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GAMIFICATION
USING DATA STRUCTURES VOL. III

BENNETT UNIVERSITY

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Preface

The inclusion of "gamification using data structures" is a much-appreciated feature. The integration of gamification with data structures presents a promising avenue for problem-solving, learning, and engagement in the dynamic domains of technology and education. This book is predicated on the notion that comprehending complex concepts, such as data structures, may be both enjoyable and instructive. We want to revolutionize the learning process by integrating gamification principles into the study of data structures. This will enhance the learning experience by making it more captivating, interactive, and, above all, enjoyable. In recent years, gamification has proven to be a very useful technique in several fields, such as business and education. It harnesses the inherent human need for progress, rivalry, and achievement to enhance involvement and drive.

Data structures are crucial in computer science and programming since they provide the basis for efficient algorithmic solutions. The convergence of these two domains is not just a creative undertaking; it is a deliberate effort to revolutionize the way we teach and understand data structures. We want to transform the often challenging and somewhat intimidating subject of data structures into an engaging and captivating experience via gamification.

This book employs a gamified approach to guide you through the fundamental concepts of data structures. Each chapter presents a novel challenge, a puzzle to solve, or an exciting quest to go on. As you go, you will develop a deep comprehension of the elegance of algorithms while also becoming proficient in the intricacies of data structures and problem-solving methodologies. To enhance your knowledge, we have meticulously curated a compilation of case studies, hands-on exercises, and tangible illustrations from real-life situations. This book will serve as a valuable resource for individuals of all backgrounds, including learners, professional developers, and hobbyists, who are eager to enhance their knowledge. Students studying computer science or related disciplines, programmers seeking to enhance their knowledge of data structures and teachers who are looking for innovative teaching techniques are passionate individuals who have a strong interest in combining programming and gaming and can engage in a thorough and passionate examination of data structures as they investigate the same via games.

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This book transcends being a mere reference and instead serves as an enticing invitation to go on a captivating journey, where the process of learning becomes both rewarding and enjoyable. Prepare your mind, equip yourself with virtual protection, and be prepared to confront the challenges of the "gamification using data structures" realm.

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ABOUT THE BOOK

In the book titled ***"Gamification Using Data Structures Vol. III",*** we continue to advanced exploration of the intersection between gamification and cutting-edge data structures. This volume includes various sophisticated strategies. The volume provides deep knowledge of showcasing of Data Structure. It enables its readers to understand how advance structures like graphs, advanced trees, and complex algorithms uplift gaming dynamics to new heights. The book Include various case studies and innovative examples to optimizing player engagement like Puzzle Game "2048". For crafting immersive experiences to game player book illustrate other example like “ping pong ball” game. The book guides game developers and designers to refining system scalability. Volume 3 serves as a valuable resource which offers an expert-level understanding of harnessing data structures for unparalleled gamification.

AUTHOR

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Arpit Bhardwaj received the B.E. degree in computer science from the Shri Dadaji Institute of Technology and Science, Khandwa, India, in 2009, the M.E. degree in computer science from the Shri Govindram Seksaria Institute of Technology and Science, Indore, India, in 2011, and the Ph.D. degree in computer science and engineering from the Indian Institute of Technology Indore, in 2015. Currently he has been working as a Professor with the School of Computer Science Engineering and Technology, Bennett University. He has authored more than 50 publications, including papers in prestigious journals/conferences, such as Expert Systems with Applications, Pattern Recognition Letters, Journal of Biomedical Informatics, Computational Intelligence and Neuroscience, International Joint Conference on Neural Networks (IJCNN), Soft Computing for Problem Solving, and Applied Intelligence. His research interests include genetic programming, EEG signals, gaming, and machine learning.

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Mukund Pratap Singh holds a post of Assistant Professor in the School of Computer Science Engineering and Technology, Bennett University Greater Noida. He has almost 8 years of teaching experience. He has worked in many organizations where he was involved in many courses and departmental activities. He has earned his Ph.D. and M. Tech degrees from Motilal Nehru National Institute of Technology, Allahabad, India in 2019 and 2013, respectively. His research work focuses on fuzzy optimization techniques in GIS, machine learning, object detection and classification and satellite image processing. He had several research papers in reputed SCI/(E) indexed journals with good impact factors. He had also published research articles in various peer-reviewed conferences of IEEE/Springer/Taylor & Francis which were indexed in Scopus.

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