Advanced Game Programming With Scratch: Level III
Suitable for: G4 - G7

Prerequisite: Game Development with Scratch: Level II
Duration: 46 Weeks
Classes per Week: 1 class (45 minutes each)

Course Overview:
Building on concepts learned in previous levels, this course dives deeper into advanced game programming techniques in Scratch. Students will expand their skills in programming, focusing on sophisticated game mechanics, animations, and interactivity. By the end of the course, students will be capable of creating polished games with enhanced functionality and visual appeal.

Covered Topics

Unit 1: Coordinate Systems and Advanced Motion
- Introduction to Coordinate Systems
- Understanding X and Y coordinates
- Manipulating objects based on coordinate values

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Unit 2: Complex Event Handling
- Event-Driven Programming
- Handling multiple events simultaneously
- Creating responsive game mechanics with complex interactions

Unit 3: Game Logic and Advanced Conditionals
- Advanced Conditional Statements
- Combining multiple conditionals for strategic gameplay
- Using nested conditionals for dynamic interactions

Unit 4: Object Cloning and Multi-Level Design
- Implementing Object Cloning
- Using clones to increase game complexity
- Multi-Level Game Design
- Creating multi-stage games with checkpoints and progression

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Unit 5: Specialized Game Projects
- Developing a series of complex games using advanced techniques
- Incorporating game mechanics specific to each project

Unit 6: Final Projects and Challenges
- Design an original game incorporating all advanced techniques learned in the course
- A high-level challenge for applying creativity and mastery of Scratch programming concepts

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

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Assessment

At the end of each lesson, learners will be assessed on their ability to apply concepts such as conditionals, cloning, sprite interactions, variables, and messaging within their game projects. Each assessment will focus on how effectively they integrate these advanced programming elements to create dynamic, functional, and engaging games using Scratch.

Certification

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