Software Reverse Engineering VS Software Requirements Engineering

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* **Define**: What is software requirements engineering?

Just as software reverse engineering, software requirements engineering is a part of engineering that may be not understood very well in some cases, but is a crucial part of the process. According to Wiley University Services (2022), software requirements engineering is the first phase, which is prior to the design, development, testing, and maintenance is implemented. The main goal is the creation of early documentation and process of the software design. This process is also known as software requirements specification (SRS). The process determines the software being produced and is the collection of requirements for a system. According to Fahmi & Choi (2007), software requirements engineering deals with the transformation of those collected software requirements and conforming it into a description of required software, performance parameters, and a configuration.

* **Purpose**: Why is software requirements engineering an important part of the software development life cycle?

Software requirements engineering is one of the crucial steps in the software development life cycle (SDLC). This is due to the process of translating the indistinct and incomplete requirements the clients have provided to the engineering team. The requirements phase will translate this information into precise and formal specifications and is a guide between the users and the development team. SRE can play a great role within the many stages of the software development life cycle. According to Fahmi & Choi (2007), the purpose of SRE is the elicitation, analysis, specification, and validation of the clients’ needs/wants.

* **Comparison**: How does the approach of software reverse engineering differ from the approach of software requirements engineering?

The approaches of the two processes of reverse and requirement engineering differ from one another but they are both a part of the software development life cycle. Software reverse engineering is a phase of the maintenance process and requirement engineering is the beginning stages for a new system. Below is an image provided in the article written by to Fahmi & Choi (2007). It shows the difference between reverse and requirement engineering, but both processes are utilized when working with a legacy system and working towards integrating it into a new system. Reverse engineering can determine which software is redundant and what can be reused in the new system.

Diagram

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* **Impact**: What are your thoughts on the proposed new integrated approach of round-trip engineering and its impact on the computer science field?

Legacy systems will always remain due to its importance, but there are new ways continuously being developed to integrate new technologies from those legacy systems. By doing this, developers can conform to the clients/users’ new requirements and minimize disruptions for the future. I believe this proposal can have a positive impact on the industry and allow for a successful software integration for years to come, or until another proficient method is developed. The proposed approach of round-trip engineering has its advantages. In the article written by Fahmi & Choi (2007), some advantages of this proposal are the ability to trace requirement changes, detect useless requirements, and if they are lacking or missing. This process can easily identify any requirement changes. Below is the image for the proposed new integration approach retrieved from the article written by Fahmi & Choi (2007).

Diagram

Description automatically generated

References

S. A. Fahmi and H. -J. Choi, "Software Reverse Engineering to Requirements," 2007 International Conference on Convergence Information Technology (ICCIT 2007), 2007, pp. 2199-2204, doi: 10.1109/ICCIT.2007.228

Wiley University Services. (2022). *Software requirements engineering: One of the many niches*. What is Software Requirements Engineering? | Software Engineer Insider. Retrieved from <https://www.softwareengineerinsider.com/careers/software-requirements-engineering.html>