

Utilization of LLMs in the software Industry and their applications for the society

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ABSTRACT

Large Language Models (LLMs) signify a significant advancement in artificial intelligence, demonstrating proficiency in tasks involving human languages. While general-purpose LLMs mostly do not concentrate on code generation, they have demonstrated encouraging outcomes in this area. Nonetheless, the utility of LLMs in an academic software engineering endeavor remains inadequately investigated. This research examines the efficacy of LLMs for 214 students collaborating in teams of up to six individuals. Significantly, within the academic program facilitating this research, students were urged to incorporate LLMs into their development toolkit, unlike the majority of other academic courses that explicitly forbid the utilization of LLMs. This study examines the AI-generated code, the prompts utilized for its development, and the extent of human involvement in incorporating the code into the codebase. We additionally perform a perception analysis to get understanding regarding the perceived use, influencing elements, and future prospects of LLM from the viewpoint of a computer science student. According to our research, LLMs can be extremely helpful in the early phases of software development, particularly when it comes to creating fundamental code structures and assisting with syntax and error debugging. These observations underscore the need to change the educational focus toward preparing students for successful human-AI collaboration and give us a framework for using LLMs as a tool to increase the productivity of software engineering students.

KEYWORDS: LLM for Code Generation, Software Engineering.