

# Script for the video of the final project ”Advanced Unity Minigolf”

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Welcome to ‘Advanced Unity Minigolf’ - the sequel of ‘Unity Minigolf’ we’ve all been waiting for. As you probably already guessed, in this project we were building on a previous project we submitted for the introductory Unity course. The purpose of this video is to show the basic functionalities of this project and what makes it more ‘advanced’ than the previous one. The game was exported as a standalone executable.

First of all we refined the general idea of our project which can be inspected in the respective concept file uploaded to our github repository. Our goal was to build on the project we handed in for the previous course and to enhance it in a number of ways. The main change we set out to implement included a new and more thought-through experimental paradigm including a character editor. We also wanted to finetune our project by making use of object pooling for the world generation and improving code efficiency and the visual appearance of our game.

When starting a new game, you will be randomly assigned to either the experimental or the control group. Both groups move to the character editor after having clicked ‘Start’, but only players assigned to the experimental group will be able to click through a number of predefined characters to choose from. The control group, in contrast, will be presented a fixed character to play with. The research question we are aiming at with this experimental set-up is: “When gamers are able to decide on a character to play with, does this influence overall game experience and performance?” The question is inspired by a study conducted by Langer & Roding in 1976 who found out that elderly people living in an elderly people’s home lead a happier and more active life when they were given responsibility for making their own choices compared to when they were presented with ready-made decisions. Our hypothesis would be that gamers feel overall more engaged, identify more with their character, in general enjoy the game more and show better performance, when they are able to make a choice about their character compared to the control group.

So let’s have a look at the game when being in the experimental group: You start in the character editor. By clicking on the icon at the right, you can click through your character options. We’ve prepared the golf ball we loved from our first iteration, a cheese wheel, a watermelon, a football, a tennis ball and a

basketball for you. Depending on the character you've decided on, you will meet different obstacles during the game. Your clicking behaviour and time spend in the character editor will be tracked and saved as a measure of engagement with the characters.

A short tutorial introduces the player to the game controls.

Once you've reached the end of the lane, the main scene automatically starts. Now it's your task to avoid obstacles by moving left and right and pits by jumping. You will see that the game's difficulty is adapting to your performance. It starts rather easy, but when the game poses no challenge to you, the player speed as well as pit and obstacle frequency will increase - also resetting you to normal speed and to difficulty level 0 when you run into an obstacle or pit again. During the main scene, different measures of performance will be collected: the number of pits and obstacles you hit encoded as number of failures, the metres displayed in the upper right corner and the maximum level you reached during the two minutes of the game.

Regarding our code enhancements, we tried to employ newly learned techniques from the Advanced Unity course, like the aforementioned object pooling for dynamic world generation. We also used a scene manager for handling scenes, and event systems for handling player behaviour and world generation. Moreover, the code for player behaviour and world generation are clearly separated into behaviour and information scripts. Communication between the different components is done via Unity's event system to notify the relevant objects of state changes. We also made more extensive use of the Unity script lifecycle.

Once the time limit is up, the game ends and you can choose whether to answer some more questions about your game experience. When you decide to take part in this little survey, you need to provide an answer to every single question, otherwise, you won't be allowed to proceed. The UI allows you to go back to previous questions and even change your answers. All answers to the questions as well as the measures of performance from the main scene are collected in one csv data file. We are adding a new row of data for each new game that is started. This way, it is easily possible to analyse the data according to our research question. If the data would support our hypothesis, we should find that people participating in the control group are overall not as well performing in the game and that they experienced the game as less engaging or rewarding than participants of the experimental group.

After having provided answers to the questionnaire, or if you skipped the full survey anyways, you are asked whether you would like to either play a new round (the performance of which won't be tracked again) or to quit the game.