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# Online Platform to Inform GenAI Misuse in Programming Through Code Differences

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## ABSTRACT

With the prevalence of generative artificial intelligence (GenAI), educating students about the expected social behavior is essential. However, current approaches are labor intensive, overly general, and/or have limited educational impact. The author presents an online platform that automatically informs students about GenAI misuse. For each code program, the platform will report whether it differs more than other already-submitted programs (10% or less similarity). GenAI-generated programs tend to differ, and students are discouraged from using them directly. The report also features instructors' expectations. To further promote the impact, the author provided short weekly quizzes. The author's five quasi-experiments involving 468 students demonstrated that students using the platform were slightly more aware of GenAI misuse and plagiarism, with the largest increase of 13% for overall awareness and 37% for specific aspects. The students were also less likely to be involved in such misconduct. Students saw the relevance of code differences, the platform, and the implementation strategy.

### KEYWORDS

Code Uniqueness, Short Quizzes, Generative Artificial Intelligence, Plagiarism, Programming Education, Academic Integrity, Higher Education, Online Platform

## INTRODUCTION

Plagiarism is an act of reusing someone's work without proper credit (Kampa et al., 2025). It is quite common in programming courses (Simon et al., 2013), which involves writing computer instructions (code programs) to enable a computer to perform a specific task, perhaps because they issue more assessments than other courses (Allen et al., 2018). In programming courses, one of the learning objectives is the ability to write programs independently; this skill can be honed only through several assessments.

Generative artificial intelligence (GenAI) is a form of AI that focuses on generating content, including text and code programs. Several studies have shown that students with GenAI can learn programming and complete assessments more quickly and easily (Jonsson & Tholander, 2022; Zhu et al., 2025). However, concerns have arisen from students' overreliance on GenAI. Students may have a limited understanding of given topics (Kosmyna et al., 2025) despite having good marks and completing the tasks faster (Karnalim, Toba et al., 2023). Compared with people with a search engine and those without both a search engine and GenAI, people with GenAI showed the weakest learning gain over time (Kosmyna et al., 2025). They also have lower-quality reasoning and argumentation

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than those with a search engine (Stadler et al., 2024). This difference is expected because there is a negative correlation between the use of GenAI and critical thinking (Gerlich, 2025). Students might also have low self-confidence because they are not used to completing assessments independently (Zhang et al., 2024). People using GenAI report having the lowest level of ownership in their work (Kosmyna et al., 2025).

GenAI misuse can be considered a new form of plagiarism, given that GenAI utilizes sources written by other people, and the use is seldom attributed with proper acknowledgment (Karnalim et al., 2024). As in plagiarism, GenAI misuse happens more frequently in programming courses for at least two reasons. First, programming courses issue many assessments to help students practice. Second, students enrolled in programming courses are tech-savvy and more familiar with GenAI.

GenAI misuse can be mitigated by educating students about the misuse (Kohen-Vacs et al., 2025) and penalizing those who are involved in it (Karnalim et al., 2024). However, because of the recency of GenAI misuse, there are limited studies regarding the matter, even in general education (Belkina et al., 2025). Furthermore, penalizing students is not a reliable deterrent because existing GenAI detectors are not really effective (Orenstrakh et al., 2024). Students involved in GenAI misuse can be accused only if there is solid evidence of such misuse. This is called the burden of proof in academic integrity (Leclerc, 2024).

Many educational approaches about GenAI misuse are labor intensive. They rely heavily on instructors' efforts to explain the matter or to manually design specific sessions (Hershkovitz et al., 2025). Furthermore, on most occasions, the information is delivered briefly as general policies (Luo, 2024). Students might have difficulty correlating this information with their own cases throughout their learning experience.

Although automated approaches are needed, allowing students to access GenAI detectors directly is not a solution. They might be tempted to learn how to trick these detectors. Furthermore, the educational information on these detectors is somewhat limited. They only highlight suspected contents without explaining the responsible use of GenAI. Moreover, as stated earlier, GenAI detectors are unreliable. Allowing students to use them without proper supervision might introduce misconceptions.

In response to the aforementioned gaps, I present an online platform that automatically informs students about potential GenAI misuse by analyzing differences in their submissions. This automated analysis alleviates instructors' workload of informing students about GenAI. Furthermore, students can correlate that information to their own work, as the difference is based on their submissions. Moreover, because the detection of differences is not so thorough as that of GenAI detectors, the approach is unlikely to tempt students to learn how to trick GenAI detectors.

For each submitted code program, the platform reports whether it is substantially different from other programs. Overly different programs might indicate GenAI misuse, as GenAI-generated programs tend to have a different programming style and syntax (Pang & Vahid, 2024). Although some courses allowed the use of GenAI, they seldom let students use directly copied GenAI-generated code without aligning it to their own style and syntax. To further promote students' awareness of GenAI, I included instructors' expectations regarding GenAI misuse and plagiarism in this paper. Furthermore, a simple quiz containing one multiple-choice question about GenAI assistance and plagiarism was provided each week. The total number of correct responses was recorded.

My research for this study was based on two research questions:

- RQ1: Are students using the platform more aware of GenAI misuse and plagiarism?
- RQ2: Are students using the platform less involved in both GenAI misuse and plagiarism?

It is worth noting that neither of the research questions includes specific thresholds because, to the best of my knowledge, there is no consensus regarding the matter. Even instructors' expectations of plagiarism and GenAI vary across institutions (McDonald et al., 2025; Simon et al., 2013).