# XML-Style Prompt: Space Shooter Game Development

<prompt>  
 <title>Galaxy Defender — Full Feature Specification</title>  
 <summary>Build a browser-based canvas game (HTML/CSS/JS) called "Galaxy Defender" with modern HUD, mobile controls, aliens, bosses, nebula background, and polished visuals. Open-ended progression; final victory at 100 points.</summary>  
  
 <requirements>  
 <platform>Web — single HTML file (index.html) using Canvas API; no external assets required (procedural canvas graphics).</platform>  
 <deliverable>Complete, self-contained code: HTML, CSS, JS; mobile-friendly responsive canvas; high-DPI support.</deliverable>  
 </requirements>  
  
 <controls>  
 <mobile>  
 <leftRight position="bottom-left" layout="horizontal">  
 <button>LEFT (◀)</button>  
 <button>RIGHT (▶)</button>  
 </leftRight>  
 <fire position="bottom-right">  
 <button>FIRE (●)</button>  
 </fire>  
 <notes>Buttons are transparent (low opacity) and must not obstruct gameplay visuals; still fully tappable.</notes>  
 </mobile>  
 <desktop>  
 <keys>ArrowLeft, ArrowRight, KeyA, KeyD for movement; Space for fire</keys>  
 <canvas>Tap/click to shoot or start when overlay is visible</canvas>  
 </desktop>  
 </controls>  
  
 <player>  
 <ship>  
 <style>Triangular fighter</style>  
 <features>  
 <cockpit>Glowing radial cockpit</cockpit>  
 <wings>Wing extensions</wings>  
 <engine>Animated engine flame that pulses</engine>  
 <movement>Left/right with subtle tilt animation</movement>  
 </features>  
 <projectile>Glowing laser beam (single by default)</projectile>  
 </ship>  
 </player>  
  
 <enemies>  
 <normalAliens>  
 <appearance>Dangerous, glowing multi-lobed / tentacle-like creatures with eyes</appearance>  
 <colors>Varied (lime, purple, red hues)</colors>  
 <behavior>  
 <movement>Vertical descent with slight sway and bobbing</movement>  
 <shooting>Some aliens can shoot aimed plasma orbs at player (random subset)</shooting>  
 <spawnRate>Adjustable spawnInterval; difficulty scales every 20 points</spawnRate>  
 </behavior>  
 </normalAliens>  
  
 <bosses>  
 <spawnThresholds>20, 40, 60, 80, 100</spawnThresholds>  
 <finalVictoryAt>100 points (defeat final boss to win)</finalVictoryAt>  
 <commonMechanics>  
 <health>Large health pool with visible boss health bar in HUD</health>  
 <movement>Side-to-side with gentle oscillation</movement>  
 <attacks>Multiple plasma volleys, patterns vary by boss</attacks>  
 <reward>Defeating a boss grants +5 score bonus and +1 life</reward>  
 </commonMechanics>  
  
 <boss id="1" name="Tentacle">  
 <appearance>Large pulsing tentacle blob; many tentacles; purple/green glow</appearance>  
 <healthFormula>~70 HP (scale per level)</healthFormula>  
 <pattern>Fans + slow projectiles</pattern>  
 </boss>  
  
 <boss id="2" name="Skull">  
 <appearance>Alien skull with red aura and teeth</appearance>  
 <healthFormula>~100 HP</healthFormula>  
 <pattern>Aimed heavy shots</pattern>  
 </boss>  
  
 <boss id="3" name="Warship">  
 <appearance>Mechanical warship with cannons</appearance>  
 <healthFormula>~140 HP</healthFormula>  
 <pattern>Volleys from multiple cannons</pattern>  
 </boss>  
  
 <boss id="4" name="Hybrid">  
 <appearance>Alien-mech hybrid (organic + plated)</appearance>  
 <healthFormula>~180 HP</healthFormula>  
 <pattern>Combined aimed shots + circular bursts</pattern>  
 </boss>  
  
 <boss id="5" name="Final">  
 <appearance>Massive hybrid final boss — highest HP and complex patterns</appearance>  
 <healthFormula>~260 HP</healthFormula>  
 <pattern>Multi-pattern: aimed, bursts, circular spreads</pattern>  
 </boss>  
 </bosses>  
 </enemies>  
  
 <visuals>  
 <background>  
 <stars>Three parallax layers (far, mid, near) with differing speeds and sizes</stars>  
 <nebulas>Layered radial nebula gradients; hue shifts over time; gentle drift</nebulas>  
 </background>  
 <effects>  
 <explosions>Small particle-based explosions with HSL color variety</explosions>  
 <glow>Use shadowBlur and gradients for hull, cockpit, alien glows</glow>  
 </effects>  
 <hud>  
 <location>Inside canvas</location>  
 <style>Modern HUD: glowing score, hearts for lives, centered boss health bar</style>  
 <elements>  
 <score>Top-left glowing digital text</score>  
 <lives>Hearts drawn near score</lives>  
 <highScore>Top-right small label</highScore>  
 <bossBar>Top center when boss active (rounded filled bar)</bossBar>  
 </elements>  
 </hud>  
 </visuals>  
  
 <audio>  
 <sfx>Optional beeps for shots, explosions; short oscillator-based sounds</sfx>  
 <music>Optional background/ boss tracks (not required for initial deliverable)</music>  
 <mute>Include UI control or double-tap toggle to mute (optional)</mute>  
 </audio>  
  
 <ux>  
 <responsive>Canvas must scale to viewport while maintaining aspect ratio; handle devicePixelRatio</responsive>  
 <accessibility>Buttons should be pointer-friendly; keyboard focus on canvas for desktop input</accessibility>  
 <performance>Keep CPU/GPU reasonable; efficient draw loops and pooling where possible</performance>  
 </ux>  
  
 <deliverable>  
 <file>index.html — full self-contained file with embedded CSS and JS</file>  
 <notes>No external images required (procedural canvas artwork); localStorage used for high score.</notes>  
 </deliverable>  
  
 <testing>  
 <devices>Desktop Chrome, Firefox; Mobile Chrome (Android), Safari (iOS)</devices>  
 <checks>Controls (keyboard + touch), boss spawn behavior, HUD display, high score persistence</checks>  
 </testing>  
</prompt>