Homework 1 Reflection

Learning and Personalizing LaTeX Formatting

While preparing for this homework, I dedicated significant time to learning various LaTeX packages such as `fancyhdr` for customized headers/footers, `listings` for code formatting, and even explored `tikz` for potential diagram inclusion. While some of these extra features turned out to be unnecessary for this assignment, they helped me personalize the document layout for our class requirements especially the special math symbols I was trying to use especially in a code format. I now have a clearer idea of how to structure my LaTeX documents efficiently, and next time I will aim for a more concise and organized approach, focusing only on the essential packages. I don't think anything could have been done better by the teaching staff as this homework closely followed what we went through in class and any mistakes would have been a misunderstanding on my end that I am not aware of.

Reflection on the Assignment Content

- **Time Management and Problem-Solving:** Reflecting on the homework, I realize that my approach to solving the logical problems such as verifying chains of implications and ordering conditions by strength was methodical but could have been streamlined. I spent a lot of time cross-checking each implication and constructing counterexamples. In retrospect, setting aside more time to plan my solution strategy before diving into detailed proofs would have saved me time.

- **Understanding Hoare Triples and Reasoning:** The homework challenged my understanding of Hoare logic, especially in cases involving conditionals and loops. Working through the forward and backward reasoning exercises forced me to apply the concept of weakest preconditions (`wp()` notation) more rigorously. I learned that breaking down the assignments step-by-step and annotating the

state after each operation is essential for ensuring correctness, even if it means extra time in the process.

- **Insights Gained:** Before beginning this assignment, I was not as comfortable with the logical implications and the rigorous formulation required in Hoare triples. Now, I have a better grasp of how to construct and verify logical chains and can see clearly how even small changes in the code or condition can affect the validity of a Hoare triple. This deeper understanding will help me in future exams or assignments that may relate to this.