Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

How to make games in C#: a beginner's guide Course. Module 1

Learning goals are to learn the basics of the C# programming language, develop object-oriented thinking, and apply C# to creating game applications

Course Syllabus:

Day one

Installing and Getting Started with Visual Studio. Basic I/O in C#

− General concepts about the Visual Studio program interface
− Customizing the interface for yourself
− Launching the first “Hello World!” program and analyzing it
− Console input/output methods and writing a user greeting program

Learning outcome: received a basic understanding of the C# language.
Practical task: write a user greeting program.

Day two

Variables, data types and arithmetic operations

− Variable declarations, data types and their differences
− Arithmetic operations, including shortcuts
− Data type conversion, Convert class and Parse() methods
− Writing programs "Currency Converter" and "Arithmetic Mean"

Learning outcome: understood the differences between data types and learned how to use basic arithmetic operations.
Practical task: write programs for Price Calculation (for goods taking into account discounts), Currency Converter and Arithmetic Mean.

Day three

Logical expressions, if else conditional operator and random numbers

− Conditional operator (if else)
− Logical operators AND, OR and NOT
− Switch operator and its differences from if else
− Random class and basic methods of working with random numbers

Learning outcome: learned to work with random numbers and conditions.
Practical task: solve problems on the topic "Conditional operator" and write a game "Guess the cup".

Day four

Loops in C#

− While, for, do-while constructs. Loop usage patterns
− Introduction to program debugging
− Break operator, continue operator

Learning outcome: understood the principles of working with while, do-while, for loops.
Practical task: write a program to determine the direction of movement based on the last key pressed.

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How to make games in C#: a beginner's guide Course. Module 2

Learning goals are to learn the basics of the C# programming language, develop object-oriented thinking, and apply C# to creating game applications

Course Syllabus:

Day one

Console methods and properties

− Methods for moving the cursor in the console
− Methods for coloring text and background
− Methods for reading data about the pressed key in the console
− Writing a color-coded console game

Learning outcome: got acquainted with the properties and methods of the console, and learned how to apply them in practice.
Practical task: create a color adventure game in console.

Day two

Introduction to Collections. Arrays and Lists

− Creating and Working with an Array
− Introduction to Nested Loops
− Creating and Processing Two-Dimensional Arrays
− Creating One-Dimensional and Two-Dimensional Lists
− The foreach Loop

Lesson outcome: learn about the array and list data structures for storing sequences.
Practical task: solve problems using arrays and lists, write programs that work with data arrays.

Day three

Strings as Arrays. String Methods

− Strings as arrays, string slices
− Interpolating values into a string
− String processing methods ToLower, ToUpper, Replace as well as IndexOf, Contains, Split and Join

Lesson outcome: learned how to work with strings.
Practical task: create a game called "Cities".

Day four

Introduction to methods in C#

− Introduction to the concept of a method
− Creating your own methods
− Methods with parameters
− Return type of methods and the return keyword
− Refactoring large code

Lesson outcome: we studied the features of working with methods and learned how to use them correctly.
Practical task: refactoring large code.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

How to make games in C#: a beginner's guide Course. Module 3

Learning goals are to learn the basics of the C# programming language, develop object-oriented thinking, and apply C# to creating game applications

Course Syllabus:

Day one

Introduction to object-oriented programming.
Creating your own classes and methods

- OOP principles. What are classes and methods and why are they needed
- Creating a class and class attributes, creating class instances
- Creating class methods. Parameters and class constructor
- Returning values from a method. The difference between regular and static methods

Lesson outcome: learned to create your own classes and class methods, learned to implement interaction between objects of different classes, started working on the game, created the Cat and Mouse classes.
Practical task: implement interaction between two objects of different classes, write the Cat and Mouse classes for the game.

Day two

Inheritance and its features in C#

− Introduction to the inheritance mechanism
− Description of the base class GameObject. Organization of class inheritance
− Difference between public, private and protected access modifiers
− Virtual methods: virtual and override keywords

Lesson outcome: understood the difference between various access modifiers, studied the inheritance mechanism.
Practical task: continue working on the game "Cat and Mouse". Implement object management for two players.

Day three

Presentation preparation

− Reinforcement of previously studied materials
− Review and revision of written games, selection of a game for demonstration
− Preparation of materials for the presentation
− Preparation of a short speech for the presentation

Lesson outcome: selected projects for the presentation and prepared for it.
Practical task: finish the selected game, finalize the final presentation, prepare a speech to demonstrate the results of the work.

Day four

Presentation of work results and course summary

− Final preparation for the project presentation
− Presentations in order of priority, answers to questions
− Summing up the course and further training prospects

Lesson outcome: completion of the course and summing up.
Practical task: participation in the final presentation of games in C#.