

# Software Project WiSe 25/26

## Lessons Learned

Tim Dilger

09.12.2025

## 1 Lessons Learned

### 1.1 Reflection on the Project

This project proved to be challenging yet rewarding. Creating dynamic, educational exercises for graph theory algorithms required careful attention to both technical implementation and pedagogical considerations. The iterative process of developing, testing, and refining exercises provided valuable insights into educational content design and the complexities of automated feedback systems.

### 1.2 What Have I Learned?

Throughout this project, I developed skills in creative problem-solving when designing exercises that are both technically sound and educationally effective. Each exercise required balancing complexity with clarity, ensuring students could learn from their mistakes through detailed feedback.

I also significantly advanced my R language capabilities, particularly in using R within the JACK platform for validation logic and dynamic content generation. Working with the R evaluator to check multiple correct sequences and provide context-aware feedback deepened my understanding of functional programming and conditional logic in an educational context.

### 1.3 What Went Well?

The structured approach to exercise design allowed for consistent quality across all deliverables. Establishing clear standards early allowed for quality exercises.

The iterative refinement process proved particularly effective. Building a solid foundation in the early milestones made the final quality assurance phase straightforward, demonstrating the value of investing time in getting the basics right from the start.

### 1.4 What Could Have Been Better?

The JACK platform is at times frustrating to use and lacks quality-of-life features that would significantly improve the development workflow. The absence of proper debugging tools made troubleshooting validation logic unnecessarily time-consuming. Better error messages and a more intuitive interface for testing exercises would have accelerated the development process considerably. A preview mode that allows immediate testing without full exercise deployment would be particularly valuable for future projects.