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Computational Methods and Data Engineering

Proceedings of ICCMDE 2021

Editors: Vijayan K. Asari, Vijendra Singh, Rajkumar Rajasekaran, R. B. Patel

Presents recent research in the field of computational methods and data engineering

Discusses the outcomes of ICCMDE 2021, held in Vellore, India

Serves as a reference guide for researchers and practitioners in academia and industry

Part of the book series: Lecture Notes on Data Engineering and Communications Technologies (LNDECT, volume 139)

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About this book

The book features original papers from International Conference on Computational Methods and Data Engineering (ICCMDE 2021), organized by School of Computer Science and Engineering, Vellore Institute of Technology, Vellore, Tamil Nadu, India, during November 25–26, 2021. The book covers innovative and cutting-edge work of researchers, developers, and practitioners from academia and industry working in the area of advanced computing.

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Keywords

Computational Methods **Data Engineering**

Knowledge Discovery **Big Data**

Cloud Computing **Cognitive Science**

Pattern Recognition **ICCMDE 2021**

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A Bayesian Network-Based Software Requirement Complexity Prediction Model

Halima Sadia, Syed Qamar Abbas & Mohammad Faisal

Conference paper | First Online: 09 September 2022

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Abstract

Software development has an inflated probability of project failure and the major reason for it is the poor requirement engineering process. Potential threats or risks related to requirements must be identified at the earlier stages of the development itself, so as to minimize the negative impact of subsequent affects.

Researches reveal that VUCA risks, i.e., Requirement Volatility, Requirement Uncertainty, Requirement Complexity, and Requirement Ambiguity, are the basic sources of risks for other risks too. Complexity in requirements is one of the important factors affecting quality of the product. Computing and analysis of the product complexity in the requirement analysis phase of SDLC will give benefits in assessing the required development and testing efforts for the prospective software product. Failing to which, software designers and testers will need further clarification, thus slowing down the design and verification process. This paper attempts to establish a connection between the VUCA risks and propose a methodology to minimize requirement complexity. The various factors affecting requirement complexity are identified, in the requirement engineering phase. A Bayesian approach is proposed to predict the requirement complexity. The proposed model uses various complexity factors found through extensive literature review to manage requirement complexity of the software products.

Keywords

Requirement complexity **Bayesian network**

Software development

Software requirement risk