Manuel gave me a fantastic idea that I will implement for the February presentation. My project is to be a mobile game application but development takes place on a Windows machine. Manuel gave me the idea to port the application prototype to different Android machines to present the software on these machines in February. He also suggested not waiting until the end of this development phase to test porting and to do it as soon as possible in order to preempt potential compatibility issues in respect to the game design (i.e. aspect ratio issues and touchscreen compatibility).

Month: December

[A recap on December...](#)

December was a productive month (despite the Christmas holidays and exam study time) that saw the addition of the puzzles element that adds play time to the game.

Sunday 06/12/2015:

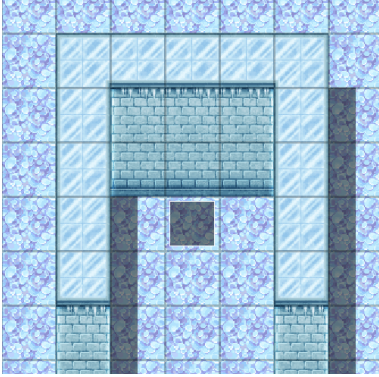
As mentioned in the recap section above, December was important as I took time to expand the story agreed in November, by adding side quests and additional tasks that the player can undertake, if he/she is to experience the entire game.

By this I mean that I have been adding specific quests that if the player can bypass completely and still be able to get to the end of the game, without however acquiring some key skills and items.

Sunday December 6th is when I started designing a string of quests that all relate to a character who I have called "Billy". The player first encounters this character in the first dungeon and here, the player has the option to help Billy in a quest. If the player succeeds, Billy will be encountered later on in the game to play an important role however, the game **will take a different shape** if the player chooses to not offer help to Billy in the first occasion.

This is an important feature that I feel is key to any RPG: the option to shape the adventure based on one's actions:

Billy first encounter:

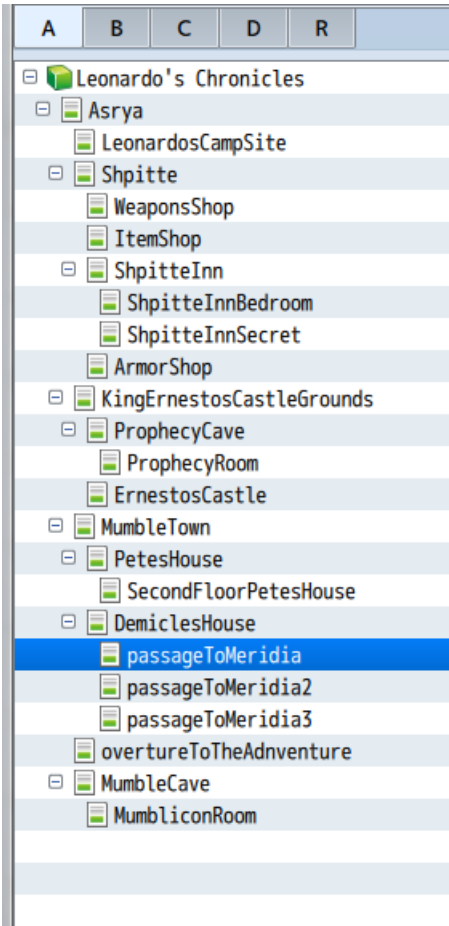


There is logic in place that will replace the dark square with Billy's sprite depending if the player has completed some specific conditions.

This process took some time, approximately one week.

Sunday 13/12/2015 to Sunday 20th:

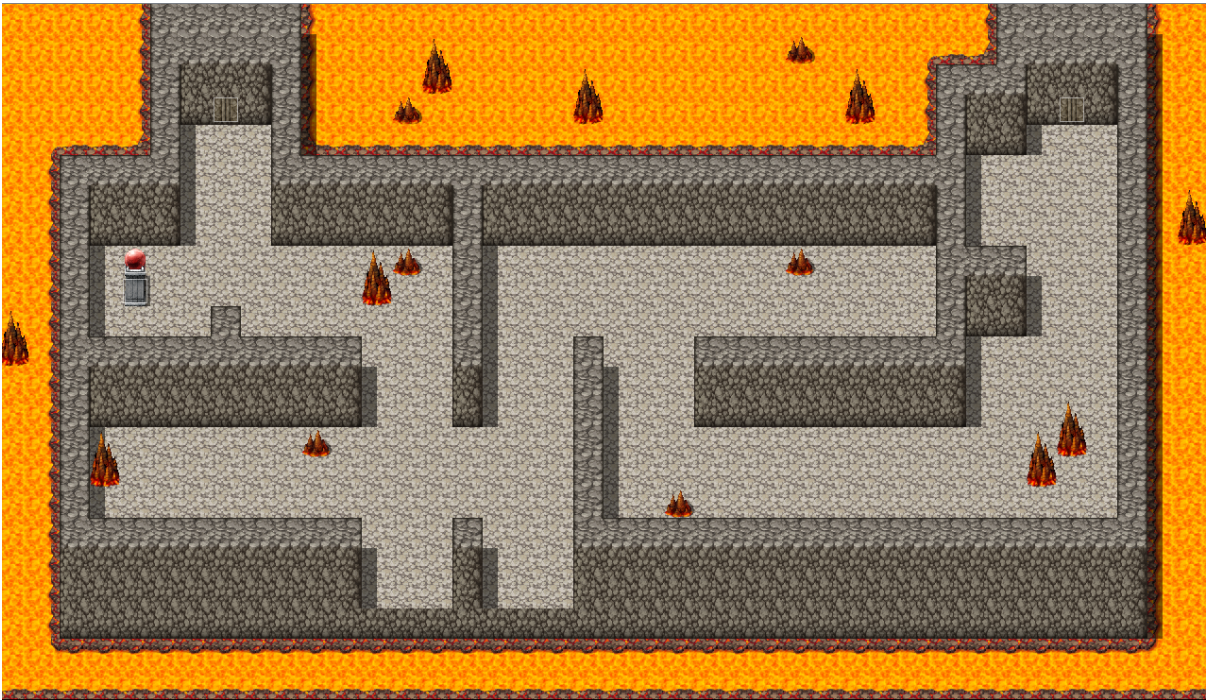
More time spent in the game development and the addition of puzzles along the way. By this stage, the total map count of different locations is 23 maps, all custom designed by me:



This was a huge challenge with hours being invested in the production environment.

Below are some of the maps created this month:





And finally a close up of a pre-boss battle screen:



In the above, the player must defeat a boss (who is later discovered to be related to a much larger plot), in order to open the chest located behind the boss. The chest contains a book that will teach the player a special ancient language which will allow the player to progress in the story and get closer to the end goal...

My Reflection

I was expecting December to be less productive to be realistic however, I was again happy with the amount of work invested.

Intended Changes

I feel that at this point I have enough content for a good prototype presentation. I have decided that January will be used to work towards my presentation meaning that I will commence work to port the game on to a HTC M8 mobile phone and a Samsung Tablet. I have picked 2 somewhat different devices to see how the game will look on both a phone and a tablet. I intend to use the same devices in the presentation so I am excited to see how it will go.

Supervisor Meetings

None in December due to workload and festivities.

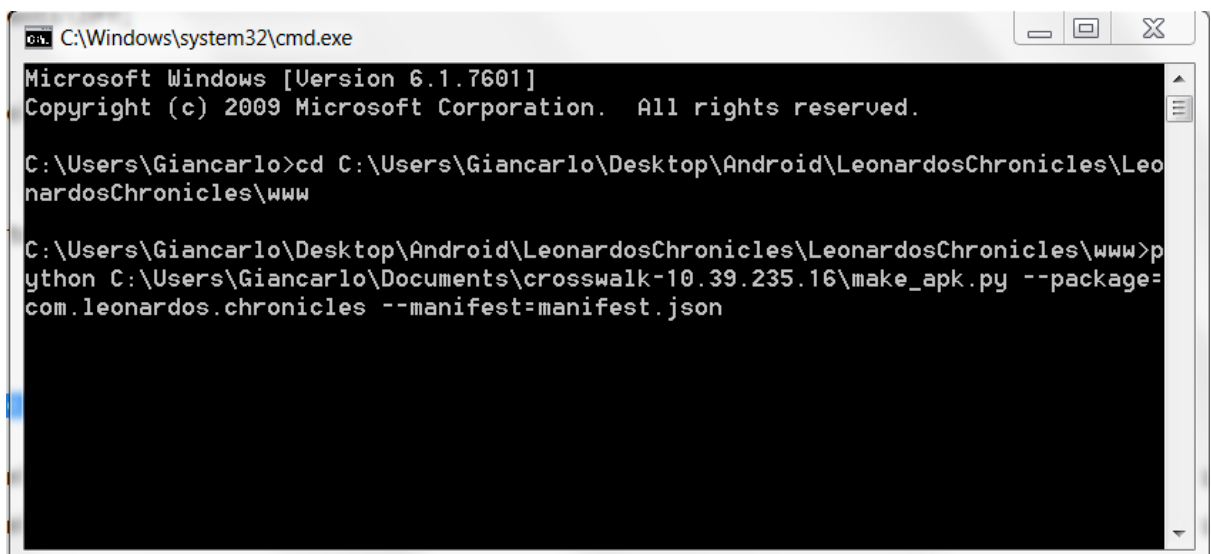
Month: January

A recap on January...

January was a productive month – it saw the creation of the project prototype and the kick off of the first testing sprint. As well as this, my supervisor also provided me with some ideas about my presentation and how to deploy my final project to the Google Play store.

Sunday 10/01/2016:

Following several attempts, and a frustrating weekend spent trying to port my project, I finally managed to create the package that can be installed on any Android device. The first version of the prototype was created. The following code snippet was extremely important to compiling the .apk:



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Giancarlo>cd C:\Users\Giancarlo\Desktop\Android\LeonardosChronicles\LeonardosChronicles\www

C:\Users\Giancarlo\Desktop\Android\LeonardosChronicles\LeonardosChronicles\www>python C:\Users\Giancarlo\Documents\crosswalk-10.39.235.16\make_apk.py --package=com.leonardos.chronicles --manifest=manifest.json
```

The code uses a manifest that I had created externally which specifies some variables including the window width when using the application on a device, package name, etc.:

```
{  
  "name": "LeonardosChronicles",  
  "xwalk_version": "1.0.0",  
  "start_url": "index.html",  
  "display": "fullscreen",  
  "orientation": "landscape",  
  "icons": [  
    {  
      "src": "icon/icon.png",  
      "sizes": "128x128",  
      "type": "image/png",  
      "density": "4.0"  
    }  
  ]  
}
```

Monday 11/01/2016:

The prototype has been released to the testers and we have officially waiting for feedback.

Sunday 16/01/2016:

While waiting for the testing phase to complete, I have kept on working on the game development in the production environment, continuing on with the game story.

Sunday 24/01/2016:

The prototype v1 testing phases is now closed! Extremely impressed at the feedback received from the testers (Graham Reynolds and Derek Casey): I had met these two gamers while working for Accenture and I must say – they treated this task as if it was work. Very grateful with their input. I must ensure to mention them in the game credits.

My Reflection

I am happy with how January went overall however, I am slightly displeased on the current work-life balance. I feel that I am working too hard in work and am left with little “energy” when it comes to manage college work and leasing with my testers. I will have to manage my time better if I am to have a high quality project at the end of the semester.

Intended Changes

More research needs to go in the hardware requirements – I have personally tested the application on a Samsung Tablet 3, HTC M8, HTC ONE. The test failed on the tablet while it worked on the mobile devices. Although this helps me to create the final hardware requirements, it also suggests that perhaps not all players will be able to use this application. This does not however worry me too much as the application will be free to download therefore there will be nothing to reimburse – (aside from a couple of seconds it will take to download the app)

Supervisor Meetings

Date of Meeting: 26/01/2016

Items discussed:

- How to prep my presentation:

- I will try to give the examiners and “hands on experience” of the application through the handheld device
- Explain what the road map will be for the product lifecycle, where will I take it from here?
- How did I get the application to this point?
 - How did I come up with the idea?
 - Why did I come up with the idea?
- Deployment to the Play store: Manuel helped me in finding material online that explains how to publish applications on the Google play store.

Month: February

A recap on February...

February was a great month – the prototype presentation took place and I am extremely pleased with the results.

The main take-away which I received on the day was to not sit back now that I had an application that was almost presentable. Also, I was told to expand on some of the points in my report in order to have a well fleshed-out report.

I did however incur another expense in this project, due to the fact that I wanted to use Prezi for my midpoint presentation (an additional EUR140).

My Reflection

Although feedback was great, I realize that I must step up the pace to make sure that my final presentation is better than my prototype. It will be a challenge to beat the feedback received at the prototype stage but it can be done.

Intended Changes

More context to be provided in the testing and implementation sections of the final report.

Supervisor Meetings

I did not meet Manuel in February in person however we did keep in touch via email. Manuel also provided feedback on the presentation and did a great job at keeping me motivated, giving a sense of accomplishment after the prototype presentation.

Month: March

A recap on March...

Not much work produced this month due to a series of other deliverables in the Multimedia/Mobile module and the Distributed Systems module. I was also busy this month due to work commitments which saw me travel to Krakow for a week.

Work on the final year project will resume after the exams are completed.

My Reflection

As the college course draws to a close, I can feel that work is piling up. Not because of me leaving work to the last minute, on the contrary, because all other modules are designed in such a way that deliverables all fall due within a short time of each other. This would be acceptable if the briefs were given weeks in advance but in this case there hadn't been much notice.

But as they say: show must go on!

Supervisor Meetings

None due to work and other college project commitments.

Month: April

A recap on April...

End is in sight! Exams are completed and I have a good feeling on how the academic year has gone. I am chuffed to be back to working on the final project and on the **Alpha testing!**

The Alpha testing took place this month and was carried out by Fabio Luongo. The results have been added to the **final report**.

My Reflection

There is plenty of work to be done on the application, presentation, final report etc. It's crunch time now!

Intended Changes

Plenty of changes need to be carried out for the final project to make it to the Google Store.

The main challenge I encountered was to bring down the size of the project to a maximum 100MB which is the maximum allowed for application uploads in Google Play. There are ways around extending the allowance by 2GB however these are solutions that would require a huge amount of rework – time which I cannot spend at this time.

The alternative is to bring down the project size by taking out components produced by the engine, that I don't need in the final project.

As well as that, also sacrificing available in-game enemies and music. It will be a challenge, that is for sure.

Supervisor Meetings

Meeting on 28/04/2016

Items discussed:

- Keeping on track with the deliverable
 - Manuel mentioned that, although I have some good ideas that would be great "nice to haves", I should focus on making sure that the project

is 100% completed and that I do not lose marks for leaving out important aspects.

- Suggestions on final poster
 - The final poster should be something related to my final product. Manu brought my attention to how world-renowned titles such as Pokémon, Lego Star Wars and Dungeons and Dragons, and how they use posters/promo images effectively. Something that I definitely want to bring into the project.
- Final Presentation
 - Manu also reminded me to keep referring to the grading rubric and what I need to focus on to ensure that I can get all the marks that this application deserves.