

# StarBlaze

## A Retro Space War Game

"Defend the Galaxy. Relive the Nostalgia."

### Minor Project Presentation

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# Introduction

- **StarBlaze** is a **retro-style** space shooter game inspired by classics like **Space Invaders** and **Galaga**.
- The **player controls** a spaceship **defending** Earth from waves of alien **enemies**.
- We wanted to **recreate** old-school arcade **nostalgia** using modern **web technologies**.
- Entirely coded with **HTML5 Canvas, CSS, and Vanilla JavaScript**.



Space Invaders



Galaga

# How The Game Works?

- Player moves the spaceship left and right using arrow keys. ←→
- Spacebar or up key fires laser bullets upward. ↑
- Enemies descend from the top – destroying them increases score.
- Avoid enemy bullets or collisions – losing all lives ends the game.
- Objective: Survive and score as high as possible.



# Technology Stack

- For **structure**, game **canvas** and **UI** layout using **HTML5**.
- For **styling**, retro **theme**, starry **background**, and **animations** using **CSS3**.
- For **logic**, player **controls**, enemy **movement**, **collision** using **JavaScript**.
- For **audio**, **shooting**, **explosion** and other sound effects using an **Audio API**.
- For **data** of scores, **saving** and **displaying** high scores using **LocalStorage**.



# Game Architecture

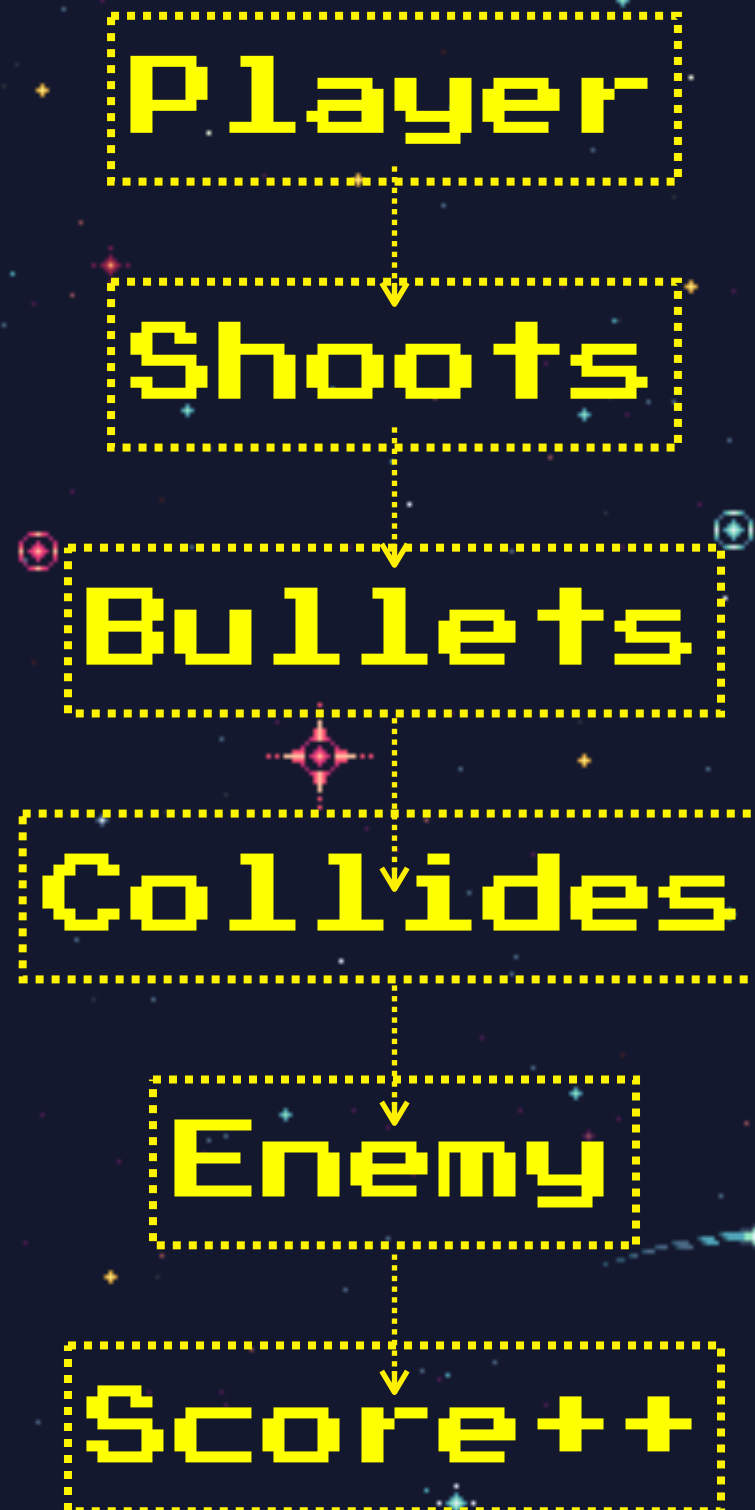
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- The game runs inside an **HTML Canvas** element.
- **JavaScript** controls every frame using **requestAnimationFrame()** for smooth animation.

## Main Components:

- **Player Object:** movement, shooting
- **Enemy Objects:** spawn, move, detect collisions
- **Bullet Array:** tracks all fired bullets
- **Collision Detection:** checks overlap between bullets and enemies
- **Game Loop:** continuously updates positions and redraws frame

# Block Diagram



# Retro Visuals & Feels

## Content:

- **Pixel-art** inspired design using **8-bit graphics**.
- **Color palette:** BlackMidnight Blue, Red, Green, Yellow, White, Blue.
- **Font:** Press Start 2P (From Google Fonts).
- **Parallax** star background for **motion effect**.
- Smooth **explosion animations** using **CSS transitions**.





# Tentative Visuals

\*Not the final visuals. Image used for representative purposes only.

LIVES



ENERGY



SCORE

0961450





# Key Features

- 🚀 Smooth spaceship controls
- 💣 Shooting and explosion effects
- 🤖 Multiple enemy waves
- ★ Scoring and High Score display
- ❤️ Lives and Game Over system
- 🔊 Background music and sound effects
- 🖼️ Retro visual effects (Starry Field, Pixelated extravaganza)

# Goals Of This Project

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- Successfully building a nostalgic space shooter using web technologies.
- Gaining hands on experience with:
  - Game loops
  - Canvas rendering
  - Collision detection
  - Audio integration
  - Team collaboration
- Future Enhancements:
  - Boss fights and power-ups
  - Mobile-friendly controls
  - Multiplayer mode via Websockets

# Thank you

A Presentation by Ritwik Upadhyay