The Unity Engine crash course

International Student Week in Belgrade

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About Nemanja Mićović

Hello, I am Nemanja and I very happy to be able to join you at **International Student Week in Belgrade: "The future is calling"** in june!

The topic that we will work together is something I am very passionate about, and that's **game development**!

I've been in the field of programming for around 10 years now, and I've spent quite a lot of time near computers, they are really nice and (often brutally) honest things. For the last 3 years, I have been teaching computer science courses at Faculty of Mathematics to our bachelor and master students. Currently I am doing my PhD studies at Faculty of Mathematics in the field of Machine learning (Artificial Intelligence) and working as AI researcher for Lebo Apps. In the last 5 years I've had quite a lot of experience in teaching computer science to various people and organizations, and I will enjoy guiding you on your road to become a game developer.

About Unity Engine

Unity is a cross-platform game engine developed by Unity Technologies, first announced and released in June 2005 at Apple Inc.'s Worldwide Developers Conference as a Mac OS X-exclusive game engine. As of 2018, the engine had been extended to support more than 25 platforms. The engine can be used to create three-dimensional, two-dimensional, virtual reality, and augmented reality games, as well as simulations and other experiences. The engine has been adopted by industries outside video gaming, such as film, automotive, architecture, engineering and construction.

As of 2018, Unity had been used to create approximately half of mobile games on the market and 60 percent of augmented reality and virtual reality content, including approximately 90 percent on emerging augmented reality platforms, such as Microsoft HoloLens, and 90 percent of Samsung Gear VR content. Unity technology is the basis for most virtual reality and augmented reality experiences, and Fortune said Unity "dominates the virtual reality business".

On image 1 you can see how does the Unity engine look.

Course requirements

Course is created with requirements set with bare minimum and these are: - Being motivated to learn - Being passionate to learn - Knowing some basics of programming like for loops, if statements…

Knowledge of object-oriented programming (OOP) is a big plus and will allow you to get more out of course sessions. If you wish to continue learning Unity, you will have to learn OOP at some point in the future for sure.

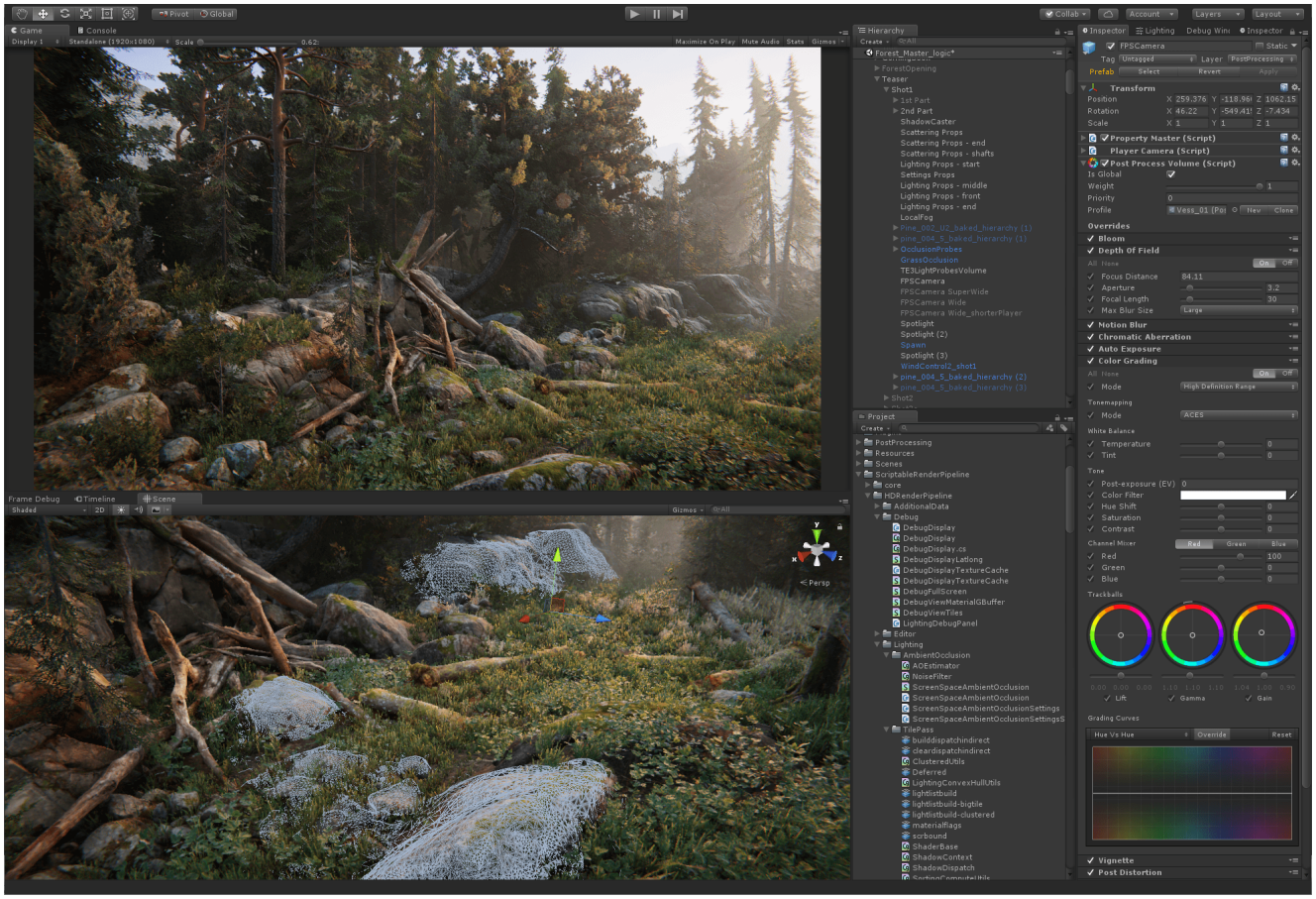

Figure 1: Unity engine window

Plan for the course

This is the schedule:

- 16. june 10-14h (4h)
- 17. june 10-14h (4h)
- 18. june 10-14h (4h)
- 19. june 09-11h (2h)
- 20. june 10-14h (4h)

16. june 10-14h (4h) We will look to cover the basics of using Unity engine, catching up on required programming knowledge (C# and object-oriented programming) that we will be using throughout the course and generally speaking about game development. We will also look to deeply understand object-oriented programming that we will use extensively throughout the course.

17. june 10-14h (4h) We shall be covering the creation of a simple 2D game and undestanding concepts like game loop, logging, `Start()` and `Update()`, `deltatime`, `GetComponent<T>`, player input and similar.

18. june 10-14h (4h) Next, we move onto 3D and try to reinforce the knowledge we gained on previous 2 days. We will show the Unity asset store and integrated physics engine. Near the end, we will speak about potential projects that participants will be creating in teams for the next 2 days. Depending on the tempo and time remaning, Nemanja will also try to show basics of virtual reality in Unity (primarily Google cardboard SDK[1]) which participants may also use for their projects.

19. june 09-11h (2h) After agreeing on the projects, participants will start working on them for the next 6 hours that remain. Nemanja will be around to help, mentor and guide them on the road for creating something amazing!

20. june 10-14h (4h) Working on projects continues. Near the end of the course, participants will show us what they created and we will conclude the course, hopefully with everyone happy!

[1] Software development kit