Enhancing Generative AI in Software Engineering: Developing a Precise Language for Detailed Code Generation

Team: SWELAB_AUTOGENBACKEND

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TEAM INTRODUCTION

MEMBERS

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Software Development

“Fuelled by a passion for innovation, our mission is to streamline development and improve the developer experience using generative AI.”

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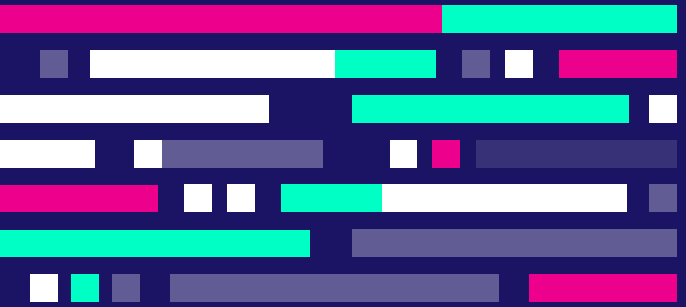
OVERVIEW



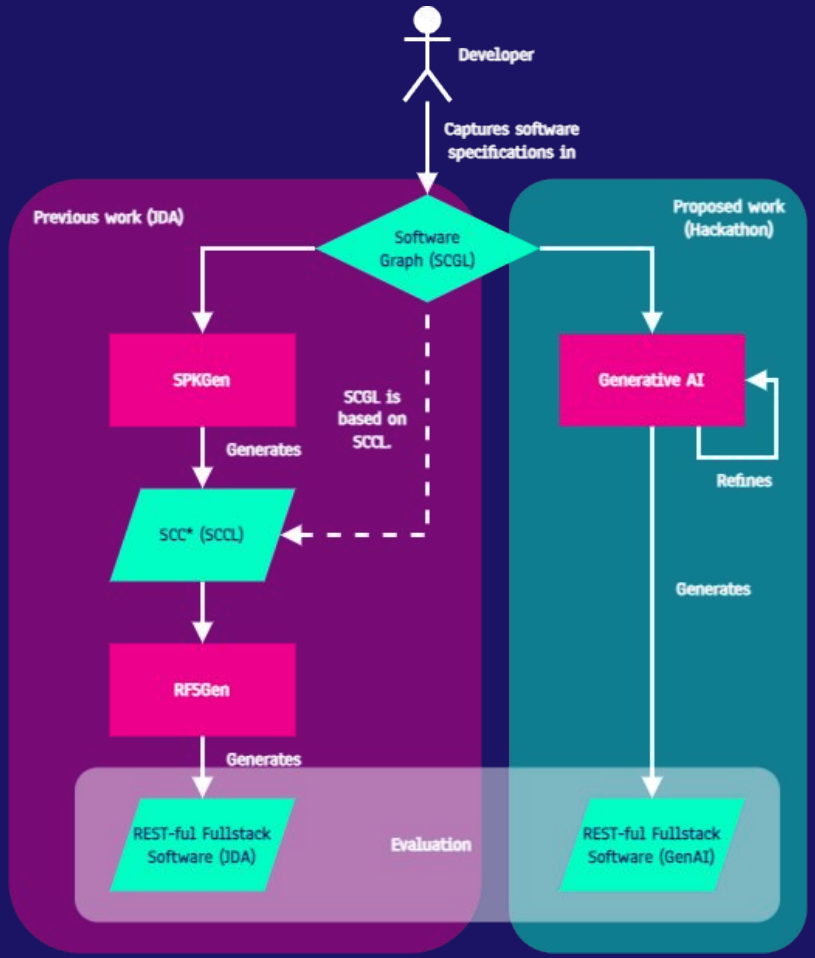
GEN AI IN SOFTWARE ENGINEERING

Generative AI (Gen AI) can greatly increase developers' efficiency. However, one challenge to its current application is the difficulty in writing prompts that fully capture the details of the desired software. The result is code that lacks structural cohesion.

PREVIOUS WORK

- SCCL - a language that uses Java annotations to express software structure and behavior.
- SCC* - the software configuration expressed by this language.
- SCC* –[input]-->RFSGen-[output]--> Software.

- However, SCCL is quite verbose and contains Java-specific details, making it hard for AI models to interpret and non-Java developers to adopt.
- Developed SCGL to represent the software as a knowledge graph, based on SCCL.



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INNOVATION

“What if we developed a language loosely based on SCC* but free from language-specific details that generative models can easily interpret?”

BENEFITS OF THE SOLUTION

Better code generation

Expresses desired software more precisely. Better structural cohesion.

Easier to adopt

Readable. Free of language-specific details.

04

FEASIBILITY & PRACTICALITY

Problem

Generative AI struggles to generate structurally cohesive software due to lack of details in prompts.

Solution

Develop a language to accurately capture software details. Easy for AI to interpret and for developers to adopt.

THANKS !

Do you have any questions?

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