

**Games Programming**

Year 2013/14, Semester 6

**SCHOOL OF INFOCOMM TECHNOLOGY**

Diploma in Information Technology

**Games Programming**

**Reflection**

Dead Survival

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### Quest/Campaign

* **Brief Description:** A quest/campaign system could be implemented with missions such as escorting a family to safety, finding a missing child, or even a tutorial level with a flashback of the player, Ghost’s, military life before he retired where he was trained with firearms and building of friendly structures and so on.
* **How it can be implemented:** A room will be created for each quest or campaign with fixed events and structures. For example, escorting a family to safety, it would be a room with a family trapping themselves in a house with a fixed number of zombies surrounding it. Upon killing all of the zombies, the player will indicate that they are safe to leave the house and escorts them to safety.

### More Turrets

* **Brief Description:** The player can building a variety of turrets with a variety or stats or specific skills.
* **How it can be implemented:** In the creation method of the turret object a switch could be implemented with the desired amount of turrets and stats of each and every turret.

### Increase weapon damage

* **Brief Description:** The weapon damage will be increased.
* **How it can be implemented:** The weapon damage can be increased by changing the value of the variables declared in the creation method. We could even do this configurable with an external text file.

### Indication when being attacked

* **Brief Description:** When the player is being attacked, there would be an indication of it happening.
* **How it can be implemented:** Upon receiving damage, red borders with opacity would be flashing at the sides of the screen. These borders could be made into an image file and later stored as an object and would appear and disappear when being attacked. It could even be direction based where if the attacking came from the North, the border will flash on the top and so on. Furthermore, we can even play a voice to indicate the player is hurt and would have a timer for it to be able to play it again to prevent anything annoying like, “ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, ugh, …”.

### A more complete upgrade system

* **Brief Description:** Currently for the upgrade system, there are only basic upgrades such as movement speed, player and house health points and accuracy. A more complete upgrade system will consist of increasing the weapon damage, turret health points and damage, the amount of supplies and ammo able to be collected from a crate.
* **How it can be implemented:** In the create method of every object, declare a desired variable with a fixed number, for example, “pistol\_dmg = 50;” In the upgrade menu, there will be option to upgrade the pistol damage with cost and value upgraded based on an external text file, “upgrades.json”. For example, upgrading to level 2 will increase its damage by 20 and therefore the code, “pistol\_dmg += 20;”

### Classes

* **Brief Description:** A class system could be introduced with a variation of stats and skills, for example, a scavenger class could collect more on supply and ammo crates as compared to other classes.
* **How it can be implemented:** In the player object, we could have a switch function to declare the stats before the drawing for the player object, in order words, in the create method. Upon starting the game, the selected character with the stats will be drawn and used by the player. We could even add different “image\_index” for each class.

# Improvements

## More Weapons

One of the improvements suggested was to have more weapons. Therefore, many of the play testers have requested that there should be more type of weapons, most of which requested for a RPG in the game. Many also suggested that there would be weapons such as mines and grenades that kill many zombies at once. Since most of the testers, stated that they want more weapons and it is possible for us to have more weapons in the game, we have decided to implement this suggestion.

## Implementation

One ways to implement this would be to have a weapon object that store all the information for the weapons for the player. All the information about all the weapons such as their damage range and whether they can kill more than 1 zombie. Since it would be too easy for the player to play the game if the player has all the weapons form the start. Therefore, the player would get weapons by either buying them from a gun store that would be accessed by pausing the game or by clearing the waves, after which the player would be awarded a new gun. Grenades and mines would be the only exceptions, which would be available to player since the start of the game.

## Collision problems

One of the biggest problems for our game was the fact that the collision detection when used in conjunction with path-finding caused the zombies to get stuck in certain scenarios. For example, the zombies move toward a trees, it gets stuck in the tree. Despite the fact that, there are many methods that are supposed to move the zombie away from the tree when collision is detect, none of them seem to work when used with mp-potential, the path finding function. This issues was a great deal for the game, as if the game requires the player to kill all zombies before proceeding to the next stage, if the zombies get stuck, the player cannot move on, thus forcing him to find the zombie which can be irritating as the game map is big. Causing the game’s basic mechanic of the zombie going to attack the house and the player to become affected, causing a problem during gameplay and causing the player to not enjoy the game to its fullest potential.

## Implementation

One way that this problem can be resolved would be to code our own path finding method, which would check the location in the direction of which the zombie is traveling to see if it is empty, if it is occupied, the position where the zombie need to move will deviate to the left or right depending on which one is nearer to the original position. This could be done to stop the zombie from moving into an object, such as a tree. And if the zombie does get stuck the game maker native function to move it back and loop the function in order for it to move towards the target.

## Death Scene

Another thing the game lacked was having a proper death scene. Since the team does not really have good artistic skills. Thus, making cut scene was not a priority for the team. Even though Game Maker has a timeline feature that can be used to create a cut-scene, the team decided to focus on the game rather than aesthetics since there was only 2 weeks allocated to do the game. However, now it is viable to think about doing cut-scenes.

## Implementation

One way to implement this would be to do a time-line to do a simple cut-scene for the player death animation. Personally I would like to use a video for the cut-scene but Game Maker does not support the use of video, thus the only other alternative would be to use a time-line or to have a sprite, with a lot of frame. The problem with using a sprite is that Game maker would not be able to load the number of frames required to do a simple animation, causing it to be out of memory. Therefore, the only solution would be to use a time-line.

## More Types of zombies

One improvement to the game that was suggested was to have more types of zombies. Currently, the game has 3 types of zombies that have generic traits. Like there is a small fast zombie, a big tank zombie and a normal zombie. This was appropriate for the game at the time of production, as the time frame, was really tight. However, now we can consider adding more zombies such as animal such as dog or poison zombie that do poison damage or zombie that restrict your movement.

## Implementation

Since there is already a zombie class that contains the existing zombies, the way to implement this suggestion would be to find specific types of zombies to add find corresponding sprites for the zombies. After that is done we can use the existing system to make different type of zombies spawn.

## Have weapons use different ammo

Another problem people had was that all the weapons share the same ammo. The suggestion was for each weapon to have its own ammo. This is a good suggestion, which would be necessary to do if we were to add weapons such as mines and grenades that need to be limited more compared to other weapons. Since these weapons will be some of the most powerful, it is important that they do not share the same ammo.

## Implementation

Since, there would be a weapon class the current ammo for the weapons can be stored in the control object in an ammo array. And getting ammo when an ammo cache is acquired.

Making Upgrade System More Accessible

Since most people do not know that there is a upgrade system. It would be good if we could add some indication for the player to know that there is a upgrade system form them to enhance their player. Most of the play testers never got to the upgrade section since it was only accessible via the pause menu, which is hardly used by the people.

## Implementation

The way to make the upgrade system more accessible would be to have a on screen display indicating a button that the player can press to upgrade their character. Once the button is pressed the game is paused and the room is changed to the upgrades room, where the player can buy upgrades. After which he can go back to the game using the ESC key and the game would continue from there.