**Game Design**

Performance Task

# **Create — Sound n Effects**

## **Overview**

In this performance task, you will program a fast-paced endless side-scrolling runner game where the player needs to time jumps over oncoming obstacles to avoid crashing. In creating this prototype, you will learn how to add music and sound effects, completely transforming the experience of your projects. You will also learn how to create dynamic endless repeating backgrounds, which are critical for any side-scrolling games. Finally, you will learn to incorporate particle effects like splatters and explosions, which make your games so much more satisfying to play.

## **Assessment**

You will be provided with 16 hours of class time to complete and submit the following:

* A video of your game being planned or a trailer for the game
* Written responses about your game and design process
* Digital Game Prototype

Your teacher will share submission guidelines that include suggestions for creating video and PDF files.

## **General Requirements**

You are required to:

* Analyze their own code and provide solutions to errors identified.
* Explain the characteristics of a nonlinear story
* Compare conflict and outcomes
* Build empathy maps that explore the range of different user perspectives and needs. Brainstorm solutions that will meet the needs of their users.
* Compare processes of creating interior versus exterior environments
* Compare level design of linear games to open world games
* Compare design considerations for environmental, assets, characters and User Interface (UI) creation
* Describe good quality assurance practices
* Produce a game pitch document
* Research various styles of game documentation
* Research victory condition mechanics of a game
* Differentiate control structures and modify program with boolean expression
* Decompose (break down) problems into smaller, manageable subproblems to facilitate the program development process.
* Provide the definition of a data structure and its different functions (e.g., organizing, processing, retrieving, and storing data).
* Compare the use of constants and variables
* Differentiate between syntax and semantics errors
* Write responses to questions about your game.
* Include your entire prototype.

## **Submission Requirements**

### 1. **Video**

Submit one video in .mp4, .wmv, .avi, or .mov format that demonstrates the running of your game. Your video must not exceed 1 minute in length and must not exceed 30MB in size.

### 2**. Written Responses**

Submit one PDF document in which you respond directly to each prompt. Clearly label your responses. Your response to all prompts combined must not exceed 950 words.

You may use images to show off or to explain things in your written responses.

## **Purpose and Development**

1. Provide a written response or audio narration in your video that:

Identifies the changes you made to your prototype. Identifies the changes.

* Explains what the video illustrates.

(Approximately 150 words)

1. Explain the characteristics of a nonlinear story. Compare conflict and outcomes in the terms of digital game play. Build empathy maps that explore the range of different user perspectives and needs and how that affects game play. Brainstorm solutions that will meet the needs of their users. Describe good quality assurance practices.

(Approximately 200 words)

1. Compare processes of creating interior versus exterior environments. Compare level design of linear games to open world games. Compare design considerations for environmental, assets, characters and User Interface (UI) creation.

(Approximately 200 words)

1. Differentiate control structures and modify programs with boolean expressions. Provide the definition of a data structure and its different functions. Compare the use of constants and variables. Explain how events and handlers function in conjunction with one another along with why validation is important to program design. Differentiate between syntax and semantics errors.

(Approximately 200 words)

1. Research various styles of game documentation, and select a style which suits your needs. Research victory condition mechanics of a game and select one for the different ideas you currently have written down.

(Approximately 200 words)

## Tasks

### **Activity 1 - Explore**

**Description**

Students learn about artificial intelligence (AI) in video games and create waypoints for GameObjects in Unity and think about how this might be added to their games in the future.

* Starting with AI

Time To Complete: 1-2 Hours

### **Activity 2 - Research**

**Description**

How the end user (players) affect the design process and why we should consider them while building our games. How does creating different environments happen? What is the process of creating an interior environment and an exterior environment? What is quality assurance? Lastly, how do we document this all?

* How to design levels
* How thinking about players affects design
* Game Design Documents

Time To Complete: 5-6 Hours

### **Activity 3 - Ideate**

**Description**

Students learn about their final project and spend time brainstorming and refining their ideas. Up to this point, you’ve learned a little about the video game industry and some fundamental Unity skills. Now it’s time to put your knowledge to use in your very own game. Take your two game ideas from the last exercise and describe how they each will address the four elements of a good game. Quick feedback is super important throughout the game design and development processes. If you spend too much time working on ideas before getting feedback, you risk getting prematurely attached to early ideas and resistant to change.

Take your two game ideas – your descriptions and how they apply the four game elements – and share them with up to three people. Ask them to provide honest feedback and questions, and write them down.

* Planning Your Game Part 2

Time To Complete: 2-3 Hours

### **Activity 4 - Evaluate**

**Description**

Students will self evaluate their game idea, and then peer review the idea looking for input and helpful feedback to finalize the idea before building the prototype.

Time To Complete: 1-2 Hours

### **Activity 5 - Construct a Prototype**

**Description**

Set up the basic gameplay for this prototype. We will start by creating a new project and importing the starter files. Next we will choose a beautiful background and a character for the player to control, and allow that character to jump with a tap of the spacebar. We will also choose an obstacle for the player, and create a spawn manager that throws them in the player’s path at timed intervals.

We’ve got the core mechanics of this game figured out: The player can tap the spacebar to jump over incoming obstacles. However, the player appears to be running for the first few seconds, but then the background just disappears! In order to fix this, we need to repeat the background seamlessly to make it look like the world is rushing by! We also need the game to halt when the player collides with an obstacle, stopping the background from repeating and stopping the obstacles from spawning. Lastly, we must destroy any obstacles that get past the player.

The game is looking great so far, but the player character is a bit… lifeless. Instead of the character simply sliding across the ground, we’re going to give it animations for running, jumping, and even death! We will also tweak the speed of these animations, timing them so they look perfect in the game environment.

This game is looking extremely good, but it’s missing something critical: Sound effects and Particle effects! Sounds and music will breathe life into an otherwise silent game world, and particles will make the player’s actions more dynamic and eye-popping. In this lesson, we will add cool sounds and particles when the character is running, jumping, and crashing.

* Jump Force
* Make the World Whiz By
* Don’t Just Stand There
* Particles and Sound
* Challenge 3

Time To Complete: 6-8 Hours

### **Activity 6 - Improve the Design**

**Description**

Once the prototype is built the students will now test the games. Students should play 2-3 games and provide useful feedback to the creator. Students will then take their feedback and plan how to improve their game, play test it once more and get some final feedback.

* Extras

Time To Complete: 2-3 Hours

### **Activity 7 - Share**

**Description**

Students will share their feedback, prototype and whole design process with the class in a formal presentation, or gallery walk.

Time To Complete: 1-2 Hours

### **Activity 8 - Reflect**

**Description**

Students will reflect on their design process and how they went about creating their game, what struggles they encounter and how what worked and didn’t work for them. They will submit a video of game play, along with their written reflection.

Time To Complete: 1 Hour