TEACHING GAME DEVELOPMENT & LOGIC WITH BOOLARIO

KHAMILAH NIXON | ANYA SOLODKY | AUSTIN MATHEWS DR. RAHAF BARAKAT | DR. CENGIZ GUNAY GEORGIA GWINNETT COLLEGE | FALL 2021

WHAT IS TAP?

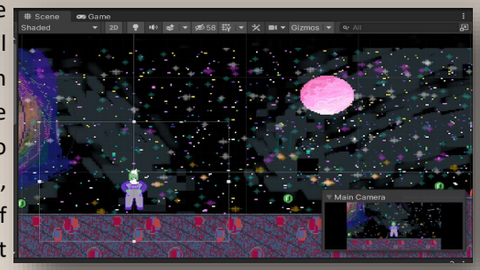
The Technology Ambassador Program (TAP) is a project and research-based course at Georgia Gwinnett College that aims to teach students how to develop themselves professionally and inspire non-IT majors to consider and encourage IT majors to broaden their horizons in the field of IT. TAP is not limited to only Information Technology students; this course welcomes students from all majors.

PROJECT DESCRIPTION

We hope to educate non-IT students, beginner IT students, and children at young ages in a hand-on learning experience to teach them about basic programming and game development concepts, more specifically, hitboxes and scripting in the C# programming language. After completion of this project, we hope that with our program, students will acquire a motivation and appreciation for programming by completing the design of and editing code in a video game.

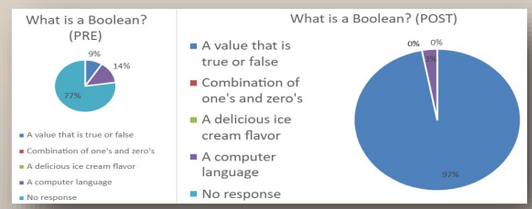
Boolario is a 2D platformer game, similar in style and design to its 1990s counterparts. The goal of Boolario is to traverse the map, which we designed to include relatively difficult obstacles to increase the overall challenge of the game, and collect true and false coins to learn about programming. Boolario will teach players about simple logical statements, specifically “and” and “or” statements, as well as Boolean values through the coin collection system we implemented into the C# scripting.

IMPLEMENTED TECHNOLOGIES



To create our project, we utilized Unity and Visual Studio Code to program Boolario. Unity is a game engine that allows users to create various programs, not limited to the scope of video game creation, that are highly customizable especially with regards to scripting. Visual Code Studio is a code editor that allows us to create several scripts linked to our Unity game through

RESULTS



Based on our above results, we were overall successful in our ability to teach the desired IT concepts to students of a wide range of students.

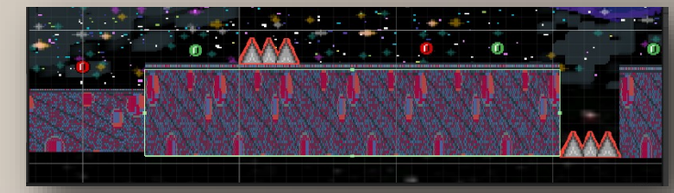
ATTRIBUTIONS

Special thanks to the STARS Computing Corps, the GGC TAP committee, and the School of Science and Technology for providing the resources for our team to design this outreach project for all Georgia Gwinnett College students and children of 18 years of age or younger.

WORKSHOP DESCRIPTION

In our workshops, we designed two versions of Boolario: the complete version serves as a basis for comparison and is displayed on our website and the incomplete version serves as a platform for students to learn about programming and game development concepts.

In our workshops, students find that the main character, Boolario, can neither jump high enough to reach elevated platforms nor land on platforms without falling through. The students’ goal is to attempt to fix these errors by utilizing the Unity interface and changing code in one of our scripts. Once they create a hitbox using Unity’s Box Collider 2D and increase Boolario’s jump height by changing the relative y-axis velocity when the spacebar is pressed, students will be able to complete the level in the game.



Once completed, the students will have the option to play the game using “and” or “or” logical statements. If they choose the latter, they will receive a point if and only if they collect two designated true coins. f they choose the “or” game mode, the player will collect a point if only one true coin is collected. Collecting a false coin will not regress the score; however, t does act as a limiter to collecting a point.

If, while playing the completed game, the students touch a spike or fall off the map, the will die and their progress in the game will reset to the beginning sector.