Sacramento State University

Dolphin Contest - Player Guide

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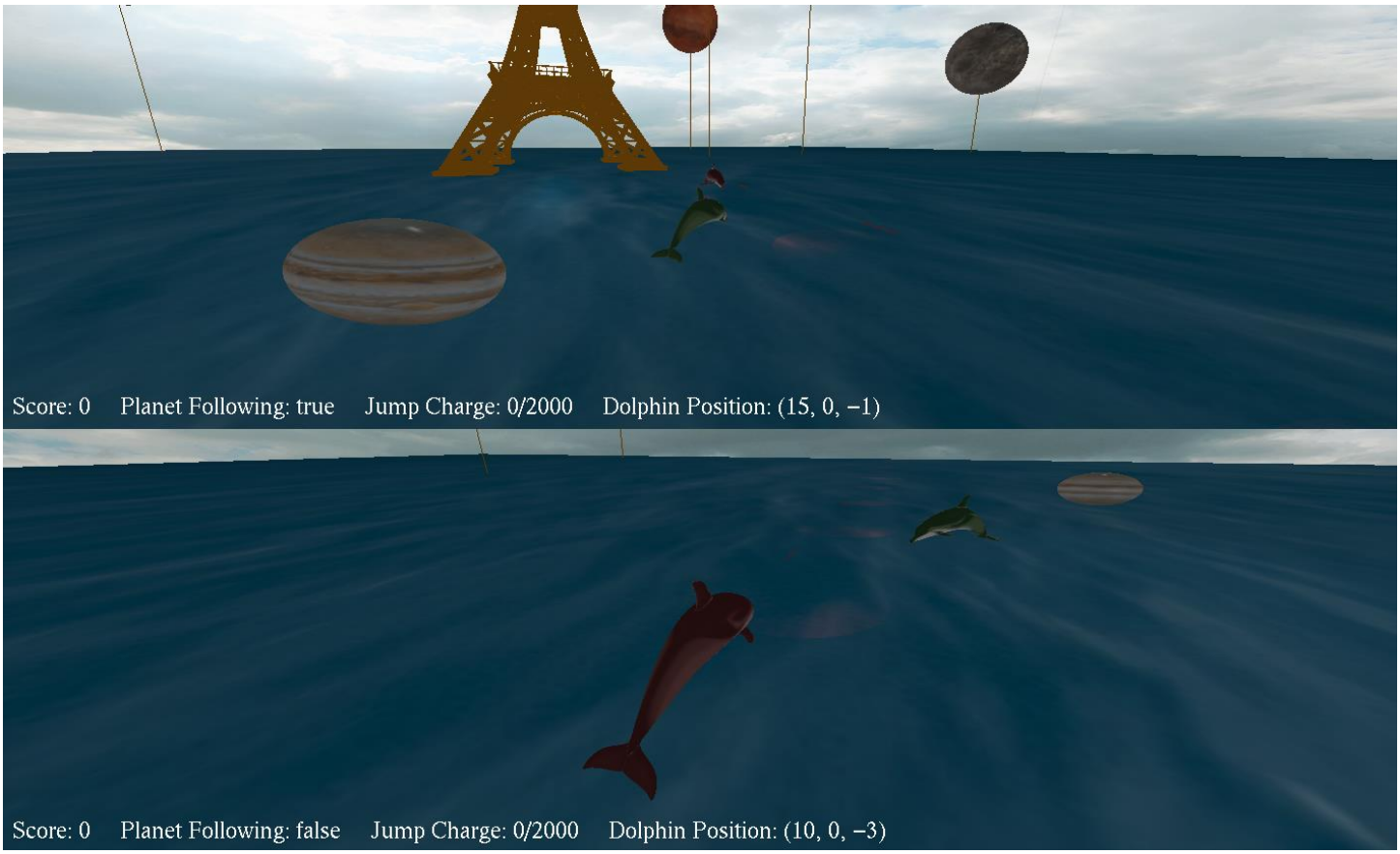

Compiling and Running the Game from the Command Window:

The game can be compiled and ran from the command window by opening a CMD inside the game directory and running the following commands:

- javac a2*.java
- java -Dsun.java2d.d3d=false -Dsun.java2d.uiScale=1 a2.MyGame

Alternatively, you can just use the provided batch files to perform this operation. Double click on compile.bat, then double click on run.bat.

Please note, if you run into the following error "*Error: A JNI error has occurred, please check your installation and try again*" delete the .class files in both the a2 and myGameEngine folders. Then recompile the project and try running again. This error occurs due to compilation on a different Java version.

Game Controls (Keyboard/Mouse) for Red Dolphin:

Move dolphin forward	W
Move dolphin backward	S
Move dolphin left	A
Move dolphin right	D
Yaw dolphin left	Q
Yaw dolphin right	E
Move camera azimuth	Mouse X axis
Move camera elevation	Mouse Y axis

Move camera radius	Scroll Wheel
Jump	Spacebar (hold down to charge jump power)
Fire laser	Left mouse button (shoot planets following the other player)

Game Controls (Gamepad) for Green Dolphin:

Move dolphin forward/backward	Y axis (left stick)
Move dolphin left/right	X axis (left stick)
Yaw dolphin left/right	Z axis (left & right trigger)
Move camera azimuth	RX axis (right stick)
Move camera elevation	RY axis (right stick)
Move camera radius	POV hat (forward/backward)
Jump	Button 1 (A) (hold down to charge your jump)
Fire Laser	Button 3 (X) (shoot planets following the other player)

How to Play My Game:

Collect planets by jumping up and hitting them. The longer you hold down your jump button the higher you jump. This will enable you to reach even the highest planets. Once you hit a planet, it will begin following you. Take this planet back to the center of the tower to score a point. Fire lasers at your opponent when they are carrying a planet to make their planet go back to where it originally was. The tower in the middle will be the color of the team that is winning (red or green) or orange if the teams are tied.

Custom Node Controllers:

I wrote two custom controllers for the game (one based off the controller outlined in the code walkthrough). These node controllers are applied to a node when it is following a dolphin. Otherwise, the nodes are controller by RAGE's built-in rotation controller. You can find descriptions of each custom node controller below:

- **StretchController** – This controller stretches the node in the X and Y directions by manipulating the nodes scale. The controller cycles through each direction, stretching it out and back before switching to the other direction.
- **HeightController** – This controller "bobs" a node up and down by manipulating the nodes local Y position. The node will move up and down continually at a set rate while being controlled by this controller.

Group/Child Node Relationships:

- All planet nodes hang off a "planetGroup" node. This makes searching the scenegraph for planets simple and a bit more efficient.
- Each planet node has two children, a light that is positioned above the planet, and a vertical line that extends downward to help the player know when to jump.
- When a planet is captured, it is detached from "planetGroup" and becomes a child of the dolphin, this makes moving the planet with the dolphin trivial. If the planet is shot by a laser, it is simple restored to its old position in the scenegraph.

Camera Control Description:

My game uses an Orbit Camera Controller. This controller takes a target node, and a camera node (not children of each other) and allows the player to adjust the camera's azimuth, elevation, and radius around the target node. This controller enables the camera to maintain a relative position to the target.

Note: When the camera is elevated and hits the ground plane, the pitch of the camera will begin to be adjusted by the elevation controls, enabling the player to look-up. This is intended behavior.

Missing Requirements:

I was able to implement all the requirements successfully.

Additional Modifications:

- Added the Eiffel Tower.
- Dolphins can jump and collect planets that begin to follow them.
- To score points, a planet must be taken back to the tower's center.
- Dolphins can shoot lasers and hit planets following the other player's avatar.
- Added basic collision detection between the dolphins and planets, and the tower's legs.
- The jump can be charged to reach greater heights.
- Added a skybox.
- The Orbit Camera pitches up when it touches the ground planet to enable the player to look up.
- The tower takes on the color of the team that is winning (red or green) or orange if the teams are tied.
- Dolphins are colored based on their team (red or green).

Riverside 5029 Machine:

Tested and working on ECS-QUAKE

(Asset list on next page)

Texture Assets:

flatGreen.jpg flatOrange.jpg flatRed.jpg laserGreen.jpg laserRed.jpg	Created by Me in Microsoft Paint
greenDolphin.png redDolphin.png	Recolored RAGE asset
Dolphin_HighPolyUV.png earth-day.jpeg moon.jpeg default.png	Provided in RAGE
ceres.jpg eris.jpg haumea.jpg jupiter.jpg makemake.jpg mars.jpg mercury.jpg neptine.jpg saturn.jpg sun.jpg venus.jpg venusSurface.jpg	Sourced from https://www.solarsystemscope.com/textures/ and distributed/used under CC Attribution 4.0 International allowing for free use, adaptation, and sharing for any purpose. Author: INOVE **No changes were made**
oceanwater.jpg	Sourced from https://freestocktextures.com/texture/clear-blue-sea,961.html and distributed/used under CC Zero allowing for free use, adaptation, and sharing for any purpose.

Mesh Assets:

dolphinHighPoly.obj earth.obj	Provided in RAGE
EiffelTower.obj Author: cbmbeach **No changes were made**	Sourced from https://www.cgtrader.com/free-3d-models/architectural/engineering/eiffel-tower-056df590-f97e-4f93-8e11-3f2bd25951da and distributed/used under CC Atrribution-ShareAlike 3.0 Unported allowing for the copy/redistribution of the material in any medium or format provided credit is given.

Material Assets:

default.mtl dolphin.mtl earth.mtl	Provided in RAGE
EiffelTower.mtl Author: cbmbeach **Changes:** • newmtl Material.001 was changed to newmtl DefaultMaterial • mak_Kd flatOrange.jpg was added at the end to map a default texture to the material. This is required in RAGE.	Sourced from https://www.cgtrader.com/free-3d-models/architectural/engineering/eiffel-tower-056df590-f97e-4f93-8e11-3f2bd25951da and distributed/used under CC Atrribution-ShareAlike 3.0 Unported allowing for the copy/redistribution of the material in any medium or format provided credit is given.

Skybox Assets:

back.jpg bottom.jpg front.jpg left.jpg right.jpg top.jpg	Sourced from https://opengameart.org/content/cloudy-skyboxes and distributed/used under CC Attribution 3.0 Unported allowing for the copy/redistribution of the material in any medium or format provided credit is given. Author: Pieter 'Spiney' Verhoeven **No changes were made**