SOP Project – Morse Code Translator

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Group: **404ErrorNotFound**

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Individual Lessons Learned – Valeria Piller

I found this course a bit complicated overall, especially as someone who still considers themselves a beginner in computer science. The pace of the course felt too fast, and I often struggled to keep up with the dense subjects we explored, such as pointers and dynamic memory management using `malloc()`. Many of the exercises were more difficult than the theory and examples shown during lectures or available in the Island platform. Exercises like `earthquake` and `tidy` were particularly challenging, and even `GPS` required more time and explanation to fully grasp.

Regarding the project, I was mainly responsible for the translation functions used in our Morse code system. This gave me hands-on experience with already seen C functions like `strchr()`, `strtok()`, `atoi()`, and `strcat()`, which I now feel more comfortable with. Initially, it was difficult to understand how to implement the function to translate binary light signals into text. We had to process the data provided by the light sensor and convert it into a format that allowed for decoding into readable characters.

The calibration part was particularly interesting. My teammate Mathilde came up with the elegant solution of using rising and falling edges to detect changes in light. This technique involved monitoring light state changes (ON/OFF) and resetting a counter at each change to record the duration and state value. This logic allowed us to effectively decode light-based input signals.

Another takeaway was learning to work with external libraries like `morse.h`. While these can be extremely helpful, we also needed to understand how to adapt our own code to fit the structure and requirements of the library. This experience taught me to be flexible and to read and understand code that I did not write myself.

Finally, this project gave me a real insight into how group collaboration works in a programming context. I learned new programming techniques and different ways of thinking by observing how my teammates approached problems. This collaborative environment helped me grow both technically and personally.

Despite the challenges, this course provided valuable exposure to important C concepts. It was also interesting to learn how to use GitLab and WSL. Although I sometimes found the course overwhelming, it helped me build stronger foundations in programming and problem solving. I also appreciated the hands-on experience that the project offered, as it brought abstract concepts to life. In the future, making the course a bit more beginner-friendly could help students like me follow along with more confidence. With more time and guidance, I believe I could have mastered the topics more confidently, but overall, I leave the course with new skills and greater motivation to keep improving.