Connor Howard's Specialism Module Reflective Essay

Over the course of this semester I have been given the task of choosing four programming briefings that require me to design specific systems with specific requirements. This essay will be a self reflection on how I feel I handled these briefs, breaking down the success and struggles I faced developing them.

What were my goals for each brief and how did I plan for them?

Just like the previous year we were all told that we did not have to complete the briefs but that we had to attempt as best we could, my goals for each briefing was to try and challenge myself a little bit more than the previous year and see what I could accomplish, I planned on spending two weeks each briefing but knew that for some I may take less time or more depending on how it went.

This plan was simple yet worked well, the times it took for me to complete each briefing varied as expected and for some briefings there was a level of challenge more so than others requiring me to delve deeper into figuring out ways to solve set issues.

Briefing one - Auto Scaling Text Box:

The first briefing was the Auto Scaling Text brief in which I had to create a system that would automatically scale a UI text border to fit a text object that could be dynamically changed in run time. The specifics were that the system had to:

1. Use a sliced background image.
2. The length of the text can be able to be varied in run time.
3. Have a script that calculates the size of the text box and resize the image to fit it.

How did I perform?

I went in with a plan of having a randomly chosen selection of text strings appear above 5 boxes within a scene and they would alternate every 5 seconds. I then planned on working to scale the UI split image with each string This plan would not work and I had to stop after the first day and come back to it on the second with a new method to use as my approach to completing this brief which I will explain in more detail below.

This briefing was one that took me two days to complete. I feel I tackled each individual requirement well in the end, this briefing was the first time I had to work on

auto scaling UI images for text objects and so was a great learning experience that can be applied to almost every project I work on in the future. I did a good job of having a plan to go in with even if the first plan did not work out, I did well in adapting my plan to be able to come up with a solution which I will go into detail in the what went wrong section.

What have I learnt?

As explained above this specific type of function or system was not one I had worked on prior to this briefing and so was a great learning experience for me, I learned how to manipulate and work with the size delta of the rect transform component in order to measure and adjust my UI image to fit the text. I also learned how to utilise a sliced image in order to resize the middle while moving the edges of the image along as to not give off a stretched image feel.

What went right and what went wrong?

So my first method of approach did not work out because I made plans to instantiate objects which I try to avoid most time due to the performance cost and then instead have them pre loaded in a pool to use, but then I realised that while my script worked it does not demonstrate dynamically changing the size to fit changing text in run time and could be perceived as having the sizes of the image preset for each text which was not the case but I needed a better way to demonstrate dynamic adjustments so on the second day I came up with a whole new method to do this brief. I used the simple idea of one text UI in the centre of the screen with a UI image that would scale dynamically as the textbox changed during play. I then created a new script that would take 3 sliced images and scale the middle section in run time to fit this one text object in run time, then move the edges over. This new method worked perfectly and so while my first plan failed I did well in adapting it to create a plan that would give exactly what I wanted.

Covid-19:

Unfortunately Covid-19 was still a large factor throughout the entirety of second year and just like the last semester in first year it had a big impact on my work life even more so in fact, I found that I struggled even more so when it came to motivation and general drive to work, this combined with the overall psychological impact on my mental state Covid has admittedly had made it more difficult to keep up with all of modules and maintaining a passion for the work that I produce, I did my best to

counter this and took action to make sure I took regular breaks, went for walks or did some online social calls as too not feel too isolated but nonetheless, it is important to note that I certainly work better inside the game studio environment at uni and am very hopeful to working there once again for my third and final year allowing me to produce even better work than I currently am.

Briefing two - Speedometer:

The second briefing was a speedometer system, this brief required me to do the following:

1. Create a system that measures the current speed of an object through Unity world space.
2. It must take the speed from the rigidbody component.
3. The result needs to be converted from the standard Unity scale of meters per second into miles per hour.

How did I perform?

I started strong knowing exactly how to set up the unity scene. I created a 3D cube and made sure it had a box collider and rigidbody component attached. I applied constraints to the x and z rotations so that when moving it would not flip or roll over. I then made a stretched plane for the object to have a surface to move about on. Lastly I needed something to display the speed on screen so created a canvas and a UI text object to do so. Then came to the programming and again I did fairly decent in this briefing, not hitting mainly roadblocks along the way and applying prior knowledge to help implement the script such as making sure to use the “FixedUpdate” for all my physics calculations and “Update” method for all my input checks.

I managed to complete this brief the same day I started which gave me good time to work on other modules as well as prepare for my following brief.

What have I learnt?

I did do some research into finding out the conversion from metres per second into miles per hour which was “mph = rb.velocity.magnitude * 2.23694f * Time.fixedDeltaTime;”. This is basically the current speed multiplied by the conversion rate from MPS to Mph.

Briefing three - Shuffle button:

The third brief was all creating a system that would semi-randomly shuffle music tracks at the push of a button, the specifics being:

1. Each shuffle should mix the tracks given to be as unpredictable as possible, but should also avoid repetition of the same track twice in a row.
2. The number of tracks in the list must be customisable through the Inspector .
3. must return a new shuffle each time the Shuffle function is called

How did I perform?

This was the first intermediate level brief that I had done as I wanted to challenge myself further and it went surprisingly well, I really enjoyed the method I used to tackle this briefing as it was one I ended up being able to use within my AGP module prototype.The idea I used was to have two public lists, one containing all the available tracks and the other being empty. I planned on calling the shuffle function which would randomly shuffle through the available tracks list and then place them in the used tracks list, I then displayed them within the console window. I managed to start and finish this briefing on the same day which was also a welcome surprise allowing me more freedom to work on other modules.

What went right and what went wrong?

I hadn't worked too much with lists in the past and it allowed me to discover a preferred method of handling multiple data variables as opposed to always using arrays. When creating this script I needed a way to clear the console window as that was what I was using to display the randomised track list in and I needed it to be cleared each time the shuffle function was called so as to not cause any confusion on it mixing with prior lists. This presented a problem and I had to do some research online as to find out a method on how to do this, this lead me to discovering “using System.Reflection;”, this allowed me to create a variable that had access to the Assembly giving me further access to the editor log entries, I could then call a function that clears the window. Once that was done the rest was smooth sailing and I fully enjoyed making this script.

Briefing four - Old Money System:

The fourth and final brief tasked me to create an old fashioned monetary system used in british times prior to the 1970s being Lsd (pounds, shillings and pence). The requirements for this briefing are as follows:

1. You need to be able to represent monetary value in terms of Lsd.
2. create a class in csharp to represent amounts with functions to add and subtract amounts
3. Be able to test if one amount is equal to, or greater, or less than another amount.

How did I perform?

This was another intermediate level briefing and presented some initial confusion with me not having much knowledge on this currency system, I feel though that I did very well and enjoyed doing this briefing. I found enjoyment in handling the many many functions and checks required to complete this briefing and even when releasing my initial method approach was not optimal, I was able to adapt it and change to a new method which I used to finish the project.

I worked on this project twice over the course of two weeks while working on other modules in-between.

What have I learnt?

In order to be able to complete this briefing it was paramount that I understood the currency system I would be using, I spent an hour researching the old fashioned currency online to gain a better understanding of the individual values of each and how they convert into one another. I learned the conversion rate of how many Shillings goes into a Pound being 12, 20 pennies into a single Shilling and also about the values of older values no longer used today such as, Farthings being ¼ of a Penny and Half Pennies being ½ of a Penny. This knowledge may not be strictly related to my specialism of programming but was definitely relevant towards the completion of this brief as well as being simply interesting to know.

What went right and what went wrong?

I realised the error of my method to approaching this brief initially, I had made it more complex than it simply needed to be using two versions of the same currency, the total and the current also there was really no need to use booleans so I scraped them and changed my method to doing this with simply directly affecting the total values inside the button functions and have simple checks inside update to then convert them if needed. After taking a break for the day I came back to it with a new plan the next time I worked on it, I had written myself some notes to remind myself of

the new method I wanted to use to do this brief and set about re writing the button functions, I simply either increased or decreased the total values of each monetary value by the respective amounts for that function, a pound would increase by 1 whereas a half penny would increase by 0.5f and farthings by 0.25f. Once done everything was checked and in working order and I feel a sense of accomplishment by being able to take a break once my first plan failed and coming back to it with a brand new plan that solved my initial issues.

What was I working towards in terms of portfolio submissions?

While I did find working at times to be a challenge in itself due to the lack of motivation throughout Covid some of the briefs in particular gave me a sense of pride in my work which allowed me to motivate myself towards doing more work.

The briefs themselves will be a great edition to my portfolio as the diversity of each briefing allows me to show off a range of problem solving skills in a variety of situations as well as demonstrate new found knowledge in areas both inside and outside of programming.