level 5

Game Development with Java

What makes a game fun and addicting? Why can some games hold your attention for hundreds of hours, while others end up gathering virtual dust? In Game Development with Java, students look at the tenets and industry-standard practices that have propelled such games as Minecraft, Runescape, and Puzzle Pirates to huge success. They will then design their own game based on these tenets, blending their own creativity and experience to create a captivating gaming experience.

By programming in Java, students learn how to use Object-Oriented Programming (OOP), an advanced computer programming paradigm that enables students to organize their code more effectively. At every step along the way, students will learn best practices widely used by professionals at companies like Twitter, Amazon, and Google. They will build upon their existing computational thinking skills to get ready for a career in game development.

objectives

- ⊘ Design a game using industry-standard best practices
- ⊘ Learn how to program in Java
- ⊘ Build a complete game in Java

key projects

- ⊘ Designing a game that engages players through operant conditioning
- ⊘ Building a game of tic-tac-toe
- ⊘ Building a game of connect4
- ⊘ Building an object-oriented calculator
- ⊘ Writing a greedy pathfinding algorithm
- ⊘ Building a platforming game

units

Unit 1 | Game Design
Learning how game designers use design principles to help make fun and engaging games

Unit 2 | Object Oriented Programming
Learning the basics of Java programming

Unit 3 | Java Class Hierarchy
Learning how Java classes extend from each other

Unit 4 | Polymorphism
Learning about polymorphism

Unit 5 | OOP Best Practices
Learning best practices when writing code

Unit 6 | Data Structures
Learning about different data structures and the pros and cons of each

Unit 7 | 3rd Party Libraries and Testing
Importing existing libraries into their projects

Unit 8 | Game Programming
Loading graphics and sound into a Java program

Unit 9 | Final Project
Using the skills learned from the previous session to complete the game they designed in Unit 1

gc generation code