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Technology Series  
From Thomas Erl

# **Big Data Fundamentals Concepts Drivers Techniques The Prentice Hall Service Technology Series From Thomas Erl**

*Get command of your  
organizational Big Data using the  
power of data science and analytics  
Key Features A perfect companion  
to boost your Big Data storing,  
processing, analyzing skills to help  
you take informed business  
decisions Work with the best tools  
such as Apache Hadoop, R, Python,  
and Spark for NoSQL platforms to*

*perform massive online analyses  
Get expert tips on statistical  
inference, machine learning,  
mathematical modeling, and data  
visualization for Big Data Book  
Description Big Data analytics  
relates to the strategies used by  
organizations to collect, organize  
and analyze large amounts of data  
to uncover valuable business  
insights that otherwise cannot be  
analyzed through traditional  
systems. Crafting an enterprise-  
scale cost-efficient Big Data and  
machine learning solution to  
uncover insights and value from  
your organization's data is a  
challenge. Today, with hundreds of  
new Big Data systems, machine  
learning packages and BI Tools,  
selecting the right combination of  
technologies is an even greater*

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*challenge. This book will help you do that. With the help of this guide, you will be able to bridge the gap between the theoretical world of technology with the practical ground reality of building corporate Big Data and data science platforms. You will get hands-on exposure to Hadoop and Spark, build machine learning dashboards using R and R Shiny, create web-based apps using NoSQL databases such as MongoDB and even learn how to write R code for neural networks. By the end of the book, you will have a very clear and concrete understanding of what Big Data analytics means, how it drives revenues for organizations, and how you can develop your own Big Data analytics solution using different tools and methods*

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*articulated in this book. What you will learn - Get a 360-degree view into the world of Big Data, data science and machine learning - Broad range of technical and business Big Data analytics topics that caters to the interests of the technical experts as well as corporate IT executives - Get hands-on experience with industry-standard Big Data and machine learning tools such as Hadoop, Spark, MongoDB, KDB+ and R - Create production-grade machine learning BI Dashboards using R and R Shiny with step-by-step instructions - Learn how to combine open-source Big Data, machine learning and BI Tools to create low-cost business analytics applications - Understand corporate strategies for successful Big Data*

*Drivers, Techniques, The  
Prontino Hall Service  
Technology, and  
Thomas L.*

**and data science projects - Go beyond general-purpose analytics to develop cutting-edge Big Data applications using emerging technologies Who this book is for The book is intended for existing and aspiring Big Data professionals who wish to become the go-to person in their organization when it comes to Big Data architecture, analytics, and governance. While no prior knowledge of Big Data or related technologies is assumed, it will be helpful to have some programming experience. Our newly digital world is generating an almost unimaginable amount of data about all of us. Such a vast amount of data is useless without plans and strategies that are designed to cope with its size and complexity, and which enable**

*organisations to leverage the information to create value. This book is a refreshingly practical, yet theoretically sound roadmap to leveraging big data and analytics. Creating Value with Big Data Analytics provides a nuanced view of big data development, arguing that big data in itself is not a revolution but an evolution of the increasing availability of data that has been observed in recent times. Building on the authors' extensive academic and practical knowledge, this book aims to provide managers and analysts with strategic directions and practical analytical solutions on how to create value from existing and new big data. By tying data and analytics to specific goals and processes for implementation, this is a much-*

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*needed book that will be essential reading for students and specialists of data analytics, marketing research, and customer relationship management.*

*The Easy, Visual Introduction to IBM DB2 Version 10.5 for Linux, UNIX, and Windows Foreword by Judy Huber, Vice President, Distributed Data Servers and Data Warehousing; Director, IBM Canada Laboratory This book covers everything you need to get productive with the latest version of IBM DB2 and apply it to today's business challenges. It discusses key features introduced in DB2 Versions 10.5, 10.1, and 9.7, including improvements in manageability, integration, security, Big Data support, BLU Acceleration, and cloud computing. DB2*

*Essentials illuminates key concepts with examples drawn from the authors' extensive experience with DB2 in enterprise environments.*

*Raul F. Chong and Clara Liu explain how DB2 has evolved, what's new, and how to choose the right products, editions, and tools. Next, they walk through installation, configuration, security, data access, remote connectivity, and day-to-day administration. Each chapter starts with an illustrative overview to introduce its key concepts using a big picture approach. Clearly explained figures are used extensively, and techniques are presented with intuitive screenshots, diagrams, charts, and tables. Case studies illustrate how "theory" is applied in real-life environments, and*



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**hundreds of review questions help you prepare for IBM's newest DB2 certification exams. Coverage includes**

- **Understanding the role of DB2 in Big Data**
- **Preparing for and executing a smooth installation or upgrade**
- **Understanding the DB2 environment, instances, and databases**
- **Configuring client and server connectivity**
- **Working with database objects**
- **Getting started with BLU Acceleration**
- **Implementing security: authentication and authorization**
- **Understanding concurrency and locking**
- **Maintaining, backing up, and recovering data**
- **Using basic SQL in DB2 environments**
- **Diagnosing and solving DB2 problems**

**This book is for anyone who plans to work with DB2, including DBAs, system**

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**administrators, developers, and consultants. It will be a great resource whether you're upgrading from an older version of DB2, migrating from a competitive database, or learning your first database platform.**

**Provides an up-to-date analysis of big data and multi-agent systems**  
**The term Big Data refers to the cases, where data sets are too large or too complex for traditional data-processing software. With the spread of new concepts such as Edge Computing or the Internet of Things, production, processing and consumption of this data becomes more and more distributed. As a result, applications increasingly require multiple agents that can work together. A multi-agent system (MAS) is a self-organized**

***computer system that comprises multiple intelligent agents interacting to solve problems that are beyond the capacities of individual agents. Modern Big Data Architectures examines modern concepts and architecture for Big Data processing and analytics. This unique, up-to-date volume provides joint analysis of big data and multi-agent systems, with emphasis on distributed, intelligent processing of very large data sets. Each chapter contains practical examples and detailed solutions suitable for a wide variety of applications. The author, an internationally-recognized expert in Big Data and distributed Artificial Intelligence, demonstrates how base concepts such as agent, actor, and micro-service have reached a point of***

*convergence—enabling next generation systems to be built by incorporating the best aspects of the field. This book: Illustrates how data sets are produced and how they can be utilized in various areas of industry and science Explains how to apply common computational models and state-of-the-art architectures to process Big Data tasks Discusses current and emerging Big Data applications of Artificial Intelligence Modern Big Data Architectures: A Multi-Agent Systems Perspective is a timely and important resource for data science professionals and students involved in Big Data analytics, and machine and artificial learning. Making Smarter Marketing Decisions Preparing, Sharing, and Analyzing*

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*Complex Information  
Entertainment Science*

*Encyclopedia of Data Science and  
Machine Learning*

*Understanding Big Data: Analytics  
for Enterprise Class Hadoop and  
Streaming Data*

*Principles of Managerial Statistics  
and Data Science*

*Data Wrangling with Pandas,  
NumPy, and IPython*

Big Data Fundamentals Concepts,  
Drivers, and Techniques Prentice  
Hall

Big Data represents a new era in data exploration and utilization, and IBM is uniquely positioned to help clients navigate this transformation. This book reveals how IBM is leveraging open source Big Data technology, infused with IBM technologies, to

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deliver a robust, secure, highly available, enterprise-class Big Data platform. The three defining characteristics of Big Data--volume, variety, and velocity--are discussed. You'll get a primer on Hadoop and how IBM is hardening it for the enterprise, and learn when to leverage IBM InfoSphere BigInsights (Big Data at rest) and IBM InfoSphere Streams (Big Data in motion) technologies. Industry use cases are also included in this practical guide. Learn how IBM hardens Hadoop for enterprise-class scalability and reliability Gain insight into IBM's unique in-motion and at-rest Big Data analytics platform Learn tips and tricks for Big Data use cases and solutions Get a quick Hadoop

# Download Free Big Data Fundamentals Concepts Drivers Techniques The primer

Summary Introducing Data Science teaches you how to accomplish the fundamental tasks that occupy data scientists. Using the Python language and common Python libraries, you'll experience firsthand the challenges of dealing with data at scale and gain a solid foundation in data science. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Many companies need developers with data science skills to work on projects ranging from social media marketing to machine learning. Discovering what you need to learn to begin a career as a data scientist can seem bewildering.

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Introducing Data

ScienceIntroducing Data Science explains vital data science concepts and teaches you how to accomplish the fundamental tasks that occupy data scientists. You'll explore data visualization, graph databases, the use of NoSQL, and the data science process. You'll use the Python language and common Python libraries as you experience firsthand the challenges of dealing with data at scale. Discover how Python allows you to gain insights from data sets so big that they need to be stored on multiple machines, or from data moving so quickly that no single machine can handle it. This book gives you hands-on



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experience with the most popular Python data science libraries, Scikit-learn and StatsModels. After reading this book, you'll have the solid foundation you need to start a career in data science. What's Inside Handling large data Introduction to machine learning Using Python to work with data Writing data science algorithms About the Reader This book assumes you're comfortable reading code in Python or a similar language, such as C, Ruby, or JavaScript. No prior experience with data science is required. About the Authors Davy Cielen, Arno D. B. Meysman, and Mohamed Ali are the founders and managing partners of Optimately and Maiton, where they focus on

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Drivers Techniques The  
developing data science projects  
and solutions in various sectors.

Table of Contents Data science in  
a big data world The data science

process Machine learning

Handling large data on a single  
computer First steps in big data

Join the NoSQL movement The  
rise of graph databases Text

mining and text analytics Data  
visualization to the end user

Learn how to use, deploy, and  
maintain Apache Spark with this  
comprehensive guide, written by  
the creators of the open-source  
cluster-computing framework.

With an emphasis on  
improvements and new features  
in Spark 2.0, authors Bill  
Chambers and Matei Zaharia  
break down Spark topics into  
distinct sections, each with

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unique goals. You'll explore the basic operations and common functions of Spark's structured APIs, as well as Structured Streaming, a new high-level API for building end-to-end streaming applications. Developers and system administrators will learn the fundamentals of monitoring, tuning, and debugging Spark, and explore machine learning techniques and scenarios for employing MLlib, Spark's scalable machine-learning library. Get a gentle overview of big data and Spark Learn about DataFrames, SQL, and Datasets—Spark's core APIs—through worked examples Dive into Spark's low-level APIs, RDDs, and execution of SQL and DataFrames Understand how Spark runs on a cluster Debug,

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Principles of Big Data  
monitor, and tune Spark clusters  
and applications. Learn the power  
of Structured Streaming, Spark's  
stream-processing engine. Learn

how you can apply MLlib to a  
variety of problems, including  
classification or recommendation.  
Privacy and Big Data

Principles and Paradigms

Delivering the Promise of Big  
Data and Data Science

How to Interpret the Visual  
Language of Charts

Principles of Big Data

Practical Statistics for Data  
Scientists

Big data, machine learning, and  
more, using Python tools

This book is a collection of chapters  
written by experts on various aspects of  
big data. The book aims to explain what  
big data is and how it is stored and used.

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The book starts from the fundamentals and builds up from there. It is intended to serve as a review of the state-of-the-practice in the field of big data handling.

The traditional framework of relational databases can no longer provide appropriate solutions for handling big data and making it available and useful to users scattered around the globe. The study of big data covers a wide range of issues including management of heterogeneous data, big data frameworks, change management, finding patterns in data usage and evolution, data as a service, service-generated data, service management, privacy and security. All of these aspects are touched upon in this book. It also discusses big data applications in different domains. The book will prove useful to students, researchers, and practicing database and networking engineers.

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Data Science and Big Data Analytics is about harnessing the power of data for new insights. The book covers the breadth of activities and methods and tools that Data Scientists use. The content focuses on concepts, principles and practical applications that are applicable to any industry and technology environment, and the learning is supported and explained with examples that you can replicate using open-source software. This book will help you:

- Become a contributor on a data science team
- Deploy a structured lifecycle approach to data analytics problems
- Apply appropriate analytic techniques and tools to analyzing big data
- Learn how to tell a compelling story with data to drive business action
- Prepare for EMC Proven Professional Data Science Certification

Corresponding data sets are available from the book's page at Wiley which you can find on the Wiley site by searching for the

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ISBN 9781118876138. Get started  
discovering, analyzing, visualizing, and  
presenting data in a meaningful way  
today!

“This text should be required reading for  
everyone in contemporary business.”

--Peter Woodhull, CEO, Modus21 “The  
one book that clearly describes and links  
Big Data concepts to business utility.”

--Dr. Christopher Starr, PhD “Simply, this  
is the best Big Data book on the market!”

--Sam Rostam, Cascadian IT Group

“...one of the most contemporary  
approaches I’ve seen to Big Data  
fundamentals...” --Joshua M. Davis, PhD

The Definitive Plain-English Guide to Big  
Data for Business and Technology

Professionals Big Data Fundamentals

provides a pragmatic, no-nonsense  
introduction to Big Data. Best-selling IT  
author Thomas Erl and his team clearly  
explain key Big Data concepts, theory and

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terminology, as well as fundamental technologies and techniques. All coverage is supported with case study examples and numerous simple diagrams. The authors begin by explaining how Big Data can propel an organization forward by solving a spectrum of previously intractable business problems. Next, they demystify key analysis techniques and technologies and show how a Big Data solution environment can be built and integrated to offer competitive advantages. Discovering Big Data's fundamental concepts and what makes it different from previous forms of data analysis and data science Understanding the business motivations and drivers behind Big Data adoption, from operational improvements through innovation Planning strategic, business-driven Big Data initiatives Addressing considerations such as data management, governance, and security Recognizing the



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5 “V” characteristics of datasets in Big Data environments: volume, velocity, variety, veracity, and value Clarifying Big Data’s relationships with OLTP, OLAP, ETL, data warehouses, and data marts Working with Big Data in structured, unstructured, semi-structured, and metadata formats Increasing value by integrating Big Data resources with corporate performance monitoring Understanding how Big Data leverages distributed and parallel processing Using NoSQL and other technologies to meet Big Data’s distinct data processing requirements Leveraging statistical approaches of quantitative and qualitative analysis Applying computational analysis methods, including machine learning Big Data Analytics with Spark is a step-by-step guide for learning Spark, which is an open-source fast and general-purpose cluster computing framework for large-

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scale data analysis. You will learn how to use Spark for different types of big data analytics projects, including batch, interactive, graph, and stream data analysis as well as machine learning. In addition, this book will help you become a much sought-after Spark expert. Spark is one of the hottest Big Data technologies. The amount of data generated today by devices, applications and users is exploding. Therefore, there is a critical need for tools that can analyze large-scale data and unlock value from it. Spark is a powerful technology that meets that need. You can, for example, use Spark to perform low latency computations through the use of efficient caching and iterative algorithms; leverage the features of its shell for easy and interactive Data analysis; employ its fast batch processing and low latency features to process your real time data streams and so on. As a

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result, adoption of Spark is rapidly growing and is replacing Hadoop MapReduce as the technology of choice for big data analytics. This book provides an introduction to Spark and related big-data technologies. It covers Spark core and its add-on libraries, including Spark SQL, Spark Streaming, GraphX, and MLlib. Big Data Analytics with Spark is therefore written for busy professionals who prefer learning a new technology from a consolidated source instead of spending countless hours on the Internet trying to pick bits and pieces from different sources. The book also provides a chapter on Scala, the hottest functional programming language, and the program that underlies Spark. You'll learn the basics of functional programming in Scala, so that you can write Spark applications in it. What's more, Big Data Analytics with Spark provides an introduction to other big

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data technologies that are commonly used along with Spark, like Hive, Avro, Kafka and so on. So the book is self-sufficient; all the technologies that you need to know to use Spark are covered. The only thing that you are expected to know is programming in any language. There is a critical shortage of people with big data expertise, so companies are willing to pay top dollar for people with skills in areas like Spark and Scala. So reading this book and absorbing its principles will provide a boost—possibly a big boost—to your career.

Big Data Processing with Apache Spark

Domain-driven Design

DB2 Essentials

Big Data Fundamentals

A Primer

A Multi-Agent Systems Perspective

Too Big to Ignore

Introduces readers to the principles of managerial statistics and data science,

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with an emphasis on statistical literacy of business students Through a statistical perspective, this book introduces readers to the topic of data science, including Big Data, data analytics, and data wrangling. Chapters include multiple examples showing the application of the theoretical aspects presented. It features practice problems designed to ensure that readers understand the concepts and can apply them using real data. Over 100 open data sets used for examples and problems come from regions throughout the world, allowing the instructor to adapt the application to local data with which students can identify. Applications with these data sets include: Assessing if searches during a police stop in San Diego are

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dependent on driver's race Visualizing the association between fat percentage and moisture percentage in Canadian cheese Modeling taxi fares in Chicago using data from millions of rides Analyzing mean sales per unit of legal marijuana products in Washington state Topics covered in Principles of Managerial Statistics and Data Science include: data visualization; descriptive measures; probability; probability distributions; mathematical expectation; confidence intervals; and hypothesis testing. Analysis of variance; simple linear regression; and multiple linear regression are also included. In addition, the book offers contingency tables, Chi-square tests, non-parametric methods, and time series methods. The textbook: Includes

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academic material usually covered in introductory Statistics courses, but with a data science twist, and less emphasis in the theory Relies on Minitab to present how to perform tasks with a computer Presents and motivates use of data that comes from open portals Focuses on developing an intuition on how the procedures work Exposes readers to the potential in Big Data and current failures of its use Supplementary material includes: a companion website that houses PowerPoint slides; an Instructor's Manual with tips, a syllabus model, and project ideas; R code to reproduce examples and case studies; and information about the open portal data Features an appendix with solutions to some practice problems Principles of

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Managerial Statistics and Data Science is a textbook for undergraduate and graduate students taking managerial Statistics courses, and a reference book for working business professionals.

Data is at the center of many challenges in system design today. Difficult issues need to be figured out, such as scalability, consistency, reliability, efficiency, and maintainability. In addition, we have an overwhelming variety of tools, including relational databases, NoSQL datastores, stream or batch processors, and message brokers. What are the right choices for your application? How do you make sense of all these buzzwords? In this practical and comprehensive guide, author Martin Kleppmann helps you navigate this



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diverse landscape by examining the pros and cons of various technologies for processing and storing data.

Software keeps changing, but the fundamental principles remain the same. With this book, software engineers and architects will learn how to apply those ideas in practice, and how to make full use of data in modern applications. Peer under the hood of the systems you already use, and learn how to use and operate them more effectively

Make informed decisions by identifying the strengths and weaknesses of different tools

Navigate the trade-offs around consistency, scalability, fault tolerance, and complexity

Understand the distributed systems research upon which modern databases are built

Peek behind the

scenes of major online services, and learn from their architectures. Statistical methods are a key part of data science, yet very few data scientists have any formal statistics training. Courses and books on basic statistics rarely cover the topic from a data science perspective. This practical guide explains how to apply various statistical methods to data science, tells you how to avoid their misuse, and gives you advice on what's important and what's not. Many data science resources incorporate statistical methods but lack a deeper statistical perspective. If you're familiar with the R programming language, and have some exposure to statistics, this quick reference bridges the gap in an accessible, readable format. With this

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book, you'll learn: Why exploratory data analysis is a key preliminary step in data science How random sampling can reduce bias and yield a higher quality dataset, even with big data How the principles of experimental design yield definitive answers to questions How to use regression to estimate outcomes and detect anomalies Key classification techniques for predicting which categories a record belongs to Statistical machine learning methods that "learn" from data Unsupervised learning methods for extracting meaning from unlabeled data Explores cloud computing, breaking down the concepts, models, mechanisms, and architectures of this technology while allowing for the financial assessment of resources and

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how they compare to traditional storage  
systems.

Big Data Processing Made Simple  
Hands-on techniques to implement  
enterprise analytics and machine  
learning using Hadoop, Spark, NoSQL  
and R

Big Data

A practitioners guide to choosing  
relevant Big Data architecture

The Data Science Design Manual

Practical Big Data Analytics

Machine Learning for the Internet of  
Things

***"The players, regulators, and  
stakeholders"--Cover.***

***Apache Spark is a popular  
open-source big-data  
processing framework that's  
built around speed, ease of***

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***use, and unified distributed computing architecture. Not only it supports developing applications in different languages like Java, Scala, Python, and R, it's also hundred times faster in memory and ten times faster even when running on disk compared to traditional data processing frameworks. Whether you are currently working on a big data project or interested in learning more about topics like machine learning, streaming data processing, and graph data analytics, this book is for you. You can learn about Apache***

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**Spark and develop Spark programs for various use cases in big data analytics using the code examples provided. This book covers all the libraries in Spark ecosystem: Spark Core, Spark SQL, Spark Streaming, Spark ML, and Spark GraphX.**

**"This book examines current, state-of-the-art research in the areas of data science, machine learning, data mining, optimization, artificial intelligence, statistics, and the interactions, linkages, and applications of knowledge-based business with information systems"--**

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***Describes ways to incorporate domain modeling into software development.***

***Data Analytics and Practical Theory for Movies, Games, Books, and Music***

***The Business Case for Big Data***

***50 Essential Concepts Fundamentals of Clinical Data Science***

***Understanding Big Data Scalability***

***The Big Ideas Behind Reliable, Scalable, and Maintainable Systems***

***Fundamentals of Computer Programming with C#***

***This engaging and clearly written***

*textbook/reference provides a must-have introduction to the rapidly emerging interdisciplinary field of data science. It focuses on the principles fundamental to becoming a good data scientist and the key skills needed to build systems for collecting, analyzing, and interpreting data. The Data Science Design Manual is a source of practical insights that highlights what really matters in analyzing data, and provides an intuitive understanding of how these core concepts can be used. The book does not emphasize any particular programming language or suite of data-analysis tools, focusing instead on high-level discussion of important design principles. This easy-to-read text*



*ideally serves the needs of undergraduate and early graduate students embarking on an "Introduction to Data Science" course. It reveals how this discipline sits at the intersection of statistics, computer science, and machine learning, with a distinct heft and character of its own. Practitioners in these and related fields will find this book perfect for self-study as well. Additional learning tools: Contains "War Stories," offering perspectives on how data science applies in the real world Includes "Homework Problems," providing a wide range of exercises and projects for self-study Provides a complete set of lecture slides and online video lectures at [www.data-manual.com](http://www.data-manual.com) Provides "Take-*

*Home Lessons,” emphasizing the big-picture concepts to learn from each chapter Recommends exciting “Kaggle Challenges” from the online platform Kaggle Highlights “False Starts,” revealing the subtle reasons why certain approaches fail Offers examples taken from the data science television show “The Quant Shop” (www.quant-shop.com)*

*Principles of Big Data helps readers avoid the common mistakes that endanger all Big Data projects. By stressing simple, fundamental concepts, this book teaches readers how to organize large volumes of complex data, and how to achieve data permanence when the content of the data is constantly*

*changing. General methods for data verification and validation, as specifically applied to Big Data resources, are stressed throughout the book. The book demonstrates how adept analysts can find relationships among data objects held in disparate Big Data resources, when the data objects are endowed with semantic support (i.e., organized in classes of uniquely identified data objects). Readers will learn how their data can be integrated with data from other resources, and how the data extracted from Big Data resources can be used for purposes beyond those imagined by the data creators. Learn general methods for specifying Big Data in a way that is understandable to humans and*

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Theory to Practice*

**to computers. Avoid the pitfalls in  
Big Data design and analysis.  
Understand how to create and  
use Big Data safely and  
responsibly with a set of laws,  
regulations and ethical standards  
that apply to the acquisition,  
distribution and integration of  
Big Data resources.**

**Big Data Analytics in Cyber-  
Physical Systems: Machine  
Learning for the Internet of  
Things** examines sensor signal  
processing, IoT gateways,  
optimization and decision-  
making, intelligent mobility, and  
implementation of machine  
learning algorithms in embedded  
systems. This book focuses on the  
interaction between IoT  
technology and the mathematical  
tools used to evaluate the

*extracted data of those systems. Each chapter provides the reader with a broad list of data analytics and machine learning methods for multiple IoT applications. Additionally, this volume addresses the educational transfer needed to incorporate these technologies into our society by examining new platforms for IoT in schools, new courses and concepts for universities and adult education on IoT and data science. . Bridges the gap between IoT, CPS, and mathematical modelling. Features numerous use cases that discuss how concepts are applied in different domains and applications. Provides "best practices", "winning stories" and "real-world examples" to*

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Technology & Signal Form  
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**complement innovation. Includes  
highlights of mathematical  
foundations of signal processing  
and machine learning in CPS and  
IoT.**

**The free book "Fundamentals of  
Computer Programming with C#"  
is a comprehensive computer  
programming tutorial that  
teaches programming, logical  
thinking, data structures and  
algorithms, problem solving and  
high quality code with lots of  
examples in C#. It starts with the  
first steps in programming and  
software development like  
variables, data types, conditional  
statements, loops and arrays and  
continues with other basic topics  
like methods, numeral systems,  
strings and string processing,  
exceptions, classes and objects.**

*After the basics this fundamental programming book enters into more advanced programming topics like recursion, data structures (lists, trees, hash-tables and graphs), high-quality code, unit testing and refactoring, object-oriented principles (inheritance, abstraction, encapsulation and polymorphism) and their implementation the C# language. It also covers fundamental topics that each good developer should know like algorithm design, complexity of algorithms and problem solving. The book uses C# language and Visual Studio to illustrate the programming concepts and explains some C# / .NET specific technologies like lambda expressions, extension*

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**methods and LINQ. The book is written by a team of developers lead by Svetlin Nakov who has 20+ years practical software development experience. It teaches the major programming concepts and way of thinking needed to become a good software engineer and the C# language in the meantime. It is a great start for anyone who wants to become a skillful software engineer. The books does not teach technologies like databases, mobile and web development, but shows the true way to master the basics of programming regardless of the languages, technologies and tools. It is good for beginners and intermediate developers who want to put a solid base for a**



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mind maps, as well as hundreds  
of exercises and live examples.**

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*full day without coming  
across data in the form of  
a chart, map or dashboard.  
Graphical displays of data  
are all around us, from  
performance indicators at  
work to election trackers  
on the news to traffic  
maps on the road. But few  
of us have received  
training or instruction in  
how to actually read and  
interpret them. How many  
times have we been misled  
simply because we aren't  
aware of the pitfalls to  
avoid when interpreting  
data visualizations.  
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teach you the different*

*ways that data can be encoded in graphical form, and it will give you a deeper understanding of the way our human visual system interprets these encodings. You will also learn about the most common chart types, and the situations in which they are most appropriate. From basic bar charts to overused pie charts to helpful maps and many more, a wide array of chart types are covered in detail, and conventions, pitfalls, strengths and weaknesses of each of them are revealed. This book*

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*will help you develop fluency in the interpretation of charts, an ability that we all need to hone and perfect if we are to make meaningful contributions in the professional, public and personal arenas of life. The principles covered in it also serve as a critical background for anyone looking to create charts that others will be able to understand. "This book is clear and evocative, thorough and thoughtful, and remarkably readable: a marvelous launchpad into*

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needs good data literacy  
skills to survive in the  
modern world. Without  
them, it's hard to succeed  
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onslaught of information  
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for a strong foundation.

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inspire you to own the  
process of developing your

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skills further." -Andy  
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new approach for  
harnessing the power of  
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using techniques such as  
classification,  
regression or  
clustering, and  
prediction model  
validation will be  
covered in the second  
section. The third  
section covers aspects  
of (mobile) clinical  
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