Lessons Learned – RISE Project

Reflection on the Project

This project was a unique opportunity to bridge the gap between theoretical algorithmic concepts and their practical implementation within the Jack ecosystem. It required me to not only master specific mathematical properties but also to learn how to transform them into interactive learning experiences.

What have I learned?

This project provided me with a wide range of new skills:

- **Theoretical Knowledge:** I gained a deep understanding of **Hamiltonian paths and cycles**, distinguishing them from Eulerian concepts. I also expanded my knowledge scope by working on extra questions regarding **Heaps and Hashing**.
- **Technical Implementation:** I gained a deep understanding of **Jack3** and how to exploit its full potential to create a diverse range of exercises. I learned **how to design and code dynamic exercises** by deeply utilizing the platform's documentation. Specifically, I mastered **generating graphs with pydot** and using **Python to create and customize XML structures** for these dynamic contents. This involved mastering the logic required to generate unique, randomized variables for every student attempt.
- **Project Management & Soft Skills:** I learned **how to organize a project professionally using Jira** to manage our backlog and track progress. Furthermore, I gained valuable experience in **how to work in an intercultural group**, collaborating remotely with team members from different countries and adapting to different communication styles.

What went well?

Despite the initial technical hurdles (fixing legacy Python scripts), the project was a success. We delivered on time and produced a high variety of content. My biggest achievement was definitely the dynamic exercises; once I overcame the technical barrier of the Python generation, I was able to shift my focus to creativity, designing scenarios that truly test the students' logic.

What could have been better?

In retrospect, my efficiency could have been improved by applying the **"Eat the frog"** principle earlier. I initially delayed the complex dynamic exercises because they were intimidating. This led to a rush at the end of the project. For future assignments, I will tackle the most difficult technical blockers at the very beginning to allow more time for refining the logic.