Tiago Fonseca - 107266

ICG PROJECT PROPOSAL

This project will demonstrate the use of animations, modelling, illumination, textures and user interactivity through an interactive solar system where planets orbit around the sun.

1. Features

a. **Realistic Planets** - Each planet has a unique texture and material
b. **Orbit Animations** – Planets orbit around the sun with correct speeds
c. **Illumination & Shadows** – The sun acts as a light source, casting light on the planets
d. **WASD Camera Movement** – Move forward, backward, left and right in space
e. **Solar & Lunar Eclipses** – The moon can cast a shadow on Earth and planets can block the sun
f. **Dynamic Lighting & Shadows** – The sun's light realistically interacts with objects
g. **Smooth Camera Rotation** - The user can freely rotate the view to explore the planets
h. **Zoom Functionality** – Users can zoom in/out for better views
i. **Map & Planetary Info** – Display information about planets when close to them.
j. **Asteroid Fields** – Randomly spawning asteroids that players must dodge.
k. **Warp Drive / Hyperjump** – Allow fast travel to distant planets with cooldown.
l. **Rescue Missions** – A stranded astronaut or lost probe must be found in space.

2. Controls

Action	Control
Move Forward	**W**
Move Backword	**S**
Move Left	**A**
Move Right	**D**
Move Up	**Space**
Move Down	**Shift**
Rotate Camera	**Mouse Drag**
Zoom In/Out	**Scroll Wheel Up/Down**
Increase Orbit Speed	**Up Arrow**
Decrease Orbit Speed	**Down Arrow**