Hoth Defence Game Report

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BACKSTORY

Daring escape! The rebellion's base on Hoth has been compromised and is in full evacuation. You must hold off the Empire's waves of fighters and bombers long enough for the rebels to escape safely. You're the best ace pilot that is up to the task. Will you ensure the rebellion lives to fight another day or will the dark grasps of the Empire spread throughout the galaxy?

CONTROLS AND GAMEPLAY

The player can be controlled using WASD or Arrow Keys. SPACE is the shoot button.

To win the game, the player must survive 25 waves of fighters and bombers trying to make their way to the base on the planet's surface. If a fighter makes it through, the base health will decrease by 1. If a bomber makes it through, the base will lose 2 health. If the base is reduced to 0, the game will end in a loss. Similarly, if the player loses their health, the game will be over as well. Throughout the game, a Repair power up will occasionally spawn which will restore player health. If a player gets this power up while on full health, the ship's shields will activate granting an additional layer of protection.

All vital information is displayed to the player via overlayed UI on the screen.

The player shoot speed is restricted so it is not possible to continuously hold down SPACE and "spam" lasers at a high rate.

When a player is damaged, the event is indicated by the sprite flashing and the health count dropping.

The first wave is a tutorial wave featuring asteroids which don't reduce the base health if they get through. This wave acts as a way for the player to familiarise themselves with the controls and get an idea of player movement speed and shooting speed.

If an enemy is reduced to low health, that state is indicated to the player with a change in sprite to one of several damaged varieties. The different enemy types have different attack patterns and behaviour. The standard TIE fighters move faster and shoot at a higher frequency. Their bullets are also quicker when compared to the bomber. The bomber only shoots one slow moving bullet compared to the 2 the TIE fighter shoots.

Enemies can enter the screen in a variety of formations, some more challenging to defeat than others. All of these formations are randomly picked so not every playthrough is the same. Some formations feature bombers while others do not. The game also gets more difficult in the later waves as the easier enemy configurations are removed from the pool of possible spawn formations.

Events in the game have accompanying sound effects. These include the explosion of an enemy, player shots, enemy shots, audio indication of a wave beginning and powerup pickup. Each section of the game also features music to set the scene and mood for the current event. There is individual music for the start menu, the gameplay, victory screen and 2 different loss screens (one for when the player dies and the other for when the base loses all health). All of this is done via the Music.java class found in the util folder.

Note: The audio in the recording of gameplay is quite crackly gand breaks up from time to time. This isn't the case in the live play of the game.
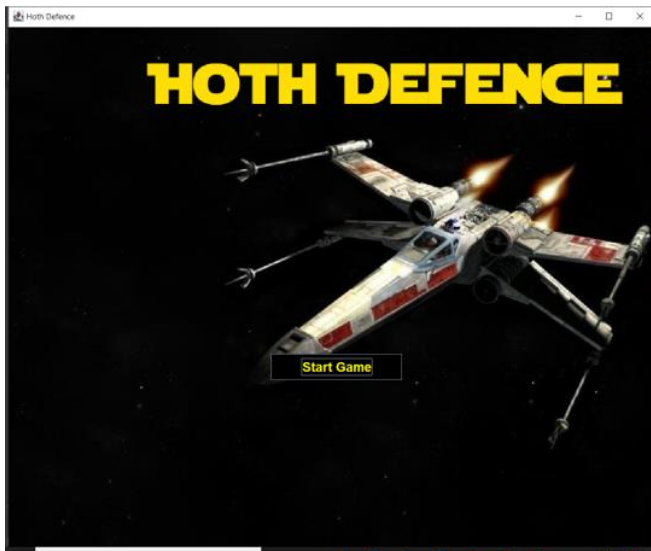
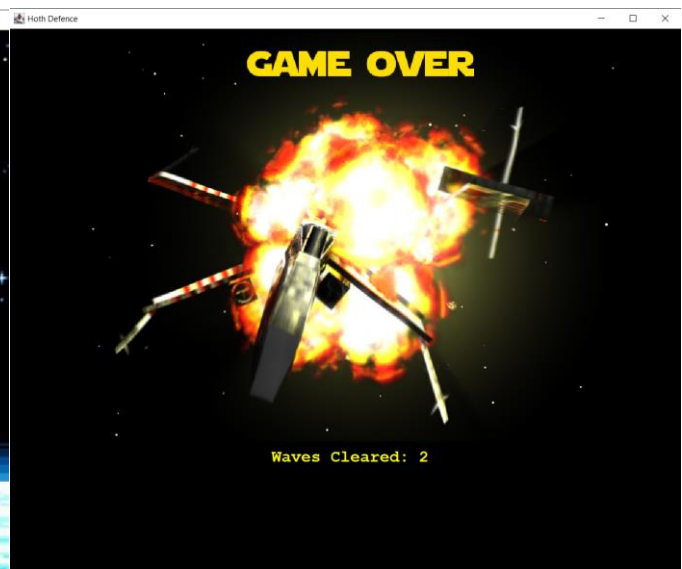Start Screen: Gameplay Screenshot:

Repair Pickup: Lose Screen if player loses all health:

Gameplay Screenshot: Victory Screen:

REFERENCES FOR ASSETS USED

Player Sprite: https://www.pngfind.com/mpng/hJmJbhb_x-wing-red-x-wing-pixel-art-png/

Asteroid sprite: https://opengameart.org/content/brown-asteroid

Main menu Music: https://www.youtube.com/watch?v=bOYdk1UY5o8

Win Music: https://www.youtube.com/watch?v=xp7NFak7eII&t=1s

Lose Music 1: https://www.youtube.com/watch?v=PgaMXwOF7MQ

Lose Music 2: https://www.youtube.com/watch?v=jRpPp0RCh-4

Code for song player: https://stackoverflow.com/questions/6045384/playing-mp3-and-wav-in-java

Game Music: https://www.youtube.com/watch?v=Zdygj7jVpY4

Start screen image: https://wallpapercave.com/w/wp2329339

Background image: https://wallpapercave.com/w/wp7872562

Laser sprite: https://kevinbagtas.wordpress.com/original/

TIE sprite: http://pixelartmaker.com/art/8ebedec01a2d550

Sound effects for X-Wing and TIE fighter flying: http://www.sa-matra.net/sounds/starwars/

Sound adjust code: https://www.codegrepper.com/code-examples/java/how+to+control+clip+volume+java

Star Wars font: https://fontmeme.com/star-wars-font/

R2D2 sound: https://www.101soundboards.com/boards/10634-r2-d2-sounds-star-wars

Explosion sprite: https://opengameart.org/content/pixel-art-explosion-animation

Lose screen 1: https://www.deviantart.com/canisloopus/art/X-Wing-Explosion-27898728

Lose screen 2: https://www.wired.com/2013/02/battle-of-hoth/

Explosion sound: https://www.youtube.com/watch?v=gzwq0ue2qJ8

Bomber sprite: https://www.pinterest.ie/milkmanofdoom/roll20-figures/

Website used for pixelation: https://giventofly.github.io/pixelit/

Website used to download videos and convert to .wav: https://loader.to/en75/youtube-wav-converter.html

ADDITIONAL WORK DONE WITH ASSETS

All image editing was done using Gimp and sound editing done using Audacity.

-All the song and sound effect files had to be converted to .wav files and downloaded.

-In some cases, the sound effect/song lengths and volume had to be adjusted.

-The original asteroid image was converted into a sprite sheet.

-Most of the loss/victory and background images had to edited and scaled to suit their uses in the game.

-All screens/images that include Star Wars style font were edited to contain the font which was sourced from a separate website cited above.

-Both TIE fighter and bomber sprites were copied and edited to create several damaged variants used in the game when enemy health is low.

-The original bomber sprite had to be pixelated to suit the style of the game.

-The player sprite was edited to give the appearance of a blue shield around it.

-The original laser image had to be scaled and edited.

-The laser sprite was copied and edited to a green shade to be used as enemy bullets.