

SOFTWARE DEVELOPMENT

ECOSYSTEM AND TEAM COLLABORATION

Editors
NOORMINSHAH A. IAHAD
MASITAH GHAZALI

UTM
UNIVERSITI TEKNOLOGI MALAYSIA



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How can software teams bridge the gap between rigid engineering traditions and the messy, human reality of modern collaboration? In a world where technical mastery is no longer enough, this book reveals how high-performing teams thrive by mastering the social and organizational dimensions of development. Drawing on decades of experience within the Malaysian research university ecosystem, the authors move beyond idealized textbook scenarios to offer a rich repository of practice-based insights.

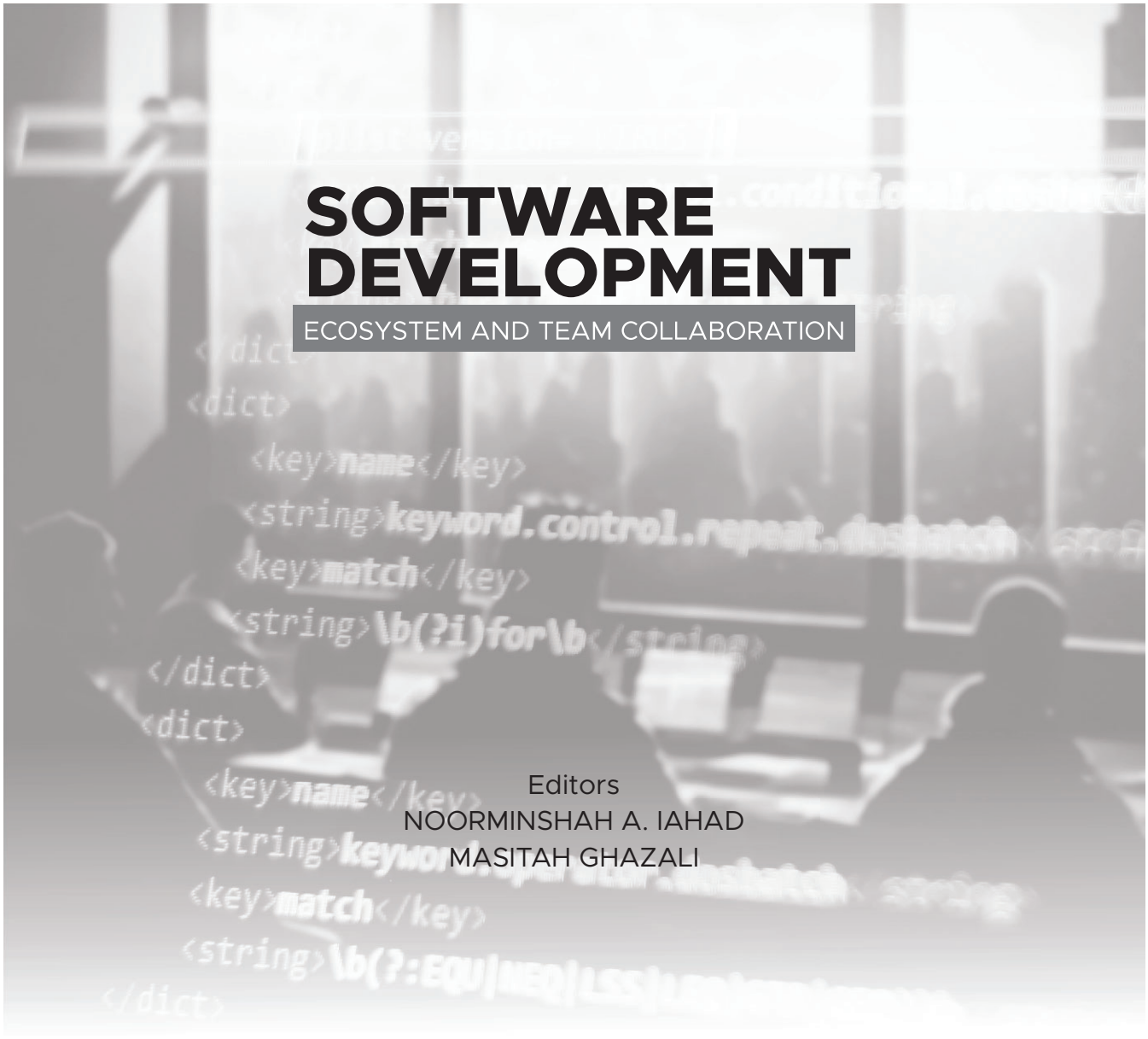
Readers will explore concrete strategies for blending User Experience (UX) into conventional lifecycles, leveraging GitLab for large-scale coordination, and transforming daily stand-ups from status recitals into heartbeat planning rituals. Through real-world case studies in healthcare and research systems, this volume provides actionable checklists for practitioners and students alike. It is an essential roadmap for anyone seeking to build resilient, humane, and ethically grounded software ecosystems.

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PREFACE

The ever-evolving field of software development presents both opportunities and challenges, from managing complex requirements to ensuring robust validation across diverse projects. This book was written to empower software development teams: developers, project managers, researchers, and students, by providing practical strategies and real-world insights to overcome these challenges and achieve project success.

The examination of software development practises and management underscores their universal applicability across diverse software systems. Despite the varying scales and complexities inherent in software projects, challenges in requirements gathering, design modelling, and validation persist, necessitating a comprehensive approach to address them effectively. Drawing from documented best practises and real-world experiences, this book offers a rich repository of strategies and anecdotes to guide software development teams.

Inspired by our own experiences navigating complex software projects at Universiti Teknologi Malaysia, we sought to compile a resource that bridges theoretical best practises with practical applications. The book synthesises developers' success stories and observations, providing valuable insights into overcoming obstacles and fostering innovation. It covers modern software development practises and case studies across domains like healthcare and system development services, but it does not delve into specific programming languages or niche tools, focusing instead on universal principles and methodologies.

The book is organised into two themes. The first theme, spanning four chapters, explores modern software development activities that challenge convention, such as User Experience (UX) methodologies, role-based goal modelling, Gitlab utilisation, and agile stand-up

meetings. The second theme presents three case studies, each offering lessons from real-world projects in healthcare, user acceptance testing, and helpdesk ticketing systems. Readers new to agile practises may start with Chapter 4 on daily stand-ups, while project managers may find the case studies in Chapters 5–7 particularly relevant.

As researchers, educators and practitioners in software engineering and computing at Universiti Teknologi Malaysia, we bring decades of experience to this compilation. We also wish to honour the memory of a co-author of one of the book chapters, Noor Fazilah Zakaria, who passed away during the preparation of this book. Her unwavering dedication, particularly in strengthening documentation practices within the Research Computing Unit (formerly the IT Unit at the UTM Research Management Center), continues to inspire our work and remains an important part of the unit's legacy.

We are grateful to our co-authors, colleagues, and the broader software development community for sharing their invaluable experiences and insights. We invite you to explore these chapters, apply the strategies in your own projects, and contribute to the evolving field of software development, driving progress and innovation in this dynamic discipline.

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