Student ID 12694149
Essex University Online
PG Dip. in Computer Science
Module OOP: Unit 12

Portfolio link: https://lecodebyjean.github.io/portfolio/

Word count: 1037 words

Reflective piece

Reflecting on my journey through the Object Oriented Programming (OOP) module, multiple emotions surfaces. From the overwhelming sense of challenge at the start to the gratifying sense of accomplishment upon completion, this introspection explores the different stages of my learning path. It unravels the milestones I reached, the rollercoaster of emotions I weathered and the impact this module has left on both my personal and professional development.

Project Overview and Emotional Response

Navigating through this module brought to light various challenges that significantly shaped my learning experience. When I first overviewed the Object-Oriented Programming module's units and assignments to come, I was initially overwhelmed at the prospect of developing a driverless car program. At that moment, this capstone project seemed unattainable. The thought of tackling such a complex system was intimidating; I felt a mix of excitement for the opportunity to learn more on the subject and anxiety about my ability to meet the expectations. This was not just about the technical challenge but also about managing time effectively, especially as someone for whom English is a second language and computer science theory is relatively new.

My initial reaction to this project was enveloped in fear that I might not understand the OOP concepts well enough to apply them to a real-world problem. However, as I dug deeper into each unit's topics, my initial fear progressively shifted to curiosity and eventually turned into determination. The more I explored encapsulation, inheritance, polymorphism and abstraction the more fascinated I became with their use.

Challenges and Changed Actions

One significant obstacle I encountered during this module was managing my time effectively. It became apparent that I needed more study hours than what was advised not only for completing assignments but also for following the lecturecasts and reading materials. This difficulty was compounded by my eagerness to test and apply newly learned OOP concepts as I progressed in my learning, in order to grasp the practical implications of the theoretical concepts I was acquiring. Nevertheless this struggle motivated me to adopt new learning strategies such as creating visual aids to simplify complex ideas and enhance my comprehension.

The shift from theoretical learning to hands on implementation marked a turning point in my learning experience. Implementing the design of a driverless car system in Python allowed me to witness outcomes of my work. This practical experience played an important role in reinforcing my understanding of OOP principles. Additionally, adapting initial design plans when facing unexpected obstacles in the implementation phase and overcoming technical challenges in assignments highlighted the significance of adaptability and problem solving skills in software development.

Skills and Knowledge

Throughout my experience with the Object Oriented Programming module I went from understanding the concepts to applying them, reaching learning milestones along the way. When we dived deeper into classes and encapsulation for example, I learned about how encapsulation plays an important role in protecting an object’s data integrity and preventing external modification. This knowledge inspired me to restructure the employee leave management system from unit 2 into a more secure format by encapsulating employee details and using private access modifiers.

In Unit 7’s assignment, each class was crafted to handle distinct functionalities, embodying the concept of encapsulation by managing its state and behaviours internally and securely. This application simplified code structure significantly for clarity and maintainability.

Moreover, OOP’s core concept of abstraction played a important role in my learning journey as I tackled the complexities of designing a driverless car system. Abstraction allowed me to concentrate on the cars high level functions while disregarding details not pertinent at that moment. It showed me the significance of focusing on what an object does rather than how it does it, facilitating a clearer and more efficient design process.

These experiences highlight the implications of OOP principles and how they reshaped my approach to software development. By implementing these concepts, not only have I increased the efficiency of my projects, but I have also deepened my comprehension of building real-world systems in a structured and efficient way.

Ethical and legal responsibilities

When I started this Postgraduate Diploma in Computer Science I hadn't fully seized the ranging implications embedded in software development. The project on driverless cars was eye opening emphasizing the responsibilities placed on the tech industry and society’s heavy reliance on technology. From smartphones and internet to banking services and global communication: the crucial need for secure, reliable and ethical software development became clear.

As I began researching for unit 7’s assignment on designing the autonomous car system, I came across multiple articles discussing traffic collisions involving self-driving vehicles. These readings prompted me to reflect on the broader implications of driverless technology. By eliminating human-errors, stress, fatigue and impairment, autonomous vehicles could considerably improve road safety. However this also brings up concerns, such, as determining who is responsible in case of a collision (the car manufacturer, the company operating the car, the software engineer who wrote the faulty line of code) and how to handle unavoidable obstacles. In my project I tried to illustrate these dilemmas by integrating a fragility index and an avoidance priority into the systems design, recognizing the complexity of these matters. Suddenly the theoretical discussions about ethics in technology became tangible with real world implications showing the impact of our work as software developers on safety, privacy and societal standards.

I've realized that software engineering goes beyond creating systems; it also involves anticipating and addressing potential risks. The ethical aspects of technology development invite us to think not only about how we can progress but also how we should progress. I realized the dual role of technology as both an exciting facilitator of modern conveniences and a potential vector for unprecedented ethical questions.

Conclusion

To conclude, my experience with the Object Oriented Programming module has been truly transformative. It pushed me past my uncertainties, and turned them into a foundation for personal and professional growth and learning. The transition from feeling overwhelmed, to understanding and applying OOP principles in software development marks a milestone in my professional development. In addition to improving my technical skills, this module has shown me the value of persistence and flexibility, and gave me the needed confidence to handle more complex programming challenges.