Main Loop  
The main loop in our game will consist of the following functions:

1. Process player input

This step would check input to see if any buttons were pressed or input was received. This can be done on multiple input controllers. We will create a polling driven loop, which will listen to any of the buttons that are tied to actions, which could then lead to an action.

1. Communicate with multiplayer server

Save the position, rotation and any potential action that is possible via actable objects. This will not take into account static objects that cannot move, in order to save packet size. This will include players.

1. Update object/player positions

This step will update the position and rotation of all movable objects, including players.

1. Run artificial intelligence

Update enemy and player artificial intelligence. This will include things like auto-attacking nearby units, and all actions for the enemy AI.

1. Update animations

This loop will go through all of the individual units on screen and proceed 1 step, at a time, for their animation frame. This loop will be time dependent, as we do not want an increase framerate to speed up the rate of animation.

1. Update physics

This loop is similar to the update animation loop, in that it will be time driven and not frame driven. It will treat all of the actors in the game together and check for collisions based on distance between two objects:  
  
for(int i =0; i < numItems-1; i++)

for(int j = i; j < numItems; j++)

checkCollision(i,j);

1. Simulate world

This function will be an update function for all of the objects in the world that are not directly physics driven. This can include active objects being spawned from a non-active object (such as a leaf falling using gravity, being spawned from a tree that is immovable and not subject to physics)

1. Render scene

The render scene function will take into account what is visible in front of the camera, given an input (field of view), and only render those items to the screen.

1. Play music

This will play the background music throughout the game, including menus, title screen, ending screen and any in-between.

1. Play sound effects

This will have a listener awaiting to be called by any object in the level. Once it receives a call, it will receive a reference to a sound file to be played, and play it when it is instructed to.