Proposal Document For:

The Lord Of The Meows

One Purr to rule them all

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Module : Networking and Multiplayer Games

Course : Entertainment Systems Semester 1 Year 3

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Player Based Mechanics

- The players will use the **WASD** keys to move forward, left, back and right.
- The player will hold the **LEFT SHIFT** key to run.
- The player will press the **Space Bar** to use the item currently selected in their inventory - if the item is a sword, the player will attack, if the item is a potion the player will use the potion.
- The player will press **E** key to interact with the object/NPC in front of them, and use the **E** key as confirm button during the dialog box.
- The **Up/Down Arrow** keys allow the player to select options from the menu or choice boxes.
- Push a movable object will require the player to run into the object and keep moving in the same direction.
- The player will press the **ESC** key to open the menu.
- The players health, inventory, score, power-up, etc will be displayed as HUD on the screen.
- Player will pick up object or power-up by touching them - a dialog of confirmation will pop up if the player wants to pick up a power-up.
- Using the **Left/Right Arrow** keys will allow the player to cycle through the inventory.
- The player will press the **M** key to toggle show a map.
- The camera cannot be rotated by the player.

NPC

Normal NPC's

- Will be either walking around or standing still.
- Are intractable by the player and will display a dialog box.
- Do not attack the player.
- Player cannot attack/kill NPCs.
- Are not attacked by Enemy NPC's.
- Will be grounded and cannot jump.
- Cannot interact with other NPC's or objects.
- Cannot open doors.
- Some NPC's will be able to exchange with the Player, i.e. You give them 10 coins for 1 health potion.

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Enemy NPC's

- Can Walk or Fly.
- Cannot jump.
- AI will vary depending on enemy type and difficulty - players current level, players region (late game will be harder), difficulty will be proportionate to number of enemies, their speed, and their intelligence.
- Will attack and follow the player if the player gets in range (or is visible) - will be dependent on the AI type.
- Enemies can be killed by player - with weapon.
- Enemies will drop random loot - items (potions), power-ups(improve speed), score, etc.
- Enemies will re-spawn once an area is re-entered / player dies.
- Enemies cannot open door, but can walk through door that are left open by the player.

Objects

- Some doors - open and close (some require keys to be found).
- Chests - open only (contain items/power-ups)
- Platforms - raise/lower the player once the player stands on it.
- Traps - damage player health when player steps on one.
- Items/Power-up - picked up by player only by colliding with them.
- Normal NPC - display dialog when player interacts with them, when the dialog is shown, all other movements from NPC stop (player cannot be attacked while reading dialog).
- All objects except Enemies/Chests/Items/Power-ups are instantiated at the very start of the game/level.
- Enemies are instantiated when the player enters the level with random positions/types, and destroyed when their health reaches 0.
- Chests are instantiated at when player enters the level with random loot inside - are not destroyed when opened.
- Items and Power-ups are instantiated once power destroys an enemy/ opens chest, and destroyed when player picks it up.

Game AI

- Difficulty - will be determined by the players level and region the player is in (late game is harder), the difficulty is proportional to the number of enemies, their speed, strength and AI intelligence.

Rewards

- Items and power-ups to be used the player
    - Different weapon items to deal more damage.
    - Power-ups to increase strength, speed, health, etc.
    - Health items to heal the player.
- Score - killing enemies/opening chests will also increase players score.
- Exploration value - exploring areas is a reward itself.
- Rewards at the end of puzzles are better than the ones found normally - stronger power-up/items, more score, etc.

Structure Building & Puzzles

- There will be simple building structures scattered around in the game, from NPC houses to the kings palace.
- Puzzles may vary from walking through a maze, to moving blocks in get to the chest.
- Harder puzzles have better rewards.
- Puzzles may always be skipped if the player doesn't want to do them - players choice.
- The complexity of the puzzles will increase with the progression of the game.

Visual Assets

Static:

- **Sprites for Buttons:** These will be all designed and created by me, there will be two variations for the button sprites; active and inactive. The active texture will display when the player has the button selected and inactive texture will display not.
- **Image for Splash-Screen:** I will design and create an image for the splash screen.
- **2D-Sprites:** Example - Painting in the game. I will design most (if not all) of the 2D-Sprites, those that are of less importance will be sourced from an open-source websites such as https://opengameart.org/.
- **3D-Characters:** I will conceptualise, model and animate the main character, important NPC's and some common NPC's (enemies/villagers) which can be reused. For other less significant characters I will use Unity's Asset Store.
- **3D-Objects:** I will design most 3D objects which will be common and used often - Chests/Tree's/etc. The rest I will source from Unity Asset Store.
- **2D-Textures:** It is unlikely I will create my own 2D-textures, most will be sourced from open-source websites like https://opengameart.org/.
- **UV-Maps:** I will source the UV maps from open-source websites like https://opengameart.org/.
- **Height-Maps:** I have a tool to create Height-Maps from textures therefore I will be able to create my own UV-Maps.

Dynamic:

- **3D Character Animations :**
  - Idle.
  - Walking.
  - Running (Main Character).
  - Attacking (Main Character & Enemy NPC).
  - Dying (Main Character & Enemy NPC).
  - Picking Up (Main Character).
  - Pushing (Main Character)
- **3D Object Animations :**
  - Open/Close (Doors/Chests).
  - Destroyed (Bushes).
- **Cutscenes :** There will be only two cutscenes in the game, the start and end cutscene, both of which will use text on screen.

Audio

- I will create some audio for the game, but most will be taken from open-source websites like https://opengameart.org/.
- **Sound-Effects:** These should be played at the following moments :
  - Attacking (Main Character & Enemy NPC) - Slash/Hit.
  - Dying (Main Character & NPC) - Violin/Poof.
  - Picking Up (Main Character) - Ding.
  - Opening a chest - Creak.
  - Destroying bushes - Rustle.
  - Pushing blocks - Grind.
- **Ambient Music:** It should be played in every scene/level:
  - Villages - Peaceful music (harps, flutes, etc).
  - Castle - Royal music (trumpets, drums, etc).
  - Dungeons - Tense battle music (fast paced guitar).
  - Final Boss - Boss Music (orchestral, choir).
  - Title screen - Main theme.
- Player can mute the audio through the menu screen.
- There will be a low sound effect for user interface (menu button selection).

Game User Interface (HUD)

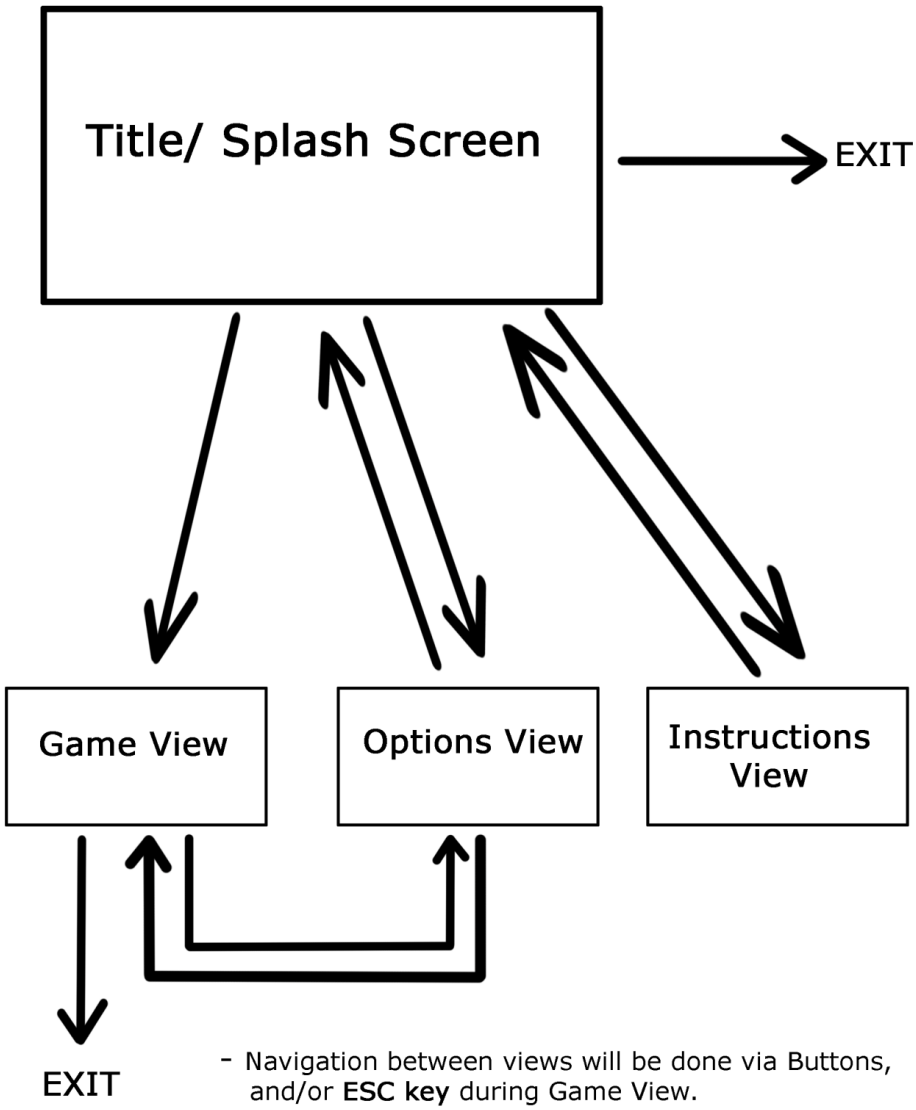
- The HUD will display the following:
    - Game view.
    - Players health.
    - Players score.
    - Players inventory.
- A menu can be accessed by the player via **ESC** key which will contain the following options:
    - Volume controls (up - slider, down - slider, mute - toggle button).
    - Help button - shows help
    - Exit to main menu.
- A map can be toggled by the player via **M** key and will show up on screen covering most of the screen.

Out of Game User Interface:

- Screens in the game:
    - Title screen (splash screen) - Start button, Load Button, Options button, Instructions Button, Exit button.
    - Options button will allow the user to see the Volume controls for the game (similar to in-game menu).
    - Instructions button will bring up the text of instructions for the user, and a back button.
    - Exit Button will exit the game.
    - Load button will load previously saved game (or start new game if load is not found).
    - Start game starts a new game.
- Navigation will be done completely through the keyboard (no mouse will be used).
- The currently selected button/option will have a different texture/sprite to it, indicating that it's active and the user can change it.

Levels

- There will be the following levels:
    - Kings castle/palace.
    - Village.
    - Forest.
    - Cave.
    - Dungeon.
    - Boss level.
- Player reaches the next level by walking through a path/door/etc.
- Items in the level will be random, but the placement of some chests will be statically set with items preset - e.g. Kings/castle will have a potion.
- For every level, there will be different:
    - Ambient music.
    - NPC's.
    - Chest/Items - random elements (random items).
    - Further levels have different Enemy NPC's/ different AI's.
    - Puzzles (some levels will not have puzzles at all).
    - Objects - Trees in forest, rocks in cave, etc.



- Navigation between views will be done via Buttons, and/or **ESC key** during Game View.

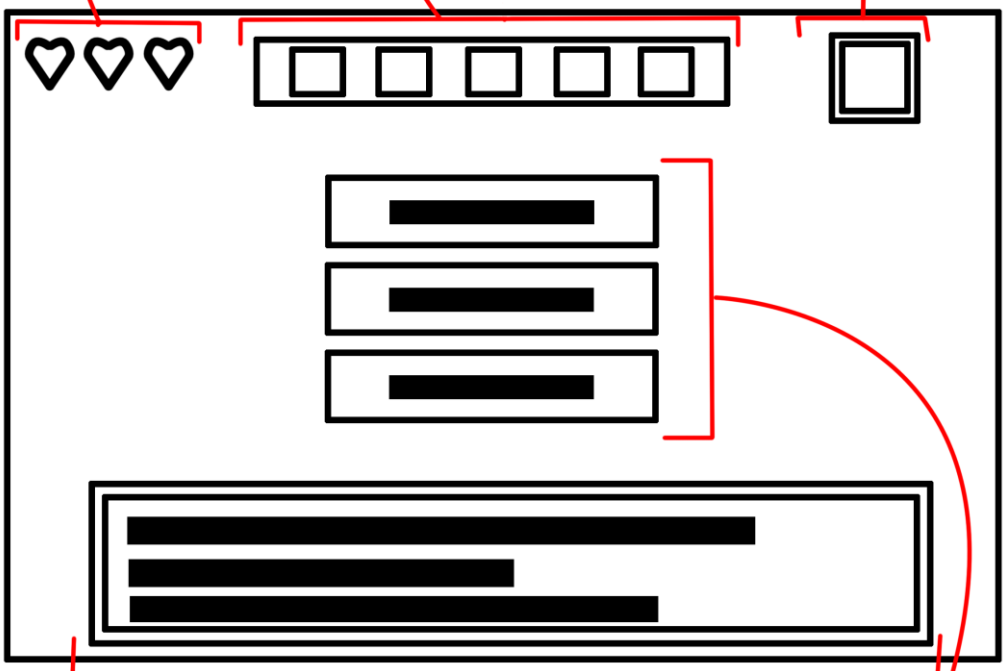
  - These buttons will be controlled via **arrow keys** and **E key.**
  - Views in this case does not necessarily mean a Scene, It can simple be a UI in the scene.

GAME VIEW

Character's Health
Possible formats:
- Heart sprites
- Text
- Bar

Character Inventory
- Always on screen
- Select Item with **LEFT/RIGHT arrow keys**
- Use selected item with **SPACEBAR key**
- Selected Item is hightlighted

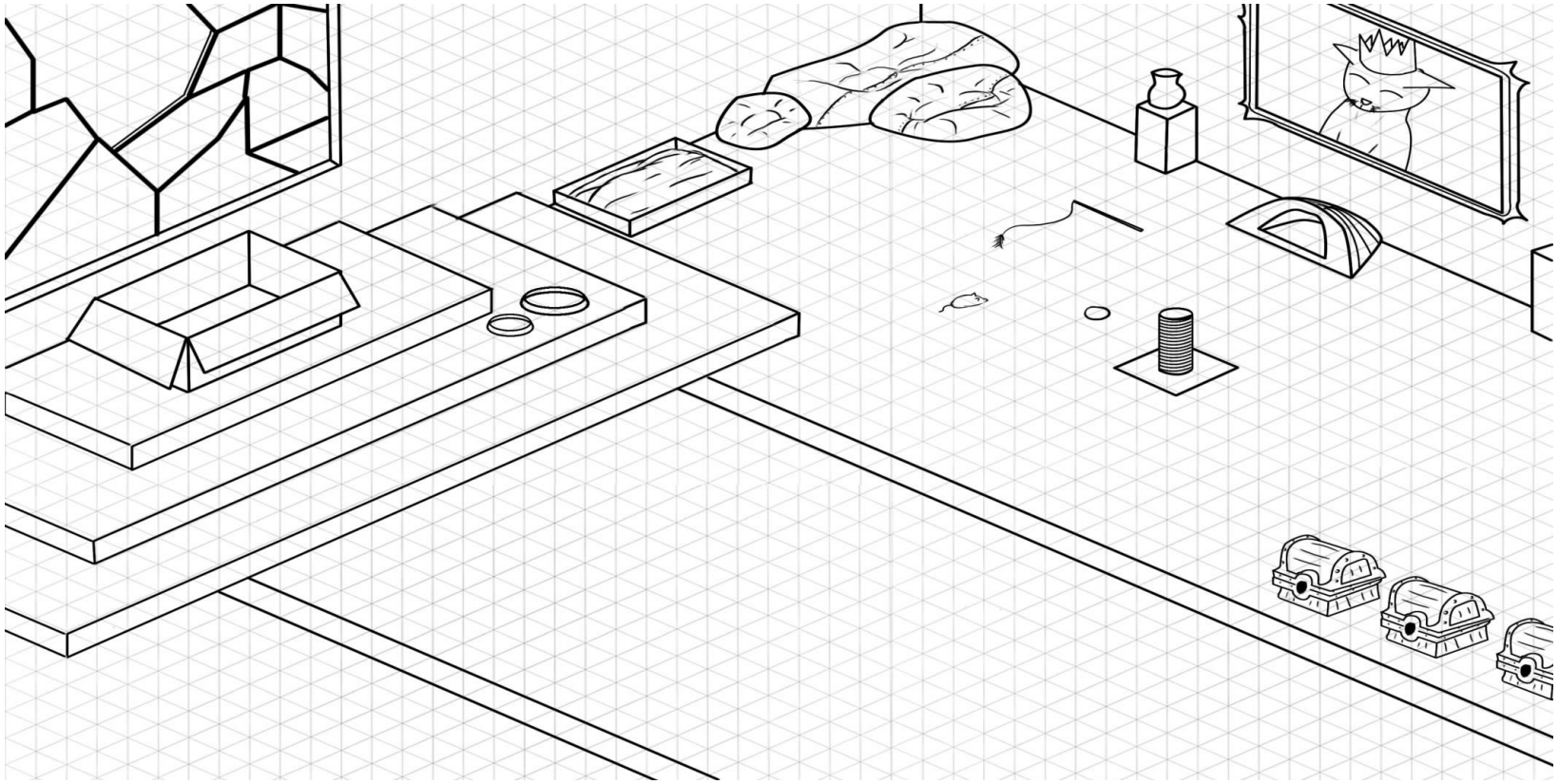
Power-up
Characters power-up



Dialog Box
- Displayed when character interacts with InteractableSign object
- Use action button **E key** to continue with dialog

Choice Options
- InteractableSign object can allow for choices to be given to player
- Use **UP/DOWN arrow keys** to select choice (highlighted)
- Use action button **E key** to confirm selected choice

First Level Design



Character Designs

Concept Art Design - Character

Ordinary Cat approach ideas

An everyday cat character - No specified name, age, gender

Abilities - Jumping, Running, Walking

Game Genres - Puzzles, Platformer, Chase Games, Exploration, Maze
Game Platforms - (Mostly)Mobile, PC

Additional Notes:
Would be very suitable for a game which mainly focuses on the gameplay rather than story.

Cyborg/Robot Cat approach ideas

Name - (Robotic-Pun/Serial Number)
Gender - Male
Origin - Future setting, Past Soldier/Innocent, Willingly/Forcefully, Was saved/Experimented
Abilites - Lasers, Enhanced strenght+movement, Improved endurance
Mental - Controlled/Own will, Anger-Prone/Calm, Lost memories, Evil-side
Objective - Enforce order (Soldier)/Revenge, Space travel
Family - Dead/Alive, Fearfull/Hopefull

Game Genres - Puzzle (Maths?), Strategy, Action
Game Platforms - Mobile, PC

Superhero/Realistic approach ideas

Name - ?
Age - Young/Teen/Middle-aged/Old
Gender - Male / Female
Superpowers - Increased hearing capabilities, speed, nightvision, agility
Origin - City/Village, time period, born/acquired powers
Personality - Clam/Agressive, Wreckless/Calculative, Evil/Good
Objectives - Revenge/Quest, Returning home, Travelling, Cure, Training
Public's view - Idolised/Hunted
Love Interest - Alive/Dead, Aware of Powers/Not, Kidnapped?, Evil?

Game Genres - Platformer, Action, Puzzle, Detective, Fighter
Game Platforms - Mobile, (Mostly)PC

Fantasy Cat approach ideas

Name - ?
Age - Young/ Middle-aged/ Old
Gender - Male/Female
Appearance - Standing on two legs
Origin - Alternate universe, Experimental creation, an other realm, Medival setting
Abilities - Magic, Martial arts, Sword
Personality - Curious/Cautious, Intelligent, Kind/Cruel, More animal-like/Human-like
World - Everyone else human/cat, Monsters, Unusual creatures
Objective - Adventurer/Employed, Quest
Status - Student/Teacher, Married/Single, Rich/Poor

Game Genres - RPG, Side-Scroller, Action, Adventure
Game Platforms - Mobile, PC

Prioritising Requirements:

ID	FEATURE	PRIORITY	TIME(Estimate)
C_01	Character movement - walking, running, collisions, etc	HIGH	30 Minutes
C_02	Character interaction - signs, chests, exchange items etc	HIGH	1 Hour +
C_03	Character stats - health, score + HUD	HIGH	1 Hour
C_04	Character menu - pause game, control volume, exit	HIGH	1.5 Hours +
C_05	Character inventory - pick up items, cycle, use items	HIGH	3 Hours +
C_06	Character push mechanic - blocks	MEDIUM-HIGH	2 Hours +
C_07	Character map toggle	MEDIUM	30 Minutes
C_08	Character model & animations	MEDIUM	8 Hours +
C_09	Character power-up have effect	MEDIUM-LOW	1 Hour
C_10	Character weapon system - attacking, collisions, etc	MEDIUM-HIGH	2 Hours +
NN_01	NPC walking AI/Standing + interaction	MEDIUM-HIGH	1.5 Hours
EN_01	Enemy Simple AI - Attack player, Dying	HIGH	2 Hours
EN_02	Enemy Medium AI - Running with low health, more health	MEDIUM-HIGH	2 Hours +
EN_03	Enemy Advanced AI - Medium AI + strong attack, more health, dodging?	MEDIUM	2.5 Hours +
EN_04	Enemy - model & animations	MEDIUM-LOW	8 Hours +
O_01	Objects Interaction - chests contain item/power-up once (random unless specified)	MEDIUM-HIGH	1 Hour

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O_02	Objects like platforms and traps function	LOW	1.5 Hours
O_03	Instantiating at random positions in level	MEDIUM-LOW	3 Hours +
O_04	Modelling buildings/objects	MEDIUM-LOW	5 Hours +
A_01	Implementing sound effects + music	LOW	30 Minutes
A_02	Creating music	LOW	1 Hour +
V_01	Creating visuals (textures/sprites)	LOW	2 Hours +
G_01	Building levels	MEDIUM	2 Hours
G_02	Implemented randomness in game	MEDIUM-HIGH	2 Hours +
G_03	Design some puzzles - mazes, hidden passages, pushing blocks, etc	MEDIUM-HIGH	2 Hours+
G_04	Implement start screen/splash screen	MEDIUM	1.5 Hours
G_05	Implement saving/loading mechanic	MEDIUM-LOW	1.5 Hours+

Planning

Phase 1:

Requirements:

- Implement 60-75% of the HIGH priority features, especially the character mechanics - movement, interaction, inventory, menu.
- Create first level - Kings castle.

Development time : 8 Hours +
Research time: 5 Hours +
Testing time: 3 Hours +
Documentation: 1 Hour +
Release: 30 Minutes.

Total: 17.5 Hours +- 15%

Results: The player will be able to experience most of the core mechanics, but will find that it's very minimalistic in visuals and there will be very little for the player to do.

Phase 2:

Requirements:

- Finish implementing HIGH priority features, especially the Enemy Simple AI .
- Begin implementation of 20-30% MEDIUM-HIGH priority features, especially character weapon system (attacks, collisions) and Enemy Medium AI.
- Model the character with at least one animation.
- Create Village level.

Development time : 12 Hours +
Research time: 3 Hours +
Testing time: 3 Hours +
Documentation: 1 Hour +
Release: 30 Minutes.

Total: 19.5 Hours +- 15%

Results: Here the player will be able to enjoy a better character model with at least one animation (Walking/Running), he can travel between two levels and interact more with objects and NPCs. Also he now can battle enemies.

Phase 3:

Requirements:

- Finish implementing MEDIUM-HIGH priority features, with special focus on randomness in game.
- Create 10-20% of the MEDIUM features with strong focus on Enemy Advanced AI and Splash screen.
- Finish model on Character with animations.
- Design Forest and Cave levels

Development time : 11.5 Hours +
Research time: 4 Hours +
Testing time: 4 Hours +
Documentation: 1 Hour +
Release: 30 Minutes.

Total: 21 Hours +- 15%

Results: The player will be able to explore more of the game by travelling to new levels, fighting different enemies and solving puzzles on the way. He will also enjoy a nice splash screen with and instructions.

Phase 4 (Final Release):

Requirements:

- Implement some MEDIUM, MEDIUM-LOW and LOW priority features if there's time - focus on make power-up effect character.
- Create commonly used models.
- Implement sound - either created or sourced.
- Design Dungeon and Boss levels
- Finalise game - remove any persistent bugs, etc.

Development time : 13 Hours +
Research time: 2 Hours +
Testing time: 4 Hours +
Documentation: 1 Hour +
Release: 30 Minutes.

Total: 20.5 Hours +- 15%

Results: By this point the game will be finished, the player will have a splash screen where s/he can read instructions, change options, load game and start new game. The game will have sound effects and background music implemented, and the player can now complete the game by finishing the Boss level at the end.