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Student collaboration during code tracing activities

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Abstract

Learning to program is challenging, because it involves novel skills. In contrast to the majority of work focusing on code generation, we target the skill of code tracing. Code tracing involves simulating the high-level actions a computer takes when it executes the program, including the flow of execution through it and how variable values change as a result. Code tracing supports program comprehension and generation. However, many students do not code trace effectively. Our project investigates the utility of peer tutoring for the learning of code tracing. While this approach remains untested in this context, it has successfully been used in other domains to improve student learning. We will present qualitative data from a case study involving students tutoring each other to code trace. This work is the first step in the context of a broader project focused on identifying ways to help students learn to code.