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Sign up

Unity 6 3D training

3 days (21 hours)

Presentation

Unity 3D is an incredible platform which, thanks to a cross-platform game engine (Android, MacOS, Windows, console...), enables you to rapidly design an incredibly rich video game.

Do you want to be able to develop 2D and 3D applications yourself in a variety of fields (web applications, video games, virtual reality, augmented reality, interactive devices, etc.), or do you want to get into video games? The world's first real-time platform: UNITY 3D.

Unity 6 is used to create half the games in the world. Its flexible suite of tools opens up incredible possibilities for game developers and designers in all industries. Unity enables even novice developers to create 2D or 3D applications quickly and intuitively. Its cross-platform approach lets you code once, and build native applications directly, whether on iOS, Android, Windows, Web, PlayStation or others (27 in all), thanks to the powerful C# language.

This course is aimed at people with no experience of Unity3D. No knowledge of the platform is required. If you want to be able to program a virtual reality or augmented reality application, a 3D module for your website, an interactive device, or simply recreate the video games that marked your childhood, this course is for you.

Objectives

- Be able to develop 2D and 3D applications in a variety of fields (web applications, video games, virtual reality, augmented reality, interactive devices, etc.)
- Discover the Unity3D engine and its world of possibilities
- Be able to develop a Unity application and builder for any supported platform
- Know and use the basic principles of 3D programming and video games
- Discover and improve your knowledge of C#, one of the most widely used programming languages.

Target audience

Any developer wishing to learn more about 2D/3D programming.

Prerequisites

Experience with an object-oriented language is preferable. A recent laptop with the free version of Unity3D installed is required.

Unity3D training program

Introduction to basic 3D concepts

- 3D Mathematics
- Space position matrix
- 3D scenes
- 3D Models
- Lightnings
- Camera
- Physics
- Rendering types
- Rendering pipelines

Unity3D basic concepts

- Platform philosophy
- Major components
  - publishers
  - players
  - assets store
  - cloud-builds
  - photon engine
  - ecosystem

Opt : Introduction to C#

- Language concepts & basics
- Practical exercises

Basic operations in Unity3D

- Introduction to the Unity editor
- Scene View navigation
- Importing 3D models into Unity
- Introduction to shaders
- Creating and using Materials

- Creating and using textures

Standard tools

- Introduction to prefabs
- Introduction to assets
- Create a skybox
- Creating water
- Introduction to Sounds
- Introduction to Scripting
- Introduction to animations
- Particle systems
- TP using knowledge: creating an animated 3D scene

Cameras

- Cameras in Unity3D
- Implementing standard camera movements
  - 2D standard
  - 2D isometric
  - 3D First person
  - 3D Spherical view
- TP using knowledge: visit to the scene created

Physics

- Physical simulation through discretization of theoretical physics
- Introduction to Physics in Unity3D
- Motion simulation
- Introduction to collisions and triggers
- TP using knowledge: physical interaction in the scene created

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Creating your user interface

- Introduction to Unity UI
- Basic component applications :
  - Layouts
  - Panels
  - Scrollable lists
  - Texts
  - Etc
- User interaction (keyboard/mouse)

Pro tips

- Versioning
- Gitignore
- Debugging
- Profiling

What's new in Unity 6

- Optimizations
- Graphics
- Multiplayer

Use this new knowledge to create a first 3D mini game (shooter)

Advanced optional module (up to 2 days)

- Introduction to mapping services: creating a 3D map with the mapbox SDK
- Introduction to augmented reality in Unity3D (AR), with the Vuforia engine
- Introduction to virtual reality and VR headset programming
- Networking
  - The challenges of multiplayer and networking
  - Different approaches
  - The specific case of deterministic engines and fixed point arithmetics

Advanced optional module (up to 4 days)

- Part 1
  - In-depth analysis of the most useful components.
  - GUI: more in-depth dialog boxes
  - Characteristics of Canvas
  - Event handling in C# scripts, event loops, triggers
  - Use of delegates (interest, implementation)
  - Loading JSON resources ?
  - Calls to code (dll type) from Unity
  - Interaction of C# scripts with the outside world, with the user
  - Writing specific code for headsets (Oculus, HTC...) and for Leap Motion modules
  - Dynamic import of rsrc and streamingAssets folders

- Part 2
  - Deepening of essential gameObjects
  - Scene setup and multi-scene operation
  - Co-routines: usefulness, examples of use
  - Using rigidBody
  - Collider management
  - Character management (third-person controller)
  - Setting up multiplayer and network communication
  - Presentation of the most useful assets
  - Design pattern
  - Optimization techniques
  - Management of touch-sensitive devices such as tablets
  - Special compilation features for Android

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.