

1. Record Nr.	UNINA9910877345803321
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Titolo	Introduction to lattice theory with computer science applications // Vijay K. Garg
Pubbl/distr/stampa	Hoboken, N.J., : Wiley, c2015 Hoboken, N.J. : , : Wiley, , 2015
ISBN	9781119069713 1119069718 9781119069737 1119069734 9781119069706 111906970X
Edizione	[1st edition]
Descrizione fisica	1 online resource (494 p.)
Classificazione	007 004.01/51
Disciplina	004.01/51
Soggetti	Computer science -- Mathematics Engineering mathematics Lattice theory
Lingua di pubblicazione	Non definito
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes bibliographical references and index
Nota di bibliografia	Includes bibliographical references (pages 229-233) and index.
Nota di contenuto	Cover; Table of Contents; Title Page; Copyright; Dedication; List Of Figures; Nomenclature; Preface; Chapter 1: Introduction; 1.1 Introduction; 1.2 Relations; 1.3 Partial Orders; 1.4 Join and Meet Operations; 1.5 Operations on Posets; 1.6 Ideals and Filters; 1.7 Special Elements in Posets; 1.8 Irreducible Elements; 1.9 Dissector Elements; 1.10 Applications: Distributed Computations; 1.11 Applications: Combinatorics; 1.12 Notation and Proof Format; 1.13 Problems; 1.14 Bibliographic Remarks; Chapter 2: Representing Posets; 2.1 Introduction; 2.2 Labeling Elements of The Poset 2.3 Adjacency List Representation2.4 Vector Clock Representation; 2.5 Matrix Representation; 2.6 Dimension-Based Representation; 2.7 Algorithms to Compute Irreducibles; 2.8 Infinite Posets; 2.9 Problems; 2.10 Bibliographic Remarks; Chapter 3: Dilworth's Theorem; 3.1 Introduction; 3.2 Dilworth's Theorem; 3.3 Appreciation of Dilworth's

Theorem; 3.4 Dual of Dilworth's Theorem; 3.5 Generalizations of Dilworth's Theorem; 3.6 Algorithmic Perspective of Dilworth's Theorem; 3.7 Application: Hall's Marriage Theorem; 3.8 Application: Bipartite Matching; 3.9 Online Decomposition of posets
3.10 A Lower Bound on Online Chain Partition3.11 Problems; 3.12 Bibliographic Remarks; Chapter 4: Merging Algorithms; 4.1 Introduction; 4.2 Algorithm to Merge Chains in Vector Clock Representation; 4.3 An Upper Bound for Detecting an Antichain of Size; 4.4 A Lower Bound for Detecting an Antichain of Size; 4.5 An Incremental Algorithm for Optimal Chain Decomposition; 4.6 Problems; 4.7 Bibliographic Remarks; Chapter 5: Lattices; 5.1 Introduction; 5.2 Sublattices; 5.3 Lattices as Algebraic Structures; 5.4 Bounding The Size of The Cover Relation of a Lattice
5.5 Join-Irreducible Elements Revisited5.6 Problems; 5.7 Bibliographic Remarks; Chapter 6: Lattice Completion; 6.1 INTRODUCTION; 6.2 COMPLETE LATTICES; 6.3 CLOSURE OPERATORS; 6.4 TOPPED - STRUCTURES; 6.5 DEDEKIND-MACNEILLE COMPLETION; 6.6 STRUCTURE OF DEDEKIND-MACNEILLE COMPLETION OF A POSET; 6.7 AN INCREMENTAL ALGORITHM FOR LATTICE COMPLETION; 6.8 BREADTH FIRST SEARCH ENUMERATION OF NORMAL CUTS; 6.9 DEPTH FIRST SEARCH ENUMERATION OF NORMAL CUTS; 6.10 APPLICATION: FINDING THE MEET AND JOIN OF EVENTS; 6.11 APPLICATION: DETECTING GLOBAL PREDICATES IN DISTRIBUTED SYSTEMS
6.12 APPLICATION: DATA MINING6.13 PROBLEMS; 6.14 BIBLIOGRAPHIC REMARKS; Chapter 7: Morphisms; 7.1 INTRODUCTION; 7.2 LATTICE HOMOMORPHISM; 7.3 LATTICE ISOMORPHISM; 7.4 LATTICE CONGRUENCES; 7.5 QUOTIENT LATTICE; 7.6 LATTICE HOMOMORPHISM AND CONGRUENCE; 7.7 PROPERTIES OF LATTICE CONGRUENCE BLOCKS; 7.8 APPLICATION: MODEL CHECKING ON REDUCED LATTICES; 7.9 PROBLEMS; 7.10 BIBLIOGRAPHIC REMARKS; Chapter 8: Modular Lattices; 8.1 INTRODUCTION; 8.2 MODULAR LATTICE; 8.3 CHARACTERIZATION OF MODULAR LATTICES; 8.4 PROBLEMS; 8.5 BIBLIOGRAPHIC REMARKS; Chapter 9: Distributive Lattices; 9.1 INTRODUCTION
9.2 FORBIDDEN SUBLATTICES

Sommario/riassunto

A computational perspective on partial order and lattice theory, focusing on algorithms and their applications. This book provides a uniform treatment of the theory and applications of lattice theory. The applications covered include tracking dependency in distributed systems, combinatorics, detecting global predicates in distributed systems, set families, and integer partitions. The book presents algorithmic proofs of theorems whenever possible. These proofs are written in the calculational style advocated by Dijkstra, with arguments explicitly spelled out step by step. The author's intent
