Research plan

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The advanced software semester focuses on many technologies that create a complex architecture in our software product. At the same time it's important for this semester that we focus on creating a performant software product. It is expected of us to load test our product with tools such as J2Meter.

Load testing is necessary because it can tell us if a product is able to meet performance requirements for a determined demand. If the product can't handle a certain load then we know we need to find or create more performance within our application. However a potential problem I see is that a load test might not be able to determine where performance bottlenecks are within the code or flow of the product itself. After reading through the course on Canvas I saw the topic of Observability, and specifically Tracing.

I am interested to see if a Tracing solution is able to successfully profile a product, identify bottlenecks and in general improves Observability of a product.

Thus my research will focus on the implementation of a Tracing solution within a product. I intend to do this by utilising various DOT-framework research methods such as:

- Available product analysis
- Literature study
- Document analysis
- Data analysis
- Prototyping
- Peer review

I intend to answer the following questions using the following methods:

How can tracing help improve the Observability of a software product so that bottlenecks within the product can be identified?

A. Which tracing solutions exist?
1. Available product analysis
2. Literature study

B. How to implement a tracing solution?
1. Literature study
2. Document analysis
3. prototyping

C. Can a tracing solution help detect bottlenecks?
1. Literature study
2. Document analysis
3. Data analysis
4. Prototyping
5. Peer Review