

A web-based programming environment for introductory programming courses in higher education

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Abstract

Choosing the right programming environment has a great influence on the efficiency of the educational, learning and problem solving processes. While there are many good examples for such environments for the younger generation, which involve block-based programming, gamified learning, appropriate language of the tasks and user interface design, introductory programming courses in higher education rarely take into account the role of the programming environment. In this article we have analyzed a typical problem solving process in an introductory programming course with a special focus on the programming environment. We have found that many distracting factors may make the learning process difficult.

Based on our investigation we introduce a web-based programming environment which takes into account the special needs of newcomers to the programming land. This environment tries to exclude the distracting factors and support the problem solving process in a right way. Beside our methodological considerations, the technical background of supporting traditional programming languages, such as C++, in the web browser is also presented. Finally we make methodological recommendations how this tool can be a part of the teaching and learning process through different types of tasks and learning organizing methods.

Keywords: web, teaching, programming, development environment, higher education

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