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Demystified [Essential MATLAB for Scientists and Engineers](#) **Digital Signal Processing Using MATLAB** *Matlab for Engineers* **MATLAB for Engineers** *Applied Numerical Methods with MATLAB for Engineers and Scientists* [Contemporary Linear Algebra](#) 1st Edition with [Student Solutions Manual](#) [EGrade SLG V1.5](#) [MatLab Tech Resource Manual](#) and [Cliffs Trigonometry Set](#) *Introduction to MATLAB 6 for Engineers* **Invitation to Dynamical Systems** [Wireless Communications Systems](#) *Ordinary Differential Equations Using MATLAB* **MATLAB Guide to Finite Elements** [A MATLAB Exercise Book](#) [Optimal Control Engineering With Matlab](#) **The Finite Element Method Using MATLAB**

Applied Numerical Methods Using Matlab

Introduction to Communication Systems

Numerical Methods for Engineers and Scientists

Using MATLAB® **Optimal and Robust Control**

Numerical Methods for Engineers and Scientists

Continuous Signals and Systems with

MATLAB Signals and Systems Solutions

Manual for PSPICE and MATLAB for

Electronics Numerical Techniques in

Electromagnetics, Second Edition Advanced

Engineering Mathematics with MATLAB

Mathematical Modelling with Case Studies

Developed from the author's graduate-level courses, the first edition of this book filled the need for a comprehensive, self-contained, and hands-on treatment of radar systems analysis and design. It quickly became a bestseller and was widely adopted by many professors. The second edition built on this successful format by rearranging and updating CD-ROM contains: "75 MATLAB functions (M-files) written specifically

to be used the this book" and two Solutions Manual. This supplement to any standard DSP text is one of the first books to successfully integrate the use of MATLAB® in the study of DSP concepts. In this book, MATLAB® is used as a computing tool to explore traditional DSP topics, and solve problems to gain insight. This greatly expands the range and complexity of problems that students can effectively study in the course. Since DSP applications are primarily algorithms implemented on a DSP processor or software, a fair amount of programming is required. Using interactive software such as MATLAB® makes it possible to place more emphasis on learning new and difficult concepts than on programming algorithms. Interesting practical examples are discussed and useful problems are explored. This updated second edition includes new homework problems and revises the scripts in the book, available functions, and m-files to MATLAB® V7. A practical guide to problem solving using

MATLAB. Designed to complement a taught course introducing MATLAB but ideally suited for any beginner. This book provides a brief tour of some of the tasks that MATLAB is perfectly suited to instead of focusing on any particular topic. Providing instruction, guidance and a large supply of exercises, this book is meant to stimulate problem-solving skills rather than provide an in-depth knowledge of the MATLAB language. Expanded to include a broader range of problems than the bestselling first edition, *Finite Element Method Using MATLAB: Second Edition* presents finite element approximation concepts, formulation, and programming in a format that effectively streamlines the learning process. It is written from a general engineering and mathematical perspective rather than that of a solid/structural mechanics basis. What's new in the Second Edition? Each chapter in the Second Edition now includes an overview that outlines the contents and purpose of each chapter. The authors have also added a new

chapter of special topics in applications, including cracks, semi-infinite and infinite domains, buckling, and thermal stress. They discuss three different linearization techniques to solve nonlinear differential equations. Also included are new sections on shell formulations and MATLAB programs. These enhancements increase the book's already significant value both as a self-study text and a reference for practicing engineers and scientists. The text is for instructors who want to use MATLAB to teach introductory programming concepts. Since many students struggle with applying the concepts that underlie good programming practice, *Learning to Program with MATLAB: Building GUI Tools* was designed upon the observation that student learning is enhanced if the students themselves build the GUI (graphical user interface) tool, construct the computational model, implement the visualization of results, and design the GUI. This text teaches the core concepts of computer programming—arrays,

loops, functions, and basic data structures—using MATLAB. The chapter sequence covers text-based programs, then programs that produce graphics, building up to an emphasis on GUI tools. This progression unleashes the real power of MATLAB—creating visual expressions of the underlying mathematics of a problem or design. Now readers can master the MATLAB language as they learn how to effectively solve typical problems with the concise, successful **ESSENTIALS OF MATLAB PROGRAMMING, 3E**. Author Stephen Chapman emphasizes problem-solving skills throughout the book as he teaches MATLAB as a technical programming language. Readers learn how to write clean, efficient, and well-documented programs, while the book simultaneously presents the many practical functions of MATLAB. The first seven chapters introduce programming and problem solving. The last two chapters address more advanced topics of additional data types and plot types,

cell arrays, structures, and new MATLAB handle graphics to ensure readers have the skills they need. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. Arming readers with both theoretical and practical knowledge, **Advanced Linear Algebra for Engineers with MATLAB®** provides real-life problems that readers can use to model and solve engineering and scientific problems in fields ranging from signal processing and communications to electromagnetics and social and health sciences. Facilitating a unique understanding of rapidly evolving linear algebra and matrix methods, this book: Outlines the basic concepts and definitions behind matrices, matrix algebra, elementary matrix operations, and matrix partitions, describing their potential use in signal and image processing applications. Introduces concepts of determinants, inverses, and their use in solving linear equations that result from electrical and mechanical-type

systems Presents special matrices, linear vector spaces, and fundamental principles of orthogonality, using an appropriate blend of abstract and concrete examples and then discussing associated applications to enhance readers' visualization of presented concepts Discusses linear operators, eigenvalues, and eigenvectors, and explores their use in matrix diagonalization and singular value decomposition Extends presented concepts to define matrix polynomials and compute functions using several well-known methods, such as Sylvester's expansion and Cayley-Hamilton Introduces state space analysis and modeling techniques for discrete and continuous linear systems, and explores applications in control and electromechanical systems, to provide a complete solution for the state space equation Shows readers how to solve engineering problems using least square, weighted least square, and total least square techniques Offers a rich selection of exercises

and MATLAB® assignments that build a platform to enhance readers' understanding of the material Striking the appropriate balance between theory and real-life applications, this book provides both advanced students and professionals in the field with a valuable reference that they will continually consult. The use of MATLAB is ubiquitous in the scientific and engineering communities today, and justifiably so. Simple programming, rich graphic facilities, built-in functions, and extensive toolboxes offer users the power and flexibility they need to solve the complex analytical problems inherent in modern technologies. The ability to use MATLAB effectively has become practically a prerequisite to success for engineering professionals. Like its best-selling predecessor, *Electronics and Circuit Analysis Using MATLAB*, Second Edition helps build that proficiency. It provides an easy, practical introduction to MATLAB and clearly demonstrates its use in solving a wide range of

electronics and circuit analysis problems. This edition reflects recent MATLAB enhancements, includes new material, and provides even more examples and exercises. New in the Second Edition: Thorough revisions to the first three chapters that incorporate additional MATLAB functions and bring the material up to date with recent changes to MATLAB A new chapter on electronic data analysis Many more exercises and solved examples New sections added to the chapters on two-port networks, Fourier analysis, and semiconductor physics MATLAB m-files available for download Whether you are a student or professional engineer or technician, *Electronics and Circuit Analysis Using MATLAB, Second Edition* will serve you well. It offers not only an outstanding introduction to MATLAB, but also forms a guide to using MATLAB for your specific purposes: to explore the characteristics of semiconductor devices and to design and analyze electrical and electronic circuits and systems. Drawing on the author's 25+ years of

teaching experience, *Signals and Systems: A MATLAB® Integrated Approach* presents a novel and comprehensive approach to understanding signals and systems theory. Many texts use MATLAB® as a computational tool, but Alkin's text employs MATLAB both computationally and pedagogically to provide interactive, visual reinforcement of the fundamentals, including the characteristics of signals, operations used on signals, time and frequency domain analyses of systems, continuous-time and discrete-time signals and systems, and more. In addition to 350 traditional end-of-chapter problems and 287 solved examples, the book includes hands-on MATLAB modules consisting of: 101 solved MATLAB examples, working in tandem with the contents of the text itself 98 MATLAB homework problems (coordinated with the 350 traditional end-of-chapter problems) 93 GUI-based MATLAB demo programs that animate key figures and bring core concepts to life 23 MATLAB projects,

more involved than the homework problems (used by instructors in building assignments) 11 sections of standalone MATLAB exercises that increase MATLAB proficiency and enforce good coding practices Each module or application is linked to a specific segment of the text to ensure seamless integration between learning and doing. A solutions manual, all relevant MATLAB code, figures, presentation slides, and other ancillary materials are available on an author-supported website or with qualifying course adoption. By involving students directly in the process of visualization, Signals and Systems: A MATLAB® Integrated Approach affords a more interactive—thus more effective—solution for a one- or two-semester course on signals and systems at the junior or senior level. This book provides a pragmatic, methodical and easy-to-follow presentation of numerical methods and their effective implementation using MATLAB, which is introduced at the outset. The author introduces techniques for solving equations of a

single variable and systems of equations, followed by curve fitting and interpolation of data. The book also provides detailed coverage of numerical differentiation and integration, as well as numerical solutions of initial-value and boundary-value problems. The author then presents the numerical solution of the matrix eigenvalue problem, which entails approximation of a few or all eigenvalues of a matrix. The last chapter is devoted to numerical solutions of partial differential equations that arise in engineering and science. Each method is accompanied by at least one fully worked-out example showing essential details involved in preliminary hand calculations, as well as computations in MATLAB. An accessible undergraduate textbook introducing key fundamental principles behind modern communication systems, supported by exercises, software problems and lab exercises. This textbook is designed for students and industry practitioners for a first course in optimization

integrating MATLAB® software. Numerical Methods for Engineers and Scientists, 3rd Edition provides engineers with a more concise treatment of the essential topics of numerical methods while emphasizing MATLAB use. The third edition includes a new chapter, with all new content, on Fourier Transform and a new chapter on Eigenvalues (compiled from existing Second Edition content). The focus is placed on the use of anonymous functions instead of inline functions and the uses of subfunctions and nested functions. This updated edition includes 50% new or updated Homework Problems, updated examples, helping engineers test their understanding and reinforce key concepts. This is a simple, concise, and useful book, explaining MATLAB for freshmen in engineering. MATLAB is presently a globally available standard computational tool for engineers and scientists. The terminology, syntax, and the use of the programming language are well defined and the organization of the material makes it easy to

locate information and navigate through the textbook. This new text emphasizes that students do not need to write loops to solve many problems. The Matlab "find" command with its relational and logical operators can be used instead of loops in many cases. This was mentioned in Palm's previous MATLAB texts, but receives more emphasis in this MATLAB 6 edition, starting with Chapter 1, and re-emphasized in Chapter 4. This is a value pack of MATLAB for Engineers: International Version and MATLAB & Simulink Student Version 2011a A comprehensive introduction to the fundamentals of design and applications of wireless communications Wireless Communications Systems starts by explaining the fundamentals needed to understand, design, and deploy wireless communications systems. The author, a noted expert on the topic, explores the basic concepts of signals, modulation, antennas, and propagation with a MATLAB emphasis. The book emphasizes practical

applications and concepts needed by wireless engineers. The author introduces applications of wireless communications and includes information on satellite communications, radio frequency identification, and offers an overview with practical insights into the topic of multiple input multiple output (MIMO). The book also explains the security and health effects of wireless systems concerns on users and designers. Designed as a practical resource, the text contains a range of examples and pictures that illustrate many different aspects of wireless technology. The book relies on MATLAB for most of the computations and graphics. This important text: Reviews the basic information needed to understand and design wireless communications systems Covers topics such as MIMO systems, adaptive antennas, direction finding, wireless security, internet of things (IoT), radio frequency identification (RFID), and software defined radio (SDR) Provides examples with a MATLAB emphasis to aid comprehension

Includes an online solutions manual and video lectures on selected topics Written for students of engineering and physics and practicing engineers and scientists, *Wireless Communications Systems* covers the fundamentals of wireless engineering in a clear and concise manner and contains many illustrative examples. This text is designed for those who wish to study mathematics beyond linear algebra but are unready for abstract material. Rather than a theorem-proof-corollary exposition, it stresses geometry, intuition, and dynamical systems. 1996 edition. Emphasizing problem-solving skills throughout, this fifth edition of Chapman's highly successful book teaches MATLAB as a technical programming language, showing students how to write clean, efficient, and well-documented programs, while introducing them to many of the practical functions of MATLAB. The first eight chapters are designed to serve as the text for an Introduction to Programming / Problem Solving

course for first-year engineering students. The remaining chapters, which cover advanced topics such as I/O, object-oriented programming, and Graphical User Interfaces, may be covered in a longer course or used as a reference by engineering students or practicing engineers who use MATLAB. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version. Contains supplemental exercises and practice tests for students. As the availability of powerful computer resources has grown over the last three decades, the art of computation of electromagnetic (EM) problems has also grown - exponentially. Despite this dramatic growth, however, the EM community lacked a comprehensive text on the computational techniques used to solve EM problems. The first edition of Numerical Techniques in Electromagnetics filled that gap and became the reference of choice for thousands of engineers,

researchers, and students. The Second Edition of this bestselling text reflects the continuing increase in awareness and use of numerical techniques and incorporates advances and refinements made in recent years. Most notable among these are the improvements made to the standard algorithm for the finite difference time domain (FDTD) method and treatment of absorbing boundary conditions in FDTD, finite element, and transmission-line-matrix methods. The author also added a chapter on the method of lines. Numerical Techniques in Electromagnetics continues to teach readers how to pose, numerically analyze, and solve EM problems, give them the ability to expand their problem-solving skills using a variety of methods, and prepare them for research in electromagnetism. Now the Second Edition goes even further toward providing a comprehensive resource that addresses all of the most useful computation methods for EM problems. This book explores numerical implementation of

Finite Element Analysis using MATLAB.

Stressing interactive use of MATLAB, it provides examples and exercises from mechanical, civil and aerospace engineering as well as materials science. The text includes a short MATLAB tutorial. An extensive solutions manual offers detailed solutions to all problems in the book for classroom use. The second edition includes a new brick (solid) element with eight nodes and a one-dimensional fluid flow element. Also added is a review of applications of finite elements in fluid flow, heat transfer, structural dynamics and electro-magnetics. The accompanying CD-ROM presents more than fifty MATLAB functions. "For first-year or introductory courses in Engineering and Computer Science With a hands-on approach and focus on problem solving, this introduction to the powerful MATLAB computing language is designed for students with only a basic college algebra background. Numerous examples are drawn from a range of engineering disciplines, demonstrating MATLAB's

applications to a broad variety of problems."-- Publisher's website. In MATLAB, Learn the essential skills needed to use the flexible MATLAB system. You will be able to apply the highly modular system towards the purposes you need by harnessing the power of its different toolboxes. This updated and expanded second edition of Book provides a user-friendly introduction to the subject, Taking a clear structural framework, it guides the reader through the subject's core elements. A flowing writing style combines with the use of illustrations and diagrams throughout the text to ensure the reader understands even the most complex of concepts. This succinct and enlightening overview is a required reading for all those interested in the subject . We hope you find this book useful in shaping your future career & Business. Need to Learn MATLAB? Problem SOLVED! Get started using MATLAB right away with help from this hands-on guide. MATLAB Demystified offers an effective and

enlightening method for learning how to get the most out of this powerful computational mathematics tool. Using an easy-to-follow format, this book explains the basics of MATLAB up front. You'll find out how to plot functions, solve algebraic equations, and compute integrals. You'll also learn how to solve differential equations, generate numerical solutions of ODEs, and work with special functions. Packed with hundreds of sample equations and explained solutions, and featuring end-of-chapter quizzes and a final exam, this book will teach you MATLAB essentials in no time at all. This self-teaching guide offers:

- The quickest way to get up and running on MATLAB
- Hundreds of worked examples with solutions
- Coverage of MATLAB 7
- A quiz at the end of each chapter to reinforce learning and pinpoint weaknesses
- A final exam at the end of the book
- A time-saving approach to performing better on homework or on the job

Simple enough for a beginner, but challenging enough for an

advanced user, MATLAB Demystified is your shortcut to computational precision. Designed for a one-semester undergraduate course in continuous linear systems, *Continuous Signals and Systems with MATLAB®, Second Edition* presents the tools required to design, analyze, and simulate dynamic systems. It thoroughly describes the process of the linearization of nonlinear systems, using MATLAB® to solve most examples and problems. With updates and revisions throughout, this edition focuses more on state-space methods, block diagrams, and complete analog filter design. New to the Second Edition

- A chapter on block diagrams that covers various classical and state-space configurations
- A completely revised chapter that uses MATLAB to illustrate how to design, simulate, and implement analog filters
- Numerous new examples from a variety of engineering disciplines, with an emphasis on electrical and electromechanical engineering problems

Explaining the subject matter through

easy-to-follow mathematical development as well as abundant examples and problems, the text covers signals, types of systems, convolution, differential equations, Fourier series and transform, the Laplace transform, state-space representations, block diagrams, system linearization, and analog filter design. Requiring no prior fluency with MATLAB, it enables students to master both the concepts of continuous linear systems and the use of MATLAB to solve problems. Emphasizing problem-solving skills throughout this very successful book, Stephen Chapman introduces the MATLAB® language and shows how to use it to solve typical technical problems. The book teaches MATLAB® as a technical programming language showing students how to write clean, efficient, and well-documented programs. It makes no pretense at being a complete description of all of MATLAB®'s hundreds of functions. Instead, it teaches students how to locate any desired function with MATLAB®'s

extensive on line help facilities. Overall, students develop problem-solving skills and are equipped for future courses and careers using the power of MATLAB®. In the four previous editions the author presented a text firmly grounded in the mathematics that engineers and scientists must understand and know how to use. Tapping into decades of teaching at the US Navy Academy and the US Military Academy and serving for twenty-five years at (NASA) Goddard Space Flight, he combines a teaching and practical experience that is rare among authors of advanced engineering mathematics books. This edition offers a smaller, easier to read, and useful version of this classic textbook. While competing textbooks continue to grow, the book presents a slimmer, more concise option. Instructors and students alike are rejecting the encyclopedic tome with its higher and higher price aimed at undergraduates. To assist in the choice of topics included in this new edition, the author reviewed the syllabi of various

engineering mathematics courses that are taught at a wide variety of schools. Due to time constraints an instructor can select perhaps three to four topics from the book, the most likely being ordinary differential equations, Laplace transforms, Fourier series and separation of variables to solve the wave, heat, or Laplace's equation. Laplace transforms are occasionally replaced by linear algebra or vector calculus. Sturm-Liouville problem and special functions (Legendre and Bessel functions) are included for completeness. Topics such as z-transforms and complex variables are now offered in a companion book, *Advanced Engineering Mathematics: A Second Course* by the same author. MATLAB is still employed to reinforce the concepts that are taught. Of course, this Edition continues to offer a wealth of examples and applications from the scientific and engineering literature, a highlight of previous editions. Worked solutions are given in the back of the book. *MatLab, Third Edition* is

the only book that gives a full introduction to programming in MATLAB combined with an explanation of the software's powerful functions, enabling engineers to fully exploit its extensive capabilities in solving engineering problems. The book provides a systematic, step-by-step approach, building on concepts throughout the text, facilitating easier learning. Sections on common pitfalls and programming guidelines direct students towards best practice. The book is organized into 14 chapters, starting with programming concepts such as variables, assignments, input/output, and selection statements; moves onto loops; and then solves problems using both the 'programming concept' and the 'power of MATLAB' side-by-side. In-depth coverage is given to input/output, a topic that is fundamental to many engineering applications. *Vectorized Code* has been made into its own chapter, in order to emphasize the importance of using MATLAB efficiently. There are also expanded examples on low-level file

input functions, Graphical User Interfaces, and use of MATLAB Version R2012b; modified and new end-of-chapter exercises; improved labeling of plots; and improved standards for variable names and documentation. This book will be a valuable resource for engineers learning to program and model in MATLAB, as well as for undergraduates in engineering and science taking a course that uses (or recommends) MATLAB. Presents programming concepts and MATLAB built-in functions side-by-side Systematic, step-by-step approach, building on concepts throughout the book, facilitating easier learning Sections on common pitfalls and programming guidelines direct students towards best practice Steven Chapra's second edition, Applied Numerical Methods with MATLAB for Engineers and Scientists, is written for engineers and scientists who want to learn numerical problem solving. This text focuses on problem-solving (applications) rather than theory, using MATLAB, and is intended for

Numerical Methods users; hence theory is included only to inform key concepts. The second edition feature new material such as Numerical Differentiation and ODE's: Boundary-Value Problems. For those who require a more theoretical approach, see Chapra's best-selling Numerical Methods for Engineers, 5/e (2006), also by McGraw-Hill. Mathematical Modelling with Case Studies: Using Maple™ and MATLAB®, Third Edition provides students with hands-on modelling skills for a wide variety of problems involving differential equations that describe rates of change. While the book focuses on growth and decay processes, interacting populations, and heating/cooling problems, the mathematical techniques presented can be applied to many other areas. The text carefully details the process of constructing a model, including the conversion of a seemingly complex problem into a much simpler one. It uses flow diagrams and word equations to aid in the model-building process and to develop the

mathematical equations. Employing theoretical, graphical, and computational tools, the authors analyze the behavior of the models under changing conditions. The authors often examine a model numerically before solving it analytically. They also discuss the validation of the models and suggest extensions to the models with an emphasis on recognizing the strengths and limitations of each model. The highly recommended second edition was praised for its lucid writing style and numerous real-world examples. With updated Maple™ and MATLAB® code as well as new case studies and exercises, this third edition continues to give students a clear, practical understanding of the development and interpretation of mathematical models. Resoundingly popular in its first edition, Dean Duffy's *Advanced Engineering Mathematics* has been updated, expanded, and now more than ever provides the solid mathematics background required throughout the engineering disciplines. Melding the author's

expertise as a practitioner and his years of teaching engineering mathematics, this text stands clearly apart from the many others available. Relevant, insightful examples follow nearly every concept introduced and demonstrate its practical application. This edition includes two new chapters on differential equations, another on Hilbert transforms, and many new examples, problems, and projects that help build problem-solving skills. Most importantly, the book now incorporates the use of MATLAB throughout the presentation to reinforce the concepts presented. MATLAB code is included so readers can take an analytic result, fully explore it graphically, and gain valuable experience with this industry-standard software. Based on a teach-yourself approach, the fundamentals of MATLAB are illustrated throughout with many examples from a number of different scientific and engineering areas, such as simulation, population modelling, and numerical methods, as well as from business and

everyday life. Some of the examples draw on first-year university level maths, but these are self-contained so that their omission will not detract from learning the principles of using MATLAB. This completely revised new edition is based on the latest version of MATLAB. New chapters cover handle graphics, graphical user interfaces (GUIs), structures and cell arrays, and importing/exporting data. The chapter on numerical methods now includes a general GUI-driver ODE solver. * Maintains the easy informal style of the first edition * Teaches the basic principles of scientific programming with MATLAB as the vehicle * Covers the latest version of MATLAB

Market Desc: · Undergraduate and graduate level students of Engineering· Engineers and Researchers using numerical methods Special Features: · A very practical title for students, engineers and researchers who apply numerical methods for solving problems using MATLAB· Includes exercises, problems and solutions with

demonstrations through the MATLAB program· Solution Manual available for instructors About The Book: The objective of this book is to make use of the powerful MATLAB software to avoid complex derivations and to teach the fundamental concepts using the software to solve practical problems. The authors use a more practical approach and link every method to real engineering and/or science problems. The main idea is that engineers don't have to know the mathematical theory in order to apply the numerical methods for solving their real-life problems. While there are many books on advanced control for specialists, there are few that present these topics for nonspecialists. Assuming only a basic knowledge of automatic control and signals and systems, Optimal and Robust Control: Advanced Topics with MATLAB® offers a straightforward, self-contained handbook of advanced topics and tools in automatic control. Techniques for Controlling System Performance in the Presence of

Uncertainty The book deals with advanced automatic control techniques, paying particular attention to robustness—the ability to guarantee stability in the presence of uncertainty. It explains advanced techniques for handling uncertainty and optimizing the control loop. It also details analytical strategies for obtaining reduced order models. The authors then propose using the Linear Matrix Inequalities (LMI) technique as a unifying tool to solve many types of advanced control problems. Topics covered include: LQR and H-infinity approaches Kalman and singular value decomposition Open-loop

balancing and reduced order models Closed-loop balancing Passive systems and bounded-real systems Criteria for stability control This easy-to-read text presents the essential theoretical background and provides numerous examples and MATLAB exercises to help the reader efficiently acquire new skills. Written for electrical, electronic, computer science, space, and automation engineers interested in automatic control, this book can also be used for self-study or for a one-semester course in robust control.

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