Stellar Bombardment

The Game: Stellar Bombardment

Main Character: Ko'lek Torval

Antagonist: Xenon invaders

Goal: To liberate the Solas Moon colony from its Xenon oppressors. By making your way to the end of every level to reach the village. A secondary goal to defeat as many enemies as possible throughout these levels.

The game Stellar Bombardment is a low gravity Two-Dimensional platformer which contains multiple levels and an interesting story. The game will contain a laser mechanic to capture the Xenon beasts it will also feature high-speed movement and low gravity intense fighting. The game will be coded by Owen Brake in Java using the IDE Eclipse and the engine LIBGDX I will also use a program called Tiled for designing levels and use sprites from the internet for levels and characters. The game will have a main focus on game mechanics, however, it will have a story intertwined and finally, old school 32x32 graphics which will mess with the dark space background and level design.

Stellar Bombardment is a fast paced and intensive game, it will take a lot of work to finish the game and may never be finished due to its ambitious objectives. But the base idea of the game is to have the player be a sort of astronaut warrior who shoots plasma to capture the enemies. It is much like the game mega man but more intense and low gravity. The game will feature a story built in with a level select system and a conclusive ending to the game. This game is being made first of all for me to learn and improve my programming abilities but also to create a polished finished game. I also have never created a game with an actual story and hope to learn from building cut scenes and dialogue between characters. Finally not only is this a game it also has a learning aspect to it with many physics and mathematical lessons.

The story will be integral to the game, it will give the player a reason to continue playing and reach the Solas colony. The story begins with a human colony on the Solas moon who get invaded by an ancient people known as the Xenon who wish to expand their empire and eradicate the humans. A distress call is sent out and the astronaut Ko’lek Torval is sent to remove the Xenon people from Solas and reclaim the moon colony. The player will be sent through many levels finding ruins of homes, buildings, and structures from a past time. However, as he progresses he finds no sign of his own people of the human species and by the end, there is a twist ending. The distress call was a trap and the Xenon people surround the player with an epic fight eventually, the hero is victorious with nothing left alive on the planet the screen fades to black setting up a future sequel. Concluding an epic game however the game is not solely just story the story will be built off of the code, the mechanics of the game will improve the story and make it what it should be.

Java is a great language for beginners and experienced developers its syntax is similar to many other industry standard languages like C++, C and the new Swift language for IOS. Java is nice because you can easily deploy too many platforms without altering much of your base code. I am also fairly familiar with Java and have used it in the past for making small games and applications but not on this scale. I also used LibGDX a game engine for Java this engine provides developers with many tools that would be painstakingly tedious if they were made from scratch. Including collision detection which is a very hard thing to do and LibGDX handles it wonderfully it would take a lot of hard work and hours to make a collision detection that worked, however, LibGDX uses a framework called Box2D which allows the developer to simply draw boxes or other shapes around objects as a hit detector. Another thing LibGDX does is it creates a camera instead of drawing everything, this is fantastic for developers and you should always have some sort of camera in your game because it is necessary if you want your player to move off screen or have the screen move it is required and LibGDX does this easily you just create a camera and choose what to draw for it. Finally, we have physics this was a major issue for me when I was planning out this whole game having realistic low gravity physics would take a lot of work in vanilla Java however LibGDX has a built in gravity function and calculates velocity and jumping for you. Overall I fell using Java and LibGDX in tandem was a great idea and would definitely use it again in the future.

This game utilizes physics and math a lot for all sorts of things like jumping, movement, and gravity. Though the engine handles gravity we still have to configure how gravity acts and its effect on objects. For example we can find the gravitational force between the moon and the planet it is orbiting by making some assumptions like since the gravity of the moon is half of the earths (9.81) we will assume the radius and mass of the moon is about half of the earth's so 3185.5km in radius and 2.986e+24 kg, also the distance between the Solas moon and its planet are the same between our moon and the earth. Now with the formula Force=GM1M2/R2 now with the equation we do Force = (6.6726 x 10-11N-m2/kg2) multiplied by the mass of moon 2.986e+24kg and the mass of the Earth 5.972 × 10^24 kg divided by the distance between the earth and moon 384,400 km. Now we solve for that and we get 8.07x1021 Newtons so that is the gravitational force between the Solas moon and its earth like counterpart. Now we know complex physics and can apply that to a whole bunch of other astrophysics areas we can also do things like figuring out the radius of the planet with r = √GM/A and how it could affect other objects in the solar system. Not only is there astrophysics we can figure out how tall the character is what the player mass and how fast he moves the choice is up to the learner and how ambitious and creative they can be.

Overall Stellar Bombardment is a great game in its current unfinished state but has a lot more potential and will grow to become a more polished and unique game. The story will force the user to continue playing and gameplay will be intense, quick and fun. I believe that with a hard work and many hours Stellar Bombardment could become a great game and potentially a great learning tool.