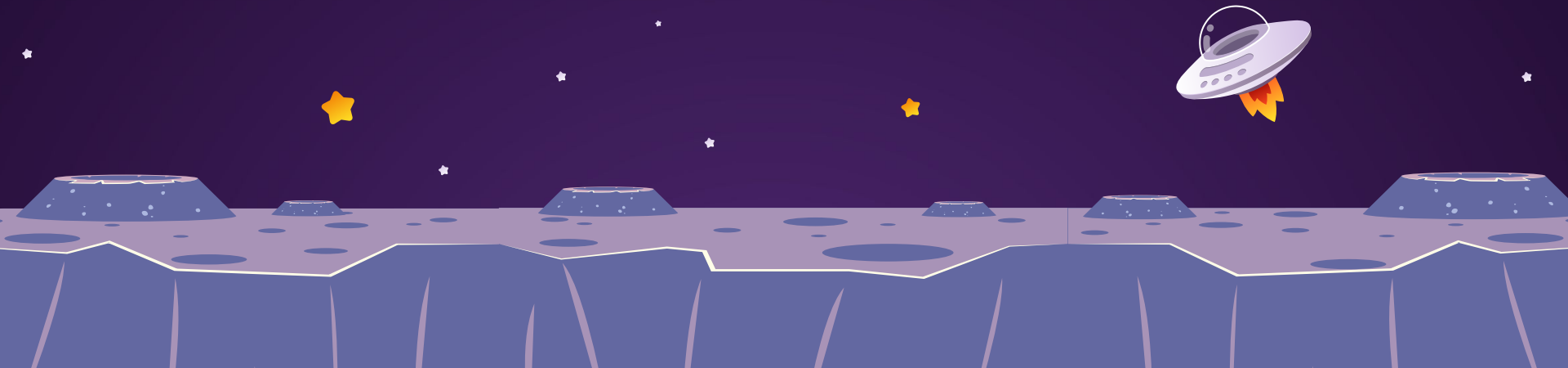# RetroGa

By: CTRL-ALT-ELITE

We Finished But It Ain't Pretty

What Went Well

Audio System

- Level based music creates great atmosphere and progression feel
- Audio persists smoothly when navigating between menu pages
  - Created persistent audio system , using a SPA Router for seamless music across page navigation
- Fade in effect on intro music
- All sounds are timed perfectly with in game events
- Handled Browser autoplay restrictions (Firefox / Safari)

```
/**
 * Plays level-appropriate background music based on current level.
 *
 * @param {number} level - Current game level
 * @param {boolean} [fade=false] - Whether to fade in the music
 */
Tabnine | Edit | Test | Explain | Document
playLevelMusic(level, fade = false) {
  let musicName;

  if (level >= 1 && level <= 2) {
    musicName = 'background-music-1-2';
  } else if (level >= 3 && level <= 4) {
    musicName = 'background-music-3-4';
  } else {
    musicName = 'background-music-5';
  }

  console.log(`🎮 Level ${level} → Playing: ${musicName}`);
  this.playMusic(musicName, fade);
}

/** Plays the game over background music */
Tabnine | Edit | Test | Explain | Document
playGameOverMusic() {
  console.log('💀 Playing game over background music');
  this.playMusic('game-over-background');
}

/** Plays the player shoot sound effect. */
Tabnine | Edit | Test | Explain | Document
playShootSound() {
  this.playSound('player-shoot');
}

/** Plays the enemy kill sound effect. */
Tabnine | Edit | Test | Explain | Document
playKillEnemySound() {
  if (!this.enabled) {
    console.log('Audio is disabled');
    return;
  }
```

Overall Aesthetics

- Visual design matches retro aesthetic perfectly
  - Retro style screen with scanlines and glitch effects
- Glitch animation on "Game Over" text looks authentic
- Score display with glowing effects stands out
- Smooth transition from game to game over screen
- localStorage persists score perfectly
  - Stored game stats in localStorage

Local Storage

- Used for storage of :
  - Coins
  - Skins
  - Scores
- Saves users progress, so they are able to return to the game without restarting.

```
function markOwned() {
  localStorage.setItem(ownedKey, 'true');
  btn.textContent = 'Owned';
  btn.disabled = true;
  if (msg) msg.textContent = '';
}

// Initial ownership check
if (localStorage.getItem(ownedKey) === 'true') {
  markOwned();
  return;
}

btn.addEventListener('click', () => {
  const coinCount = Number(localStorage.getItem('coinCount') || 0);
  if (coinCount >= price) {
    // Deduct coins and set ownership
    const newCoins = coinCount - price;
    localStorage.setItem('coinCount', String(newCoins));
    markOwned();
  } else {
    if (msg) msg.textContent = `Not enough coins (need ¢${price}).`;
    // Small accessibility hint
    btn.setAttribute('aria-disabled', 'true');
    setTimeout(() => btn.removeAttribute('aria-disabled'). 1200):
```

```
console.log(
  'squarePackOwned:',
  localStorage.getItem('squarePackOwned')
);
console.log('starPackOwned:', localStorage.getItem('starPackOwned'));
console.log('profOwned:', localStorage.getItem('profOwned'));

function addSkin(skinId, name, desc) {
  const owned = isSkinOwned(skinId);
  console.log(`Checking ${skinId}: owned = ${owned}`);

  if (!owned) return;
```

Github

- Over 30 git issues, and nearly 300 commits.
- We planned and pushed, keeping new code small and documenting any changes done.

Open 2   Closed 33   Author ▾   Labels ▾   Projects ▾   Milestones ▾   Assignees ▾   ↓ Newest ▾

FPS Testing `Testing`
#39 · by RoysHaynes was closed 4 days ago

Add a Prettier and Linter `Style`
#38 · by RoysHaynes was closed 4 days ago

Implement E2E Testing `Testing`
#37 · by RoysHaynes was closed 4 days ago

Vitest for Unit and Integrated Testing `Testing`
#36 · by RoysHaynes was closed 4 days ago

Implement GitHub Actions CI/CD Pipeline `CI/CD`
#35 · by RoysHaynes was closed 4 days ago

Offline accessibility `enhancement`
#32 · by jkelley678 was closed 3 days ago

local storage and saving infromation `enhancement` `feature`
#31 · by jkelley678 was closed 3 days ago

Score increasing as levels progress. `feature`
#30 · by jkelley678 was closed 3 days ago

Gable0   update running prettier after the audio worked in pages ✓   a32e860 · 46 minutes ago   🕐 296 Commits

📁 .github/workflows	feat: ran prettier	4 days ago
📁 .idea	shooter test	last month
📁 ADR	Ran npm run format:fix	3 days ago
📁 Demos	update: renaming hompage.html to index.html, making the ...	1 hour ago
📁 Docs	update: running prettier after background fix	1 hour ago
📁 assets	update: fixing git pages audio	1 hour ago
📁 js	update running prettier after the audio worked in pages	46 minutes ago
📁 playwright-report	Chore: fixed fps testing	3 hours ago
📁 test-results	Chore: fixed fps testing	3 hours ago
📁 tests	update: powerups only drop 10% of the time, and only last f...	4 days ago
.eslintrc.json	Fixing bugs with prettier	4 days ago
.gitignore	update: makeing the gitignore more secure	2 weeks ago
.prettierignore	Fixing bugs with prettier	4 days ago
.prettierrc.json	fix: format code with Prettier	4 days ago

Extensive testing

- We had extensive testing, making sure our software ran properly.
- Kept test separated, grouping similar tests together. Easy to navigate.
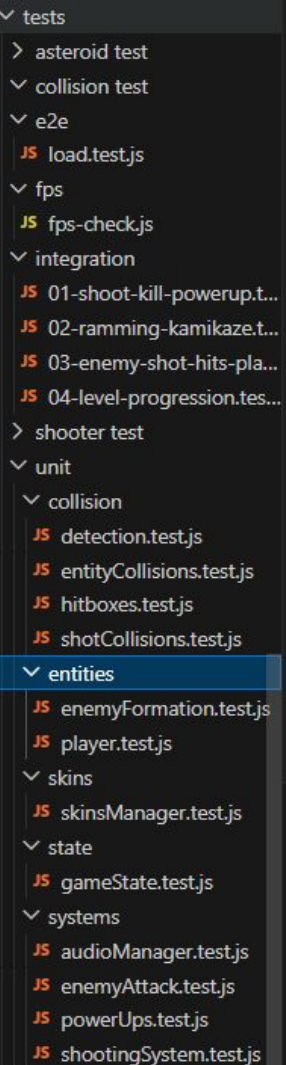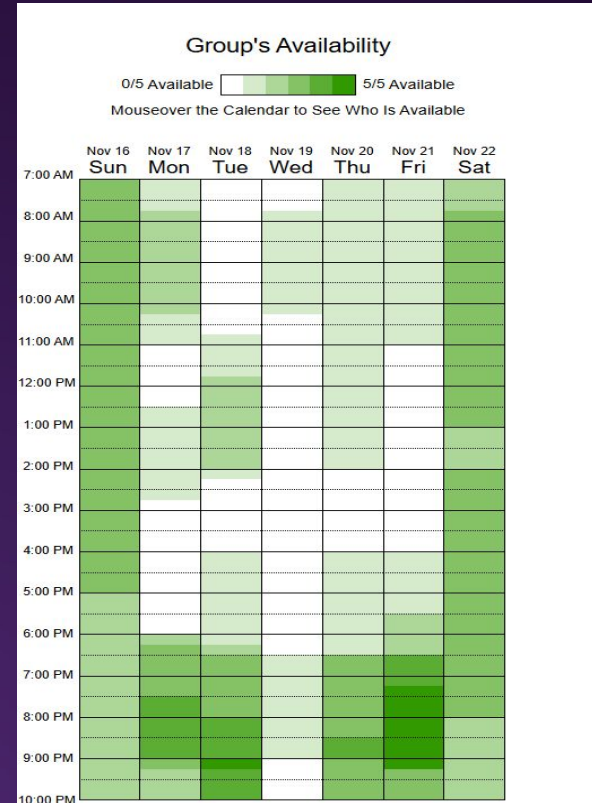
What We Could Improve On

Team Meetings

- Our schedules just did not aline

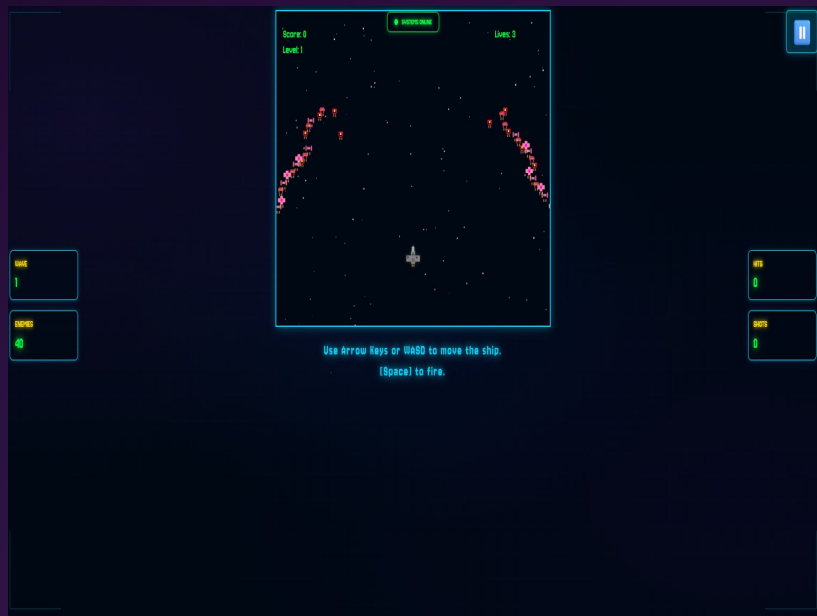Group's Availability

Only Base Game

- Missed Features:
  - Multiple Firing modes
  - Different enemy patterns
  - More skins
  - Fun Mode
  - Many others

Game Container is Pixels


```html
<main>
  <canvas
    id="game"
    width="800"
    height="600"
    aria-label="Galaga playfield"
  ></canvas>
  <section id="status">
    <p translate="moveInstructions">
      Use Arrow Keys or WASD to move the ship.
    </p>
    <p translate="fireInstructions">[Space] to fire.</p>
  </section>
</main>
```
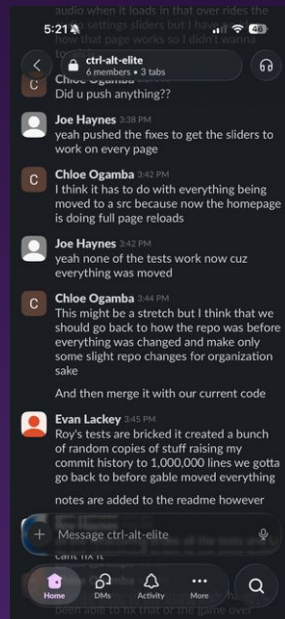
Magic Numbers


```
function generateEntryPath(finalX, finalY, fromLeft, columnIndex) {
  if (!canvasRef) return [];
  const horizontalBias = canvasRef.width * 0.15 + (columnIndex % 3) * 20;
  const startX = fromLeft ? -80 : canvasRef.width + 80;
  const midX = fromLeft ? horizontalBias : canvasRef.width - horizontalBias;
  const midY = canvasRef.height * 0.3;
  const loopY = canvasRef.height * 0.55;
  const turnX = canvasRef.width / 2 + (fromLeft ? -90 : 90);

  return [
    { x: startX, y: canvasRef.height * 0.8 },
    { x: midX, y: midY },
    { x: turnX, y: loopY },
    { x: turnX, y: finalY - 40 },
    { x: finalX, y: finalY },
  ];
}
```

The Great Refactor (Repo Organization)

.claude
.github
.idea
ADR
assets
Demos
Docs
js
node_modules
playwright-report
test-results
tests
.eslintrc.json
.gitignore
.prettierignore
.prettierrc.json
audio-player.html
audio-router.html
difficulty.html
eslint.config.js
game.html
index.html
leaderboard.html
LICENSE
package-lock.json
package.json
playwright.config.js
service-worker.js
shop.html
skins.html
styles.css
vitest.config.js

ctrl-alt-elite — 6 members • 3 tabs

3:59

Roy Haynes

Chloe Ogamba 3:46 PM
It broke some of the sound and I haven't been able to fix that or the game over screen

Joe Haynes 3:47 PM
the game over screen should also be moved out of demos because it is a part of the game

Chloe Ogamba 3:48 PM
I tried to do that but it broke more stuff. If we go back to how the repo was before, I can def move it out and correct the paths without breaking anything (edited)

Chloe Ogamba 3:54 PM
Is it possible to go back to the old repo??

Joe Haynes 3:54 PM
I think someone just needs to reorganize again and we fix all the pathing instead of revert because we're gonna lose all the minor fixes we did

Evan Lackey 3:56 PM
@Gable Krich We gotta go back to the old structure, can you manually move them back or bring main back to the old version pre-refactor?

Message ctrl-alt-elite

Home   DMs   Activity   More   Search

5:21

ctrl-alt-elite — 6 members • 3 tabs

Chloe Ogamba
Did u push anything??

Joe Haynes 3:38 PM
yeah pushed the fixes to get the sliders to work on every page

Chloe Ogamba 3:42 PM
I think it has to do with everything being moved to a src because now the homepage is doing full page reloads

Joe Haynes 3:42 PM
yeah none of the tests work now cuz everything was moved

Chloe Ogamba 3:44 PM
This might be a stretch but I think that we should go back to how the repo was before everything was changed and make only some slight repo changes for organization sake

And then merge it with our current code

Evan Lackey 3:45 PM
Roy's tests are bricked it created a bunch of random copies of stuff raising my commit history to 1,000,000 lines we gotta go back to before gable moved everything

notes are added to the readme however

Message ctrl-alt-elite
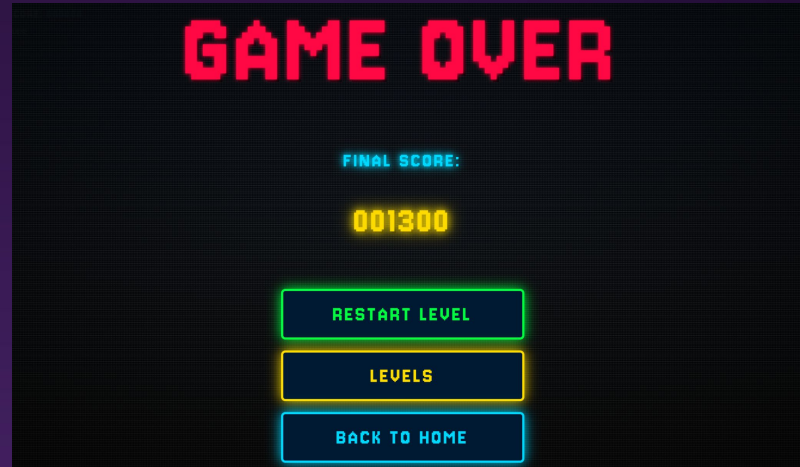
Home   DMs   Activity   More   Search

Audio & SPA Router

- Browser autoplay blocking
  - Inconsistent behavior across browsers
- Audio skipping during page navigation - biggest challenge
  - SPA
    - Intercept Clicks
    - Fect Content
    - Swap Content
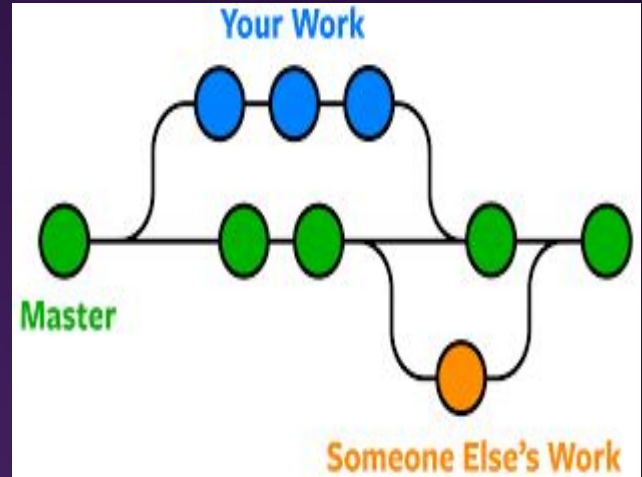
Page Navigation & CSS

- Navigation causing full page reloads
- Style conflicts
- Audio continuity issues
- Timing issues

Branch Issues

- We did some branching, but mainly relied on pushing directly into main. This allowed us to all have "free reign"

- Implementation of branching = protection.

No Mobile Capability

- We spent so much time trying to dig ourselves out of the hole we created that this game is really only good for laptops.
- We had wanted to make it compatible on mobile devices since the beginning, but never came to.
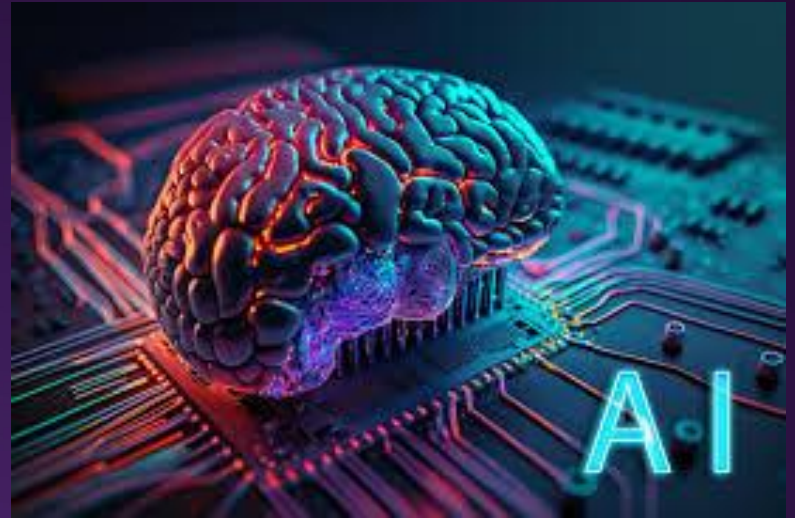
What Did We Learn
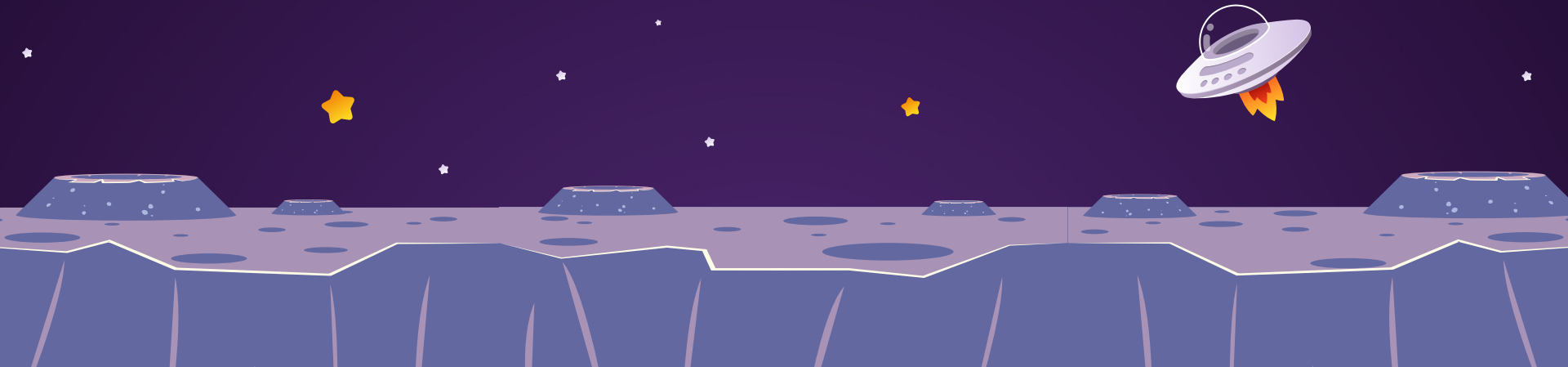
AI as a Tool

- It's only a tool if you know how to use it
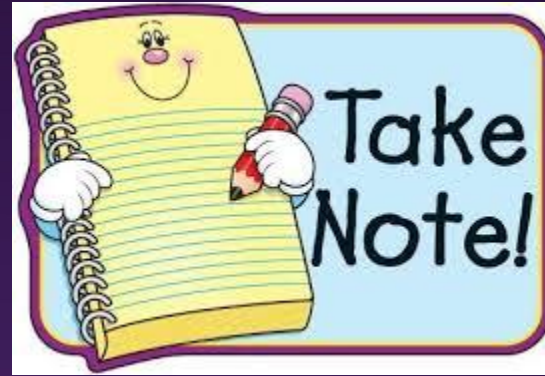
- If not it does more harm than good

Working in Teams

- Communication is Key

- Slack settings are god awful and it took us a while to realize

- Differing schedules was killer

Doc Generation

- It's not fun to do docs but they are absolutely vital to organization

- Every little thing that's changed needs to be documented

Learning the Hard Way

- It took failing at every facet of this final project to beat into our heads the importance of every lab we did up to this point

Time Management

- We dragged our feet a lot in the beginning which caused a lot of delays
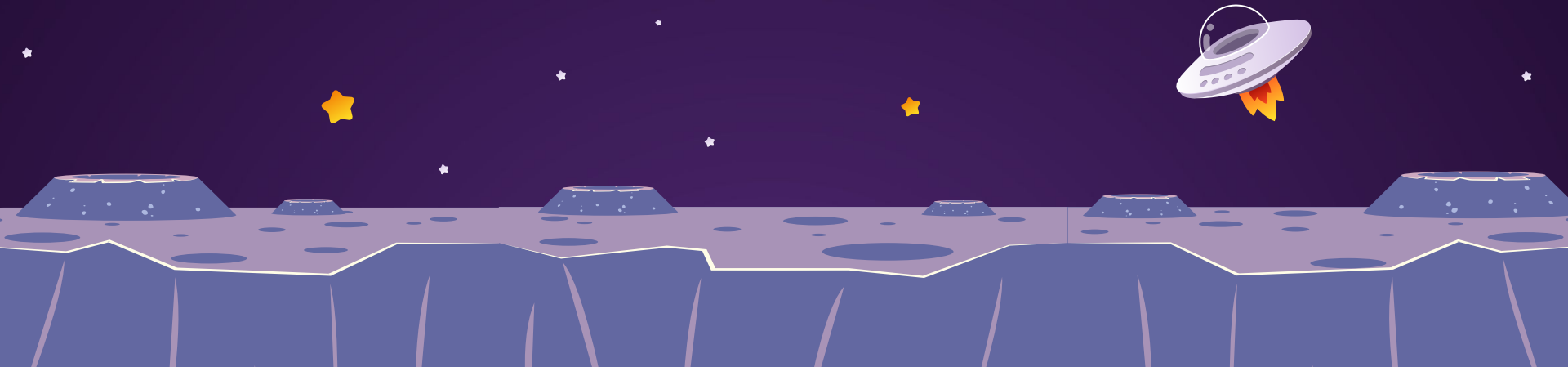- Caused a lot of creative ideas that we had, had to be scratched

Planning

- Better plan out our sprints
- Each person having an assigned task and having regular check ins

Future Features

Future Sprint Features

- More skins for user
- More skins for enemies
- Enemies joining the user
- Fun Mode Sound
- Themes
  - "Top Gun"