For Game Specialism 2, we were tasked with completing 4 briefs centred around our specialism as well as completing a production diary, for which mine was for programming. My plan for this module was to tackle some of the harder briefs this year as in year one I went with the more easier briefs, this would challenge me and would help me to learn new skills and things about Unity.

I started off with an easier brief which was the Radar brief, which required up on the radar to be representative of the player's direction as well as using a radar-contact script in order to show the objects on the radar. I started off by researching different ways of making radars as there are many different types that you can do, I originally wanted to make a radar with a line that would spin around and make objects appear however that would only work for a specific type of game so I create a radar that could be easily used with different types of games. In order to make the radar work I created a second camera on my player that would only show objects on the radar layer, this allowed me to use the radar contact script to set any object with the script attached to the radar layer thus making it visible on the layer and making it meet one of the requirements. The original player movement script that I had made for the component was not suitable as the player was not able to rotate in order to display the radar matching the player's rotation so I had to edit it in order for the player to be able to rotate which matched the second minimum requirement for the brief. For the extra credit, it required objects out of range to be shown on the outer edge of the radar, I achieved this by creating an if statement to see if the objects on the radar were a further distance than the switch distance and if they were then they would appear on the border of the radar. During the creation of the script I did not run into any issues however, I did have an issue afterwards where my example scene did not save so I had to remake it again which slowed my progress towards working on the next brief.

For my second brief, I chose the Edge Detection Shader which requires the shader to detect and highlight edges, as well as having the thickness and colour of the outline be customisable. I barely had any knowledge of shader graphs but had seen other classmates use them which is what made me decide to pick this brief, firstly I looked online to see the possible ways of detecting the edge of a mesh and picked one that would allow me to meet the customisability requirements of the brief, in the end, I decided to add a lot more customisability options than what was listed on the brief, as giving the user more choice can help to fit a whole variety of games. In order to make sure it worked I used multiple 3D Objects from Unity as well as a more advanced shape with a basic character model that I had made in another module, I did this to demonstrate that it would work on more complex shapes but that it could also be used as a substitute for rim lighting or to achieve a cartoony look for a player model.

For my third brief, I chose the Image Compositing Shader which required the user to be able to remove the colour from a graphic, with colour/tolerance customisation and having at least functionality on an image source. I started off by meeting the requirement of working on an image source which was allowed by creating a shader to get the mesh’s texture, this shader also allowed functionality for gifs/videos and later on webcams. I added a few more customisation options to the shader so that the user had a lot more control of the colour being removed. When it came to implementing the shader onto the webcam I had to create a script which would bring up a list of all the user's webcams and then default to the first one to display on a plane, the console would bring up all the webcams and their order number so if it was to pick the wrong one then it could be easily changed. This then also allowed me to slightly tweak a duplicate of the script for it to be able to work on UI raw images in case people wanted to use it as an alternative to hero portraits.

For my fourth and final brief, I chose the Audio Frequency Detector brief which required the script to detect 4 distinct frequencies and be able to modify those frequencies. The original tutorial I followed to solve this brief ended up being way too complicated for myself and especially other people who would be looking to modify the script so I decided on picking a different one. As well as meeting the customisation requirements I also allowed the user to increase the intensity of the scale of the cubes when a frequency is detected based on how visible they want it to be. In order to test this, I picked a song from the YouTube Audio Library and set the intensity to a high amount to show that each of the 4 cubes was being affected. Currently, the script looks at a range of frequencies for each cube however if you wanted to add more cubes or change it from a range to one specific number then the script would easily allow that to be implemented.

If I was to do this module again then I would probably spend more time optimising the briefs for more customisability and making them look graphically nicer altogether in appearance even if it is not the biggest priority, I would also have liked to have tackled another brief too, I think the Rolling Road brief would have been very fun to do.