

# Technical Documentation

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## 1 Classes

### 1.1 MapObjects

This class is used to create and texture various instances of map objects in the game. We used inheritance for more specific object types such as Targets and Crates.

### 1.2 Gun

The gun class defines the properties and methods that the gun uses. Such methods include firing, reloading and zooming. Also, many attributes like the current clip amount and ammuntions amount is kept track of for display by the HUD.

### 1.3 Bullet

The bullet class is used to detect collisions with its own objects and Target objects for example. It is also used for animation.

### 1.4 Player

This class is used to monitor and reflect changes in player position during gameplay.

### 1.5 Text

This class is used to facilitate the creation of text in our game. It is primarily used by the HUD functions to show critical data to the player.

## 2 Level Design

### 2.1 Textures

Our textures were primarily taken from <http://cgtextures.com/> , they were used for everything from the sky, to the ground and crate objects.

## 2.2 Experience

We tried our best to create simple, challenging environments that involved dynamically moving targets, as well as static obstacles such as hedges, crates and walls.

## 3 Sound and FX

The theme music used was an original composition by Christo Mitov, subsequent sound effects were taken from a variety of third party sources.

## 4 Physics and Animation

Nathan Krueger was responsible for the mathematically intense calculations performed in the background to calculate bullet trajectory based on factors such as wind speed, direction, and player orientation.

## 5 Problems

We had major issues with collision detection. We couldn't find a good speed for the bullet that would still allow detection with the targets. Thus, the bullet is now at a slow unrealistic speed, and the game is far from what we imagined it to be due to deadlines.

## 6 Conclusion

This was an interesting project offering much insight into the woos and realities of real game developers in the industry. Nathan and I concede that it is quite a difficult endeavour however we put forth our best effort in programming and developing a simple shooter.