CSC413[01] – Term Project – Tank Game

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Upon having completed the original Wing Game, it was a fairly simple task converting it into the tank game. As I look back, our actual assignment was not to build a game but to build a game engine capable of running two different games. Once I was able to change all of the skins over, the game looked fairly close to the final version. There are a few changes to the Wingman source code that I would like to go over.

1. In order to build a proper game map, I had to implement a method of translating a text file into a map. I achieved this by creating a spreadsheet and exporting it as a space delimited csv file. This file was then read by the game and objects were put on the map depending on what number was read by the buffered reader.
2. Since the tanks and bullets were now moving in multiple different directions, some math had to be used. I applied basic trigonometric function properties in order to achieve proper placement of tank and bullet components.
3. Instead of loading multiple tank images, I implement the AffineTransform class which rotated images for me.
4. Once the general layout of the map was complete, the final touches included setting multiple different views. This included a zoomed in view of player 1's tank on the left, player 2's tank on the right, and a scaled down version of the map at the bottom center which served as a minimap. Creating these images separately was fairly easy using the getSubImage, and getScaledInstance methods. The tough part came when attempting to display them all on the screen. Eventually I had figured out to create an additional Graphics object named “temp” which would stitch the three images together and show them on the screen.

I was able to reuse several classes from Wingman.

1. Sound
2. Explosion
3. HUDelement

A couple of classes needed small changes in order to make them work properly.

1. Bullet – add directional update, and tank-against-tank collisions
2. Wall – most code taken from Island class. Removed ability to move, added collisions for tanks and bullets.

Other classes needed significant changes.

1. Tank – Directional key presses and their translation into tank movement.
2. TankGame – multiple new image objects added. Modified draw method for screen display changes.

This has been a very huge learning experience for me. I learned what approaches to take when code reusability has to be taken into account, how to do multithreading in Java, and general GUI development which I had not done till this point in time. Video games are a great way to teach proper programming techniques and I hope to continue this in the future.