**Question 4**

I have found this unit quite difficult to understand but as the semester progressed, I found it easier to understand. I have found that the main thing when it comes to programming is to try and practice the topics we cover each week and experiment with the codes in order to fully understand how different functions and codes work.

For me I found the second assignment very interesting as it opened my eyes to what can be done with a simple code. The stock market simulation was very interesting and helped me understand how to use coding to achieve a goal.

Recognizing and effectively using different data types and other tools has been very important in my programming journey. I have learned to design and develop innovative and responsible programs that are both effective and efficient. Understanding of data types, such as integers, strings, and lists, has allowed me to manipulate and store data effectively. I have also had fun learning about loops and conditionals, to control the flow of my programs and solve complex problems which I thought would be impossible.

Developing problem-solving strategies and applying programming methods has enabled me to create efficient algorithms and programs that solve real-world problems. I have learned to approach programming challenges from an innovative and open mind to solve the problems in front of me.

It has been a great experience to learn about new methods and techniques for coding to add to my previous experience I got from my high school. I have learnt that to solve the problem no matter how complex it is, the 5 steps in the programming methodology have been key to break down the problem first before rushing into the code. This has helped me remain calm when faced with difficulties.

To conclude, I would like to say this unit has given me a solid foundation in programming. It has equipped me with the skills to write efficient code, test and debug programs, and consider the broader implications of my work. I Am looking forward to learning more about programming and apply the skills I have learned in future work and endeavours.

**Weekly reflections**

Week 1

When I first saw that I would be doing a programming unit this semester, I was a little worried. I have done some programming before in high school and found it a little challenging at first, which made me scared about having to do it as one of my units. After going through the first module in the lecture, I got even more worried as I did not use Python before; instead, I was using Visual Studio. I went through the lecture slides and found out that it would not be as hard as it looked. I found that there are many similarities between Python and Visual Studio, as the logic behind the code does not change; it is just the coding language that changes. I also found pseudocode very interesting, as it really helps with breaking down problems into simple English before implementing it in Python. When I did not try and write codes in Pseudocode first I found myself having errors on python as i would miss steps or key elements in the code.

After going through the workshop questions, I realised that it would not be as hard as I initially expected. In particular, the two exercises in the first module helped me to remember the logic behind programming by breaking it down into steps. The exercises themselves are not that challenging but are good practice to learn programming by breaking down problems and figuring out what different lines of code mean. I then decided to do some practice on Python to test whether I was grasping the concepts, and that really helped me to understand the lecture, which helped me to not be so scared about programming.

I found the first lecture very helpful in getting the basics of programming, which also helped me not be so fearful about this unti.

Week 2

Having gone through the lecture for week 2 i have further enhanced my knowledge about coding.

In my experience, Python objects have been instrumental in breaking down complex problems into manageable parts. For instance, when I was practicing writing a few codes I saw how variables are key in order to write a working code. I saw the importance of managing and labeling them clearly as well as to not get confused when writing more complex codes.

I also found it interesting how similar writing python codes can be to doing mathematics. I found it useful to use the same logic I would use when solving a maths problem by breaking down the equation/problem into smaller manageable sums. This has really helped me when I need to break down a problem in pseudocode before trying to write the code.

I have been using the extra activities our lecturer has provided us to practice python. I was initially scared about practicing another a new language, but I found that practicing makes things much easier. I also found it interesting how easy it is to use the basic functions in python in order to solve more complex problems. I also found it interesting how key it is to use different sets of data to test the program to ensure that it runs with all the test data.

I hope to continue learning more about python which I’m sure will happen with the lectures every week and the practice that I do.

Week 3

After completing the exercises for Week 2, I felt a lot better about programming. This week, I found the use of functions in coding very interesting. I had previously done functions in high school but failed to grasp the concept that well, which made me feel a bit worried about this topic. During the lecture, I found that they were not as difficult as I initially thought. I have learned that functions are a key part of coding, as I can call them multiple times without rewriting the same code. This not only makes the code cleaner and more readable, but also reduces the likelihood of errors.

I felt much better about this topic after completing the workshop. I practiced trying to use functions as part of my code but ran into many errors at first. I learned that when writing functions, it is vital to follow the steps outlined in the lecture slides so as not to encounter errors. I now find it much easier to use functions in my codes as long as I use them wisely and precisely.

I also found it interesting how different functions have different uses, such as the input function, which requires user input(), which means we need to store the response in a variable. I saw how when we use functions, we need to check if we are receiving data or simply outputting it in functions such as print().

I look forward to using more functions in my codes to make them more streamlined and have fewer errors. I will continue practicing with the exercises we have been given and look forward to the coming week.

Week 4

This week, I felt much better than the rest because of the practice we've been doing over the last 3 weeks. I have become more comfortable using the Jupytyr notebook, which I find very helpful when programming. This week we covered quite a lot in terms of new functions, but I did not find it too difficult. This week, I found quite a few things interesting. In particular, I found the speech-to-text recognition very interesting. I never really use speech-to-text which is a useless function in most applications but is very helpful. I did not know that we would be using it ourselves in a code, which was very exciting.

I found it a little difficult at first but after attempting it multiple times, i got the hang of it. I found that mounting files from google drives is very helpful when writing codes, especially when doing text-to-speech code. This is because I had no idea that we could mount files onto the code so we could use them for reading and writing.

I also found exceptions very useful when writing codes, as they allow us to handle errors in a way that does not prevent our code from crashing. I found that exceptions can have a variety of uses in codes we write for everyday use.

I also really enjoyed using the pyinput functions, which allow us to validate that input data is correct. I find it very useful, as I have always wondered how we would stop users from entering wrong inputs in items such as password fields.

This week had a lot of different topics, which was a challenge, but after completing the workshop exercises and notebooks, I am sure that my understanding will be further improved.

Week 5

This week was better than others in terms of grasping the concepts we covered. It is getting easier and easier each week to programme as we practice new techniques each week. I found a few things interesting this week, especially since I finally managed to get my text-to-speech code working. It has been very interesting trying to solve the errors that have been appearing throughout my codes. Sometimes it was a simple syntax error or not using variables correctly. I feel much better about programming now as my problem-solving skills have improved, which I find very key when writing codes.

This week we covered modules, which i find very interesting as it are similar to functions. I find modules very useful when writing codes, as i can write a small module and test it without having to debug an entire program. It makes it very easy to write codes when I can write smaller modules that I have already tested and then implement them in my code easily. The modules make it very easy to reuse codes, as I can use my created modules in other projects, which saves time having to write and debug new code.

I hope to continue this momentum in the next units and complete the exercises in order to further practice my skills.

Week 6

I found this week a lot more challenging than the rest, as the topics we covered this week are quite hard to understand. Assert error handling in Python is a very interesting topic. It's a simple yet powerful tool for debugging and validating code. I found it very useful when it came to debugging programs early on. However, its simplicity can also be a double-edged sword. I realised that if you rely too much on it, your code can become very hard to understand as well as maintain.

The other thing I found interesting this week is the Python Debugger commands, which offer a broader approach to debugging. With pdb, you can set breakpoints, step through your code, inspect variables, and more. It's like having a magnifying glass for your code. I found it very useful, but it can be very challenging to use, which has made me scared to use it. The learning curve is steep, and remembering all the commands can be challenging. It is very difficult to grasp the topic, but I am sure with more practice I will become much more confident using it.

In conclusion, both assert error handling and pdb commands have their own unique strengths and challenges. They serve as reminders that while coding can be complex, there are always tools at our disposal to make the process easier and more efficient. I hope that with more practice, I can master these topics in order to further my programming skills.