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Assignment 3 Paper Summary

Subject Software Engineering

Submitted to Sir Gulsher Laghari

Conference Name
International Conference on Program Comprehension 2020
Title:

Multi-language Design Smells: A Backstage Perspective

This combination allows developers to leverage the strengths of each programming language and reuse existing code. , design smells related to multi-language systems. This paper aims to provide empirical evidence on the relevance of our catalog and its impact on software quality. We will survey those developers about the prevalence of those smells, their severity and their impact on software quality attributes.

From our result, we will provide empirical evidence of the perception and impact of multi-language design smells. We will formulate recommendations for both developers but also researchers interested in improving the quality of multi-language systems.

Conference Name
International Conference on Program Comprehension 2020
Title:
Improved Code Summarization via a Graph Neural Network
Author: Alexander LeClair, Sakib Haque, Lingfei Wu, Collin McMillan
Summary
This paper is based on the summarization of source code by using techniques of graph neural network and artificial intelligence i.e machine learning, its task is to generate natural language description for the programmer or developer to understand the source code. Its importance is because of the techniques used are graph based neural architecture which better matches with the default structure of abstract syntax tree(AST). They even tried to evaluate their work using a data set and show improvement over baseline techniques of software engineering literature and machine learning literature

They used large well documented data set from the literature to compare results and baselines
In this work they have presented a new neural model architecture that utilizes a sequence of source code tokens along with ConvGNNs to encode the AST of a Java method and generate natural language summaries.they have provided background and insights into why using a graph based neural network to encode the AST improves performance, along with providing a comparison of results against relevant baselines.
Main findings about this research paper is improvement of aggregate BLEU scores (BLEU-A) by over 4.6% over other graph based approaches and 5.7% improvement over flattened AST approaches. They also provided an in dept analysis of how the ConvGNN layers attribute to this increase in performance, and speculate on how these insights can be used for future work

Conference Name
International Conference on Program Comprehension 2020
Title:
How Graduate Computing Students Search When Using an Unfamiliar Programming Language
Author: Gina R. Bai, Joshua Kayani, Kathryn T. Stolee
Summary
Developers and students are expected to master or grip multiple programming language for software so to learn a new language developer usually search online to find information and coding examples. This research paper shows how students search when using unfamiliar programming language. This is a survey based research where they found that students typically search to explore APIs or find example code.
Approximately 50% of
queries that precede clicks on documentation or tutorials successfully solved the problem.
This research paper has importance because it shows Consulting documentation and tutorials is more indicative of success in a search than consulting Q&A sites.
Their surveys explicitly asked about search success and query reformulation to gather reliable data on those metrics. By analyzing the combination of
search logs and survey responses
They compare the student search behavior to professionals, provide the suggestions to improve search success, and discuss the potential threats to validity.