



Gold Belt Ninja Guide

Activity 02: Prototyping Phase



Prototyping Phase

Now that you've planned out your initial project ideas, it's time to bring them to life! In the Prototyping Phase, you will create a simplified **prototype**, or "first draft" of your project in Unity.

In this prototype, you should aim to build out *only* the core elements of your project based on your ideas from the Planning Phase. This will help you to test out your ideas as you create the structure of your project. Don't worry about too many of the fine details—you'll work on those in the Development phases!

As with any big project, it's okay if new ideas arise and you want to add or change anything you came up with during the Planning Phase. This project is completely yours and should change as you develop it!

In the Prototyping Phase, you will:

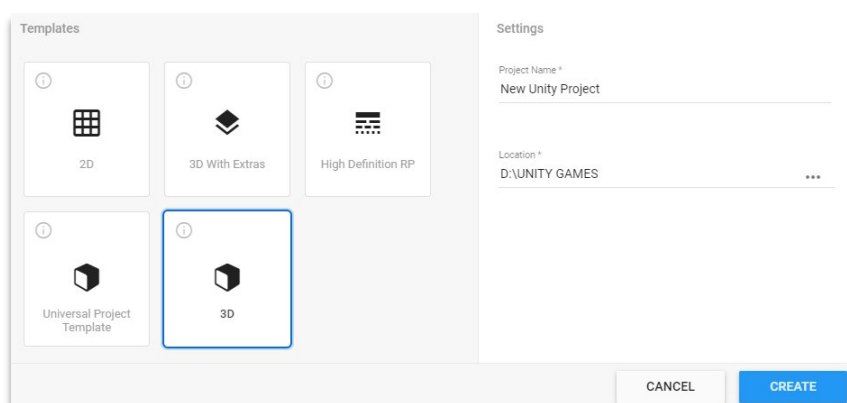
- Create a new project in Unity.
- Add basic shapes to create a **prototype** of your project.
- Plan out your project's game mechanics using **pseudocode**.
- Plan and program the **game mechanics** in your project.
- Have a ninja and a Code Sensei **playtest** your prototype!
- Revise your project based on playtest feedback received.
- Record Dev Diary #2 with a Code Sensei's help!



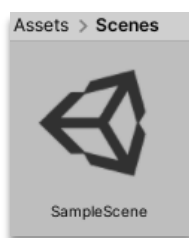
Prototyping Phase - Starting a Unity Project

In order to develop a **prototype**, you will first create a new project in Unity. Follow these steps to set up your Gold Belt project prototype!

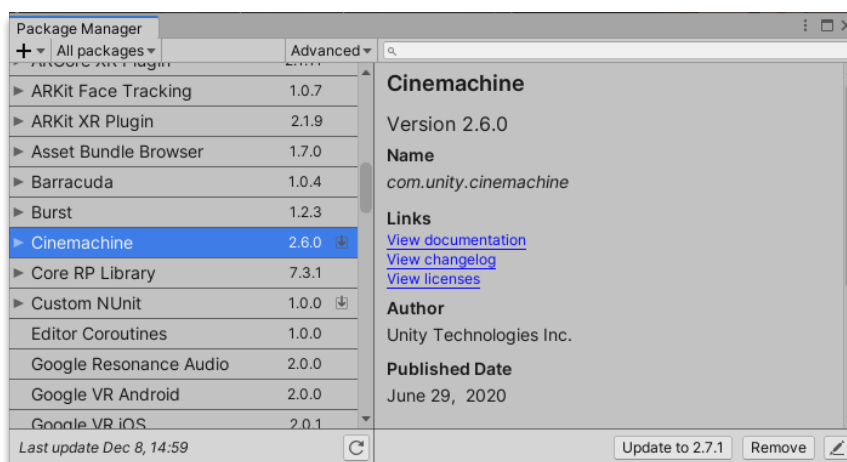
Open the Unity Hub and start a new project. You cannot change the Project Name later, so title it something that you will remember.



Based on your storyboard, rename your SampleScene.



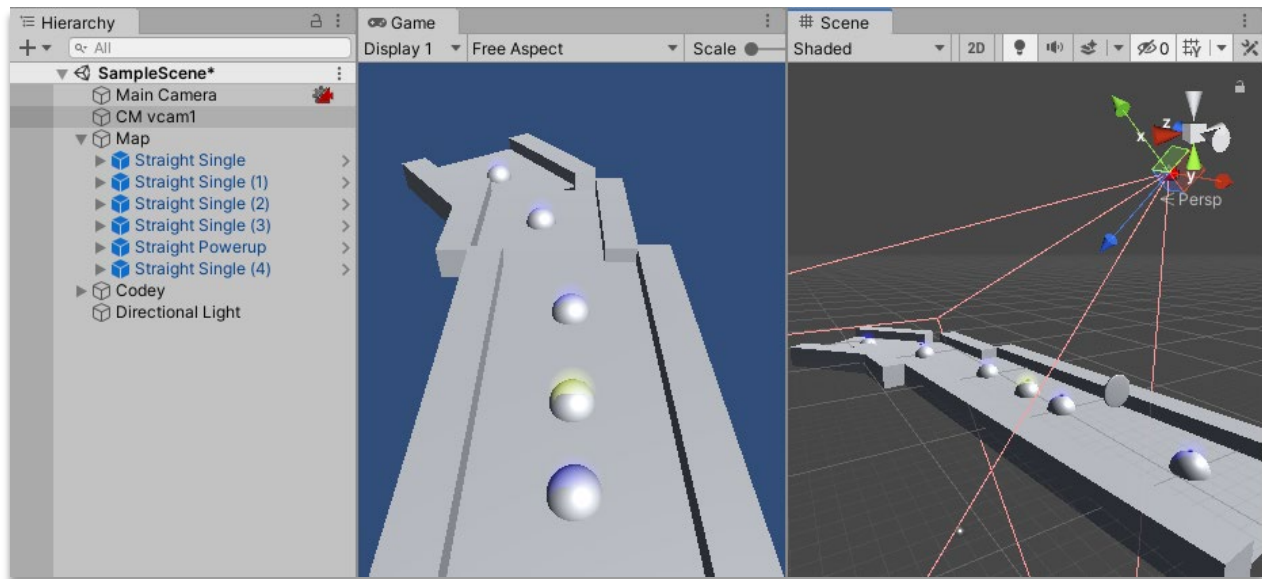
If you plan to use Cinemachine, now is a good time to add it to your project.





Prototyping Phase – Creating a Prototype

After you've created a new project, use the ideas from the Planning Phase to begin building out your prototype in Unity. Use basic shapes as your assets so that you can focus on the logic and implementation, instead of the look and visuals. This will also allow you to more easily playtest your project and modify your mechanics in the next step.



The picture above is an example of a project prototype. Notice how simple shapes are used and the project does not look “complete”. The purpose of the prototype is to test out the core elements of your project, without focusing on any assets, visuals, or effects. This will allow you to build a functioning project before adding in any “extras”.



Prototyping Phase – Game Mechanics

All projects are made up of several different mechanics that work together to create a fun and unique experience for the user. For example, a game might combine running, jumping, and climbing to let the user explore a futuristic city.

Throughout the previous Unity belts, you have programmed many different mechanics, but you always focused on the programming because the planning was done already. But now, you get to imagine and plan your own mechanics!

Think about what mechanics you want in your project. What are the different Unity and C# concepts that you will need to use to make them work? Will you need to Instantiate a Prefab? Translate a Game Object? Invoke a Destroy Function? If you aren't sure what these terms mean or how to use them, check the documentation in this guide!

Once you have come up with a mechanic and determined the tools you will use, write **pseudocode**, or plain English text describing what the code will do, to describe the logic and code that your mechanic will use before programming anything in a script.

Ninja Planning Document

Complete the **Prototyping Phase – Game Mechanics #1 & 2** portion of your Gold Belt Ninja Planning Document to plan out at least two game mechanics.

After you've planned out your mechanics, begin to add them into your prototype. Use the documentation in this guide to help you program the C# scripts you need to code your mechanics.



Prototyping Phase - Playtesting

As you reach the end of the Prototyping Phase of your project, have your Code Sensei and at least one other ninja **playtest** your project. **Playtesting** happens when other users play your project while it is still in development, and provide you with valuable feedback that can be used to improve your project!

Use the questions in your Gold Belt Planning Document to collect playtest feedback from your Code Sensei and at least one other ninja. Then, use the feedback you've received to update your prototype before moving on to the next phase.

Playtesting Questions

- What did you like about my project prototype?
- What could be improved in my project prototype?

Then, create 2 of your own questions to ask your playtesters!

Ninja Planning Document

Complete the **Prototyping Phase - Playtesting** portion of your Gold Belt Ninja Planning Document by asking at least 1 other ninja and your Code Sensei to playtest and provide feedback on your prototype.



Finishing the Prototyping Phase

As you wrap up the Prototyping Phase of your project, work with a Code Sensei to record a Dev Diary video, then review this checklist to demonstrate that you are ready to move on to the next phase of your Gold Belt project!

Dev Diary #2 - Prototyping

Work with a Code Sensei to record a video in which you:

- Demo your prototype! Tell how you planned, implemented, and modified the mechanics as you added them to your prototype.
- Discuss any challenges you faced while building your prototype, and how you overcame them.
- Share something that you're excited about adding to your project in the Alpha phase!

Prototyping Phase Checklist

- ✓ I used simple shapes like squares and cubes to create my prototype in Unity.
- ✓ I planned out 2 (or more) game mechanics using pseudocode.
- ✓ I added at least 2 game mechanics in my prototype.
- ✓ My prototype was playtested by at least 1 other ninja.
- ✓ My prototype was playtested by at least 1 Code Sensei.
- ✓ My prototype has no bugs.
- ✓ I recorded Dev Diary #2 with my Code Sensei.