

## **Final Reflection**

Prior to starting this module, I had limited experience with programming, most of which was gained during the last module. I had never heard of UML and found the concept of Object-Oriented programming unintuitive and difficult to get my head around. In the first 2-3 weeks, I found the basic concept of a Class and an Object straightforward, however incorporating that into actual software beyond a single class and related objects was beyond me. Again, some of the UML models were simple and intuitive however some I found more challenging.

Identifying the objects and classes in theoretical examples was counterintuitive to me and took some practice. I hit a breakthrough around Unit 5, with plenty of practice in both UML modelling and by constant practice in producing basic programs. The course textbook, Python 3: Object-Oriented programming, was particularly helpful in cementing my knowledge (particularly Ch1 & 2), coupled with hands on experience. I found my confidence was growing during this point in the module. In unit 7, the Summative assessment on System design was due. I had some difficulty in identifying how I wanted to design my program, what objects I would use and how they would interact. The feedback was mixed, but it allowed me to identify the weaker areas of my UML skills. I spent some time reviewing the Models which I felt could be improved. Again, I felt like this improved my understanding of the subject.

I reviewed my design and started to work on the next Summative assessment, the implementation of the driverless vehicle design. This project was a significant learning experience for me. It allowed me to test my knowledge so far and really cement everything I had learned. During this project, I went back over the previous units where I felt the need to revisit and revise certain concepts. Ultimately, I feel this gave me a deeper understanding of all the course material. It also allowed me to draw comparisons between different concepts and relate things together.

During this time, we also covered areas such as Data structures, packaging, testing and Design patterns. Once again, I found that I learned most by putting these concepts into

practice. The summative assessment was an excellent opportunity to do this, for example, I ensured my program was modular, I incorporated Docstrings and included testing.

One area which I do believe could have improved my learning throughout this module is if I had made better use of the tutor and submitted more of the exercises and activities for feedback. This may have helped me to identify weaknesses which I may not have been able to identify myself.

Overall, I feel I have progressed significantly over the course of the last 12 weeks. I feel confident in the course material and have revisited areas which I felt were my weakest. I found that, for me, I learned most by putting everything into practice, allowing me to identify my weaknesses and bring everything together. During the last module (Launching into Computer Science), I created a project without incorporating any classes or other Object-orientated principles. While I was happy with this project at the time has made me reconsider that project, about how it could be improved with the adoption of what I have learned during this module. I believe this is a good sign of the progress of my skills and knowledge as a result of this module. I also now see the benefit of UML models, which at first seemed more of an inconvenience. It has brought a structure to my programming rather than the trial and error, improvised approach I used before.

### **Skills Matrix**

Aside from the professional skills matrix provided to us via Moodle (which can be found in my e-portfolio) I found it useful to create the following basic skills matrix to analyse my own development within this module as part of my reflection.

Skill	Start of Module	End of Module
Basic Programming	2	2/3
UML models	0	2
OO Programming	1	2
Design Patterns	1	2
Testing	1	2

0 - No competence  
1 – Low competence  
2 – Reasonable competence  
3 – High competence  
4 – Expert

I believe that this module has improved my competence in all areas. In areas where I started with zero or low competence, I feel I have now achieved a reasonable level of confidence. I hope to consistently continue to improve and identify my weaknesses through honest self-assessment.

### **Action Plan**

My plan to continue my development is to continue building projects and to try to adopt as many different tools as possible. Throughout the course so far, I have found that, for me, the most effective way to learn is by putting my skills into practice and creating programs. I plan to revisit the Self-driving car project, with feedback from the tutor in mind to see where and how I could improve it. Further, I plan to revisit my project from last module (Launching into computer science) to see how an object-oriented approach could improve it.

Finally, I intend to continue to the next module, Secure Software Development, to further increase my skillset.

### **References**

Philips, D. (2018) *Python 3 Object-Oriented programming*. 3rd ed. Packt Publishing