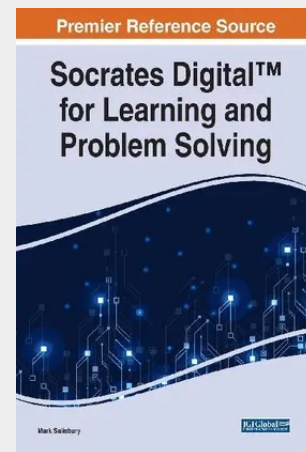


Socrates Digital(TM) for Learning and Problem Solving

There is a tremendous need for computer scientists, data scientists, and software developers to learn how to develop Socratic problem-solving applications. While the amount of data and information processing has been accelerating, our ability to learn and problem-solve with that data has fallen behind. Meanwhile, problems have become too complex to solve in the workplace without a concerted effort to follow a problem-solving process. This problem-solving process must be able to deal with big and disparate data. Furthermore, it must solve problems that do not have a "rule" to apply in solving them. Moreover, it must deal with ambiguity and help humans use informed judgment to build on previous steps and create new understanding. Computer-based Socratic problem-solving systems answer this need for a problem-solving process using big and disparate data. Furthermore, computer scientists, data scientists, and software developers need the knowledge to develop these systems. Socrates Digital™ for Learning and Problem Solving presents the rationale for developing a Socratic problem-solving application. It describes how a computer-based Socratic problem-solving system called Socrates Digital™ can keep problem-solvers on track, document the outcome of a problem-solving session, and share those results with problem-solvers and larger audiences. In addition, Socrates Digital™ assists problem-solvers to combine evidence about their quality of reasoning for individual problem-solving steps and their overall confidence in the solution. Socrates Digital™ also captures, manages, and distributes this knowledge across organizations to improve problem-solving. This book also presents how to build a Socrates Digital™ system by detailing the four phases of design and development: Understand, Explore, Materialize, and Realize. The details include flow charts and pseudo-code for readers to implement Socrates Digital™ in a general-purpose programming language. The completion of the design and development process results in a Socrates Digital™ system that leverages artificial intelligence services from providers that include Apple, Microsoft, Google, IBM, and Amazon. In addition, an appendix provides a demonstration of a no-code implementation of Socrates Digital™ in Microsoft Power Virtual Agent.

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