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USING AI TO LEARN ALGORITHMS AND DATA STRUCTURES IN HIGH SCHOOL

Introduction. Learning algorithms and data structures in high school is often hard for students because these concepts are abstract and teachers do not have enough time to consult everyone individually. A good way to solve this problem is using AI in the lessons, which helps to adapt complex topics to each student's learning speed (Bykov & Shyshkanova, 2023).

Objective. To find out how artificial intelligence systems can be used when teaching algorithms and data structures at basic and advanced levels in high school.

Results. Using AI tools changes how students work with code. At the basic level, when students start learning Python and lists, they usually have typical problems: index errors, mistakes in loops, and the "blank page" fear (when you do not know how to start writing the first line) (Zhaldak & Trius, 2022). In this case, AI tools like ChatGPT, Claude, or Codeium can explain errors in simple words and give hints without giving full answers.

At the advanced level, where students study graphs, stacks, and analyze algorithm efficiency, AI works as an analytical trainer (Holmes et al., 2023). Students use AI to make test data, compare different algorithms, and check code speed. An important rule here is to use critical thinking: students must check the code themselves because neural networks can make hidden logic mistakes.

Conclusions. AI assistants help students learn algorithmic concepts better in high school. Because of a personal approach (from explaining simple errors to analyzing hard data structures), AI improves students' knowledge and helps them learn faster.

References:

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