Game Programming in P5.js:
Level II
Suitable for: G7 - G10

Prerequisite: Introduction to Creative Computing: P5.js Level I
Duration: 29 Weeks
Classes per Week: 1 class (45 minutes each)

Course Overview:

This course continues from P5.js Level I, focusing on more advanced game programming concepts. Students will explore functions, loops, arrays, and object-oriented programming to build interactive games. By the end of the course, students will be able to design and develop fully functional games with engaging mechanics and dynamic visuals.

Covered Topics

Unit 1: Introduction to Advanced Programming Concepts
- Introduction to programming concepts review
- Loading images and assets for use in games
- Understanding and implementing functions in game design

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Unit 2: Project-Based Learning and Interactivity
- Creating interactive projects with animation
- Using functions to organize code and manage game behavior
- Implementing game projects like object resizing and interactive elements

Unit 3: Loops and Control Structures
- Using loops for repetitive actions in games
- Understanding for loops and applying them in animations
- Building projects that incorporate multiple loop layers for complexity

Unit 4: Arrays and Game Mechanics
- Introduction to arrays and their application in games
- Using arrays to manage multiple game elements like enemies or collectibles
- Building projects that utilize arrays for dynamic gameplay

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Unit 5: Advanced Game Development
- Combining functions, loops, and arrays in game development
- Advanced interactivity with user input and game progression

Materials Needed:
- Access to a computer or tablet
- Internet connection
- Chrome browser

Assessment
At the end of each lesson, learners will be assessed on their ability to integrate programming concepts such as functions, loops, arrays, and interactivity into their game projects. Assessments will focus on how effectively students use these elements to create dynamic and engaging games.

Certification
A certificate of completion will be awarded upon the successful completion of the course.