

Adilet Sadyk

SE-2102

Course Name: Introduction to Game Development

Yersin Orazbekov

Assignment Title: Game Development Independent Study

Assignment tasks:

### **Module 1: Introduction to the Game development**

Game creation is an enthralling profession that blends creativity, technology, and artistry to produce interactive and immersive experiences. As a computer science student, I set out to learn about game creation by reading introductory books and watching video lectures and online courses.

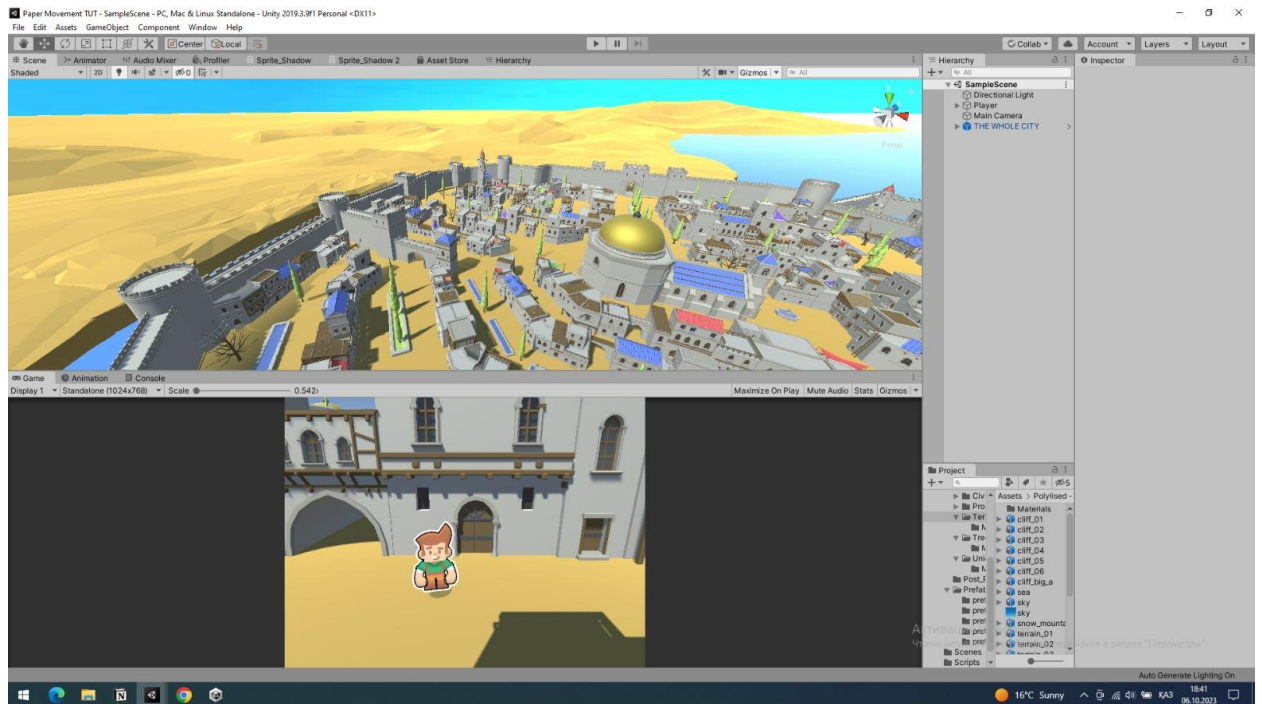
To begin my investigation into game creation, I read a variety of basic materials, including books, journals, and online resources. These materials supplied me with a good foundation of knowledge on the subject.

### **Module 2: Game design principles**

Game design is a multidisciplinary subject that integrates aspects of art, technology, psychology, and narrative to produce interactive and interesting experiences for players. I'll talk about game design fundamentals like gameplay mechanics, player experience, and storytelling. In addition, I will evaluate and critique the popular game "Counter Strike: Global Offensive" game design and close with an article addressing the main characteristics of good game design. My research included a look at the game's mechanics, player experience, and storyline components. CS GO is a strategic game that takes complete focus from the players. However, by analyzing this game design I found some bugs and drawback moments. Giving players agency, or the sensation of control over their choices and the result of the game, improves the player experience. Player agency is enhanced through meaningful choices and consequences. Narrative framework: Effective game storytelling frequently adheres to a well-defined narrative framework, which includes exposition, escalating action, climax, and resolution. This framework keeps the participants interested and immersed in the plot. Character Development: Characters with distinct motives and arcs foster emotional bonds between players and the game environment. Players should be invested in the characters and their adventure. Player Involvement: Games frequently allow players to affect the fate of the tale through their decisions. Multiple endings and branching narratives increase player participation and replayability.

### **Module 3: Game Development Tools**

I just began an examination of the Unity game engine as a computer science student with a developing interest in game production. Unity is well-known for its adaptability, user-friendliness, and broad features. In this paper, I will detail my study on Unity's features and capabilities, chronicle my installation experience, and share my preliminary investigation of constructing a small 3D scene within Unity. As lab 1 and lab 2 we started making 3d models and be familiar with other features. There was a learning curve for me as a first-time user to comprehend Unity's UI and vocabulary. However, Unity includes substantial documentation and tutorials that assisted me in overcoming this obstacle.

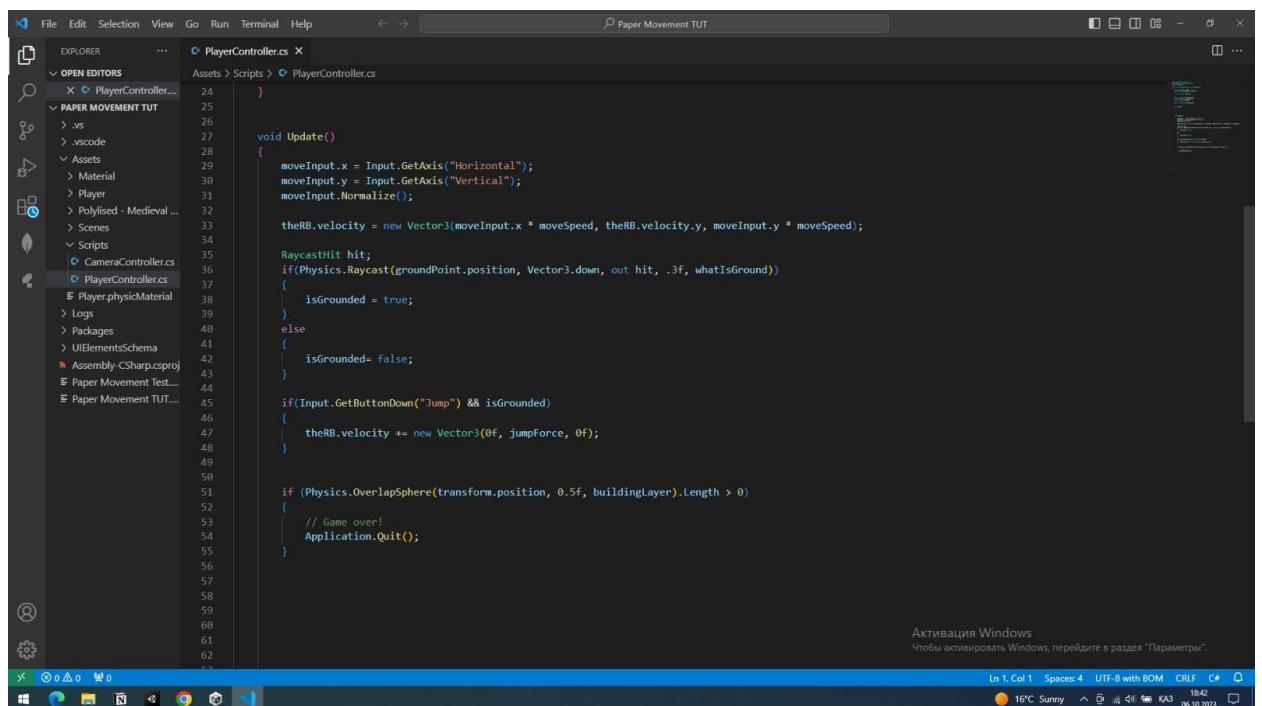


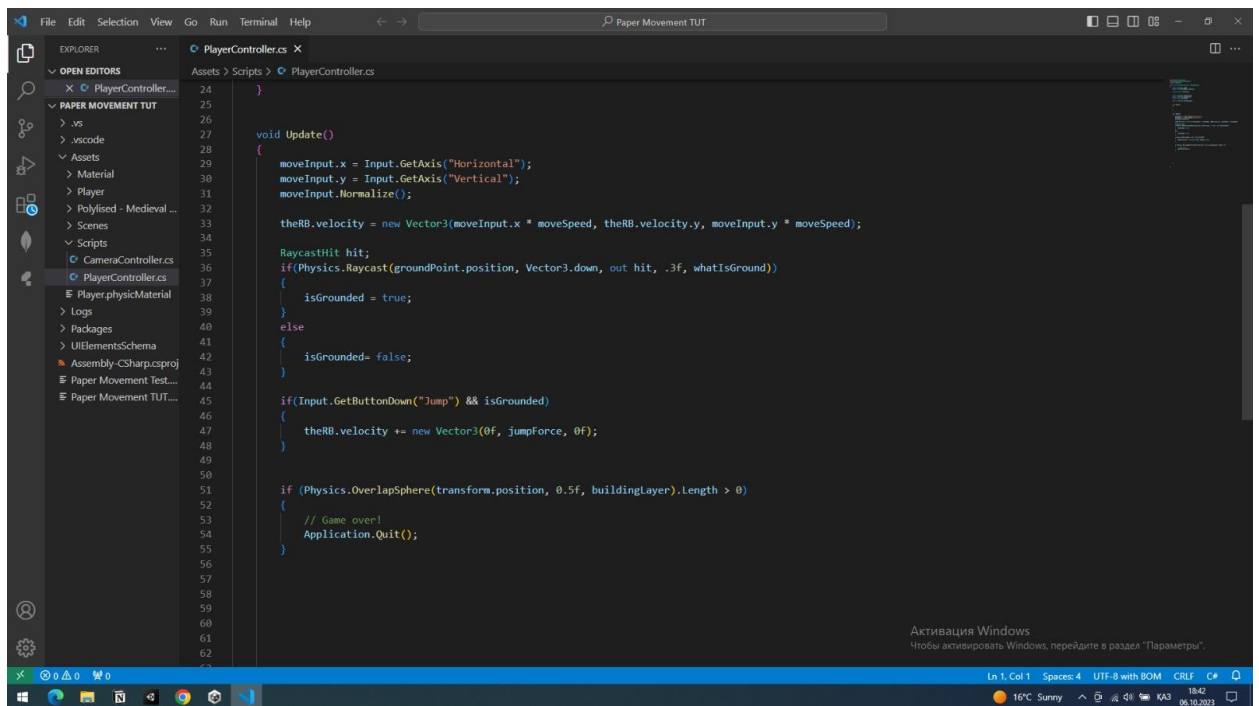
**Initial Learning Curve:** As a first-time user, there was a learning curve to understand Unity's interface and terminology. However, Unity provides extensive documentation and tutorials, which helped me overcome this hurdle.

**Asset Importing:** I had faced some challenges when I had to import assets because unity does not support all of model extensions therefore I had to convert it to required extension.

**Performance Optimization:** Ensuring smooth performance, particularly when working with 3D assets and complex scenes, can be a challenge. I had to optimize the scene by adjusting rendering settings and optimizing assets for better performance.

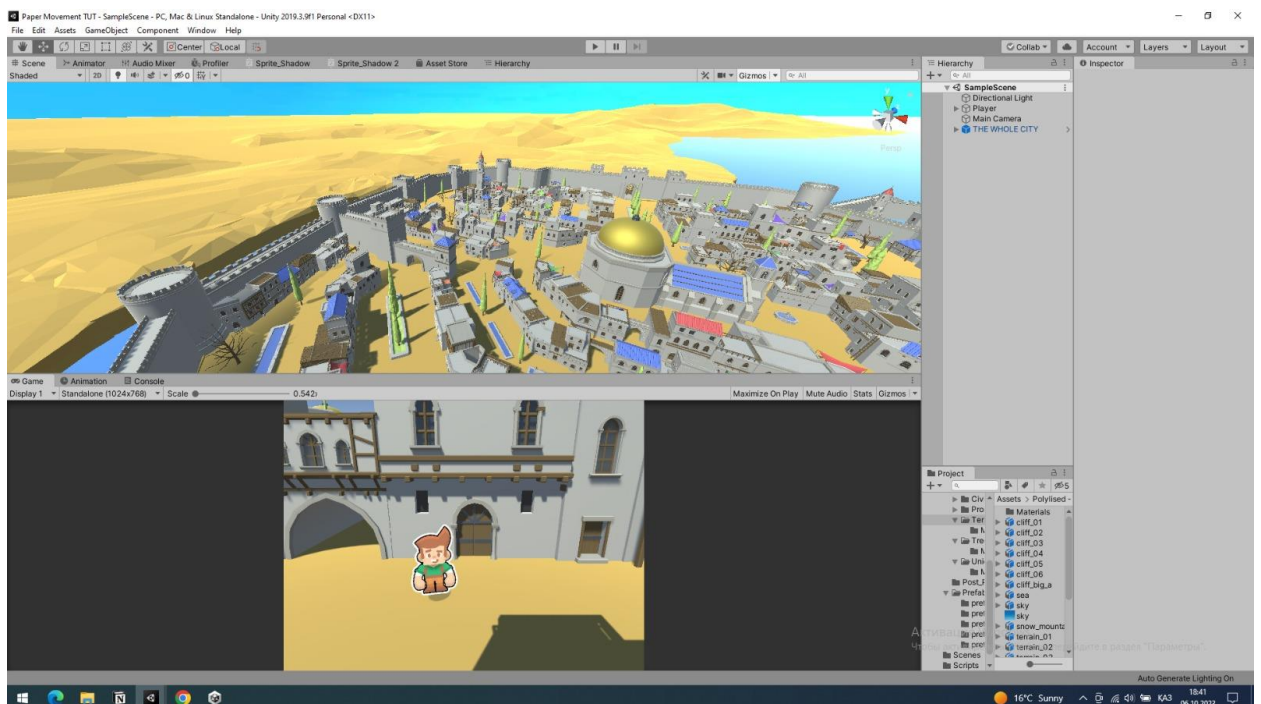
## Module 4: Programming for Game Development





I began by studying the fundamentals of C#, including data types, variables, control structures (if statements, loops), functions, and object-oriented programming concepts (classes, objects, inheritance, and polymorphism). These are essential for understanding and writing code in C# for game development. This script shows game over process.

## Module 5: Game Prototype Development



Paper movement is 3d open world adventure game. Objective: The player controls a character who runs through a procedurally generated city, avoiding obstacles. The player can run, jump, and slide to navigate the environment. The game ends when the player collides with an obstacle.

Mechanics:

- The player controls the character with the arrow keys.
- To run, the player holds down the forward arrow key.
- To jump, the player presses the up arrow key or space key.
- The game ends when the player collides with an obstacle.

To build a prototype of this game, you would need to create a simple procedurally generated city environment and a player character. You would then need to implement the basic movement mechanics (running, jumping, and sliding). Finally, you would need to add obstacles. Once you have a basic prototype, you can start testing it and iterating on it.

## **Module 6: Final Reflection**

My independent study in game development has been a challenging but rewarding experience. I have learned a great deal about the game development process, from design to implementation to testing. I have also faced and overcome a number of challenges, which has helped me to develop new skills and grow as a game developer.

One of the most important things I have learned is the importance of planning. Before I started building my game, I spent a lot of time designing the gameplay mechanics, levels, and characters. This helped me to avoid making mistakes and to create a more polished and enjoyable game.

I also learned that it is important to be flexible and adaptable. Things don't always go according to plan, so it is important to be able to adjust your plans as needed. For example, I had to redesign one of my levels several times because it was too difficult for players to complete.

Another important lesson I learned is the importance of testing. It is crucial to test your game early and often to identify and fix any bugs. I also learned to listen to feedback from other players and to use that feedback to improve my game.

One of the biggest challenges I faced was learning how to use the Unity game engine. Unity is a powerful tool, but it can be complex to learn. I had to spend a lot of time watching tutorials and reading documentation to learn how to use Unity effectively.

Another challenge I faced was creating the game's assets. I am not a professional artist, so it was difficult to create high-quality graphics and animations. However, I was able to find some free and low-cost assets online that I could use in my game. Overall, my independent study in game development has been a positive experience. I have learned a great deal about the game development process and I have developed new skills and knowledge. I am also more confident in my abilities as a game developer.

I believe that the future of game development is very bright. Games are becoming increasingly popular and immersive, and there are many new and exciting technologies on the horizon. For example, virtual reality and augmented reality are poised to revolutionize the way we play games. I am also excited about the growing popularity of indie game development. Indie games are often more innovative and creative than mainstream games, and they are often more affordable. I believe that indie games will continue to play an important role in the future of game development. My personal aspiration in the field of game development is to create games that are both fun and meaningful. I want to create games that people can enjoy playing, but also

games that make them think and feel. I am also interested in using games to educate and inform people. I believe that games have the power to change people's lives. They can teach us new things, help us to connect with others, and even help us to overcome challenges. I am excited to be a part of the game development community and I look forward to creating games that have a positive impact on the world.