

# Guess the Code of Conditional Summation

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## Abstract

There is a question in many countries whether ICT and application usage should be taught. Many suggested to learn programming for some practice in computational thinking. But learning programming is very difficult for many people. In this publication a method is suggested how to teach computational thinking and how to prepare students for programming. The focus is set on a typical problem, conditional summation, but the method is more general: the teaching of programming is embedded into the teaching of application usage. While analysing the possible solutions of conditional summation, computational thinking and programming skills are developed. Almost a dozen methods are known to solve conditional summation. One of them is to choose an imperative, procedural programming language and write the code of structured programming algorithms. Other tool could be a database management system where users write declarative SQL query or visualize the query on a QBE grid, both of these are based on mathematical abstraction of databases. The solution methods mentioned are used at a higher level of informatics and it is closer to the hardware abstraction. In everyday practice and at earlier stage of informatics study a spreadsheet application gives several tools for solution. Guess the code to understand why there are so many tools to solve the same problem! This is a way of improving computational thinking and understanding the concepts of procedural and functional programming.

*Keywords:* teaching methods, spreadsheet's tools, database, algorithms, computational thinking

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