I chose programming as my specialism due to my desire to further my knowledge in regards to the topic, and to provide myself with a new skill that I can use in game development. Before taking on this specialism, I only considered myself proficient enough to pursue a career in game art, however adding new skills to my skill set is necessary. I chose programming due to its importance within the game industry and how foundational it is to games themselves.

The first brief that I tackled was the rolling road brief, one that I felt I could complete with my current skill set while still posing a sufficient challenge to myself. I ended up following a tutorial provided on Sharp Coder Blog intended to teach the reader how to make an endless runner game. This walked me through the process of creating the prefab utilised for the road along with the components which would later act as the obstacles. The tutorial did provide me with code to use, however it didn't explain what each part of the code did. I attempted to learn what it meant independently while typing it out by hand. I was also afforded a challenge by needing to remove parts of the provided code that were irrelevant to the brief, such as UI elements and aspects relevant to player control and failstates. Identifying which parts needed to be removed familiarised myself with their function.

This brief helped me familiarise myself with the GameObject class, along with what can be done with it. This brief also taught me how random number generation in unity works, as I was required to use it in one of the extra credit assignments, that being the random generation of obstacles. This same extra credit assignment helped me further understand arrays and how GameObjects can be assigned to them as an integer or string would, as well as using random number generation to activate and deactivate objects within said array.

For my second brief, I chose to go with the FPS counter. This is due to its use in a wide range of games as a helpful tool, not only for the developer but for the player as well. This, too, I used a tutorial for, provided by AIA on YouTube. What my code did was essentially add 1 to an integer for every frame that passes, and then display that number on the UI once a second passes. An important thing to note is that TextMeshPro is required in order for it to function, however it isn’t included in the package files. If you plan on using it, please install TextMeshPro.

This brief was simple enough, however it was still able to teach me new skills. Notably, about TextMeshPro and its uses. I was also able to learn how to use both canvases and text boxes, and their uses when it comes to displaying UI elements. A few of the more minor aspects learned include the .ToString function, as well as MathF.

The final brief I ended up tackling was the instanced scrolling material. Initially I followed a tutorial provided by Jimmy Vegas on YouTube, however the steps provided didn’t entirely fit the brief. I was still able to use what he had given as a framework, I just had to modify it to use Time.deltaTime (as to keep the scrolling speed independent of the framerate). Previously, the code had used Time.time instead and had set the scrollX and scrollY variables within the Update function. When altering the code, I instead had the scrolling variables set outside of any function, changed the Update function to FixedUpdate, and had altered the equation the code uses to calculate the scrolling speed and direction. The final product has the speed and direction of the texture scroll being controlled by two float variables, SpeedX and SpeedY. Though 0.5f is the default for both of them (causing the texture to scroll diagonally) they can both be customised within the unity editor to change this. The scene I provided has the script attached to a plane, however the script can be applied to any 3d objects with a main texture in order to achieve the same effect.

This brief helped me to further understand GetComponent and when to use it, something I had previously struggled with. Along with this, I learned of the renderer component and how it is used.

Throughout my work on these briefs i’ve gained a basic understanding of the C# coding language and familiarised myself with the unity engine. The work I've done has led me to learn about and utilise tools I wasn’t aware of before. The documentation components of each brief also helped me break down how code works in terms that I (and those unfamiliar with code) would understand. Though I still consider my skill set basic, I’m thankful for the push this has given me.