Asteroids Software Design Document

Names: Kendal Loftis, Blaine Anderson, Derick Depew, Joe Neglia

Requirements

Mandatory

1. The player uses touch controls to aim and launch asteroids toward planets.
2. Asteroid path must be calculated depending on user aiming and amount the slingshot is pulled back.
3. Way to generate planetary system
4. The game must recognize a planet has been destroyed when hit.
5. A way to check if the game/ level is finished.
6. Level progression interface to move through completed levels.
7. Cosmetic design of space, asteroids, and planets.
8. Store user scores and level progression.
9. Need something to stop turning/start turning when the asteroid is finished traveling.
10. Should be able to run on the website.

Optional

11. Asteroid physics could follow semi-realistic gravity.
12. Planets can vary in speed and size.
13. The difficulty can increase each level.
14. Special power ups can allow for gravity assisted shots or multiple asteroids at once.
15. Hitting a planet can give points.
16. Obstacles can appear for more complex levels.
17. Asteroid size can decrease as levels increase

Traceability Matrix

Requirement ID	Requirement Description	High-Level Component
HL-001	The player uses touch controls to aim and launch asteroids toward planets.	Input Handling
HL-002	Asteroid path must be calculated depending on user aiming and amount the slingshot is pulled back.	Physics Engine
HL-003	Way to generate planetary system.	Level Generation
HL-004	The game must recognize a planet has been destroyed when hit.	Collision Detection
HL-005	A way to check if game/level is finished.	Game State Management
HL-006	Level progression interface to move through completed levels.	UI & Level Management
HL-007	Cosmetic design of space, asteroids, and planets.	Graphics & UI
HL-008	Store user scores and level progression.	Data Persistence
HL-009	Need something to stop turn/start turn when asteroid is finished traveling.	Turn Management
HL-010	Should be able to run on the website.	Web Compatibility
HL-011 (Optional)	Asteroid physics could follow semi-realistic gravity.	Physics Engine
HL-012 (Optional)	Planets can vary in speed and size.	Level Generation
HL-013 (Optional)	The difficulty can increase each level.	Game Balancing
HL-014 (Optional)	Special power ups can allow for gravity-assisted shots or multiple asteroids at once.	Power-Up System

HL-015 (Optional)	Hitting a planet can give points.	Scoring System
HL-016 (Optional)	Obstacles can appear for more complex levels.	Level Generation

Diagram