Automatic Detection of Non-Testable NFRs in Software Requirements Specifications

- [Semantic Software Engineering](#)
- [Requirements Engineering](#)
- [Software Engineering](#)

1. Overview

The main goal of the project is to provide provide quality assurance assessment of NFR non-testability using an automated system. An NLP pipeline highlights non-testable NFRs to the stakeholders, which can then decide if this is a defect that needs to be fixed in the specificaiton. In the overall project process, this helps making a system maintainable after the end of the project and provides the ability to measure progress on these NFRs.

2. Architecture

We can break down these goals in the following more detailed research objectives:

1. [SRS Concordia corpus](#) for six different requirement documents from different backgrounds, to annotate the different types of NFRs and FRs.

2. [NFR Classifier](#) to classify the requirements into FRs, different types of NFRs, and non requirements (NRs). The classifier allows to convert the requirements artifacts into a machine processable form. This also help the stakeholders by highlighting the NFRs to the analysts and designers.

3. [Enhanced PROMISE corpus](#) for the main thematic roles of the requirements statements, including Agent, Modality, Action, Theme, Condition, Goal, and Instrument.

4. [Thematic roles extractor](#) to automatically extract these main phrases and evaluate it by comparing its output with the gold standard corpus.

5. Rule-based technique to highlight non-testable NFRs. This may encourage the stockholders to enhance these requirements. This is developed to measure the progress during project development through clear objectives and measures.

3. Instructions

1- Download the archive files and unzip them.
2- install gate version 8.
3- open the applications from NFRClassifier\gate\NFRClassifier.xgapp and REQANALYSIS\gate\ReqAnalysis.xgapp.

4. References

Rashwan, A., O. Ormandjieva, and R. Witte, "Ontology-Based Classification of Non-Functional Requirements in Software Specifications: A new Corpus and SVM-Based Classifier", The 37th Annual International Computer Software & Applications Conference (COMPSAC 2013), Kyoto, Japan : IEEE, pp. 381–386, 07/2013

Rashwan, A.: Semantic Analysis of Functional and Non-Functional Requirements in Software Requirements Specifications. Canadian Conference on AI2012: 388-391 – Graduate Student Symposium

Attachment	Size
ReqAnalysis.tar.gz	2.37 MB
NFRClassifier.tar.gz	2.47 MB

Source URL (retrieved on *2026-02-01 01:19*): https://www.semanticsoftware.info/non-testable-nfr-detector