

in what programming language is facebook written

in what programming language is facebook written is a question that attracts significant interest given Facebook's status as one of the largest and most complex social media platforms globally. Understanding the programming languages and technologies behind Facebook reveals insights into how the platform achieves its scalability, performance, and feature richness. Facebook's development history spans multiple languages, frameworks, and tools, reflecting the evolution of web development and the specific needs of such a massive application. This article explores the primary programming languages Facebook uses, the reasons behind their choices, and how different components of Facebook's infrastructure are implemented. Additionally, it covers the role of proprietary languages and systems developed by Facebook's engineering teams to optimize performance and developer productivity. The discussion also includes how Facebook integrates various languages and technologies to deliver a seamless user experience. Below is a detailed overview of the main aspects covered in this article.

- Primary Programming Languages Used by Facebook
- PHP and the Development of Hack
- Backend Technologies and Infrastructure
- Frontend Development Languages and Frameworks
- Mobile Application Programming Languages
- Facebook's Custom Languages and Tools

Primary Programming Languages Used by Facebook

Facebook's architecture is built on a combination of programming languages, each serving specific purposes within the platform. The primary languages include PHP, C++, Hack, JavaScript, and Python. The choice of these languages is influenced by performance needs, ease of development, and the requirement to handle billions of users and interactions efficiently. Over time, Facebook has also invested in developing custom languages and tools to address limitations and scale challenges encountered with traditional languages.

PHP: The Original Foundation

Originally, Facebook was built using PHP, a widely-used server-side scripting language designed for web development. PHP allowed rapid prototyping and development during Facebook's early years, enabling quick deployment of new features. Despite PHP's reputation for simplicity, Facebook had to overcome scalability and performance challenges as the user base grew exponentially.

C++ for Performance-Critical Components

To handle performance-sensitive parts of the platform, Facebook employs C++. This language is known for its speed and efficiency, making it suitable for backend services that require high throughput and low latency. C++ is often used in systems like Facebook's data storage, caching layers, and parts of the infrastructure interacting closely with hardware.

PHP and the Development of Hack

Facebook's reliance on PHP led to the creation of Hack, a programming language developed internally to enhance PHP's capabilities. Hack introduces static typing and other modern features that improve code safety, maintainability, and performance. It enables developers to write PHP-like code with additional tools to catch errors early and optimize execution.

Why Hack Was Created

As Facebook's codebase expanded, the limitations of dynamic typing in PHP became apparent, increasing the risk of bugs and performance bottlenecks. Hack addresses these issues by combining dynamic and static typing, allowing gradual typing adoption. This hybrid approach preserves developer productivity while enhancing code correctness and execution speed.

Features of Hack

Hack supports features such as:

- Static type checking with gradual typing
- Generics for reusable components
- Collections and asynchronous programming constructs
- Enhanced error detection during development

Hack runs on the HipHop Virtual Machine (HHVM), Facebook's custom runtime

environment designed to execute Hack and PHP code efficiently.

Backend Technologies and Infrastructure

Beyond programming languages, Facebook's backend infrastructure leverages various technologies to support its massive scale. The backend handles processing user data, managing databases, caching, and serving content. Efficiency and reliability are critical due to the immense load from billions of daily active users.

HipHop Virtual Machine (HHVM)

The HHVM is a just-in-time (JIT) compiler and virtual machine developed by Facebook to execute PHP and Hack code faster than traditional PHP interpreters. By translating PHP/Hack code into optimized machine code, HHVM significantly improves runtime performance and reduces server resource consumption.

Databases and Storage Systems

Facebook uses a combination of relational and NoSQL databases, often written in C++ and other performant languages, to manage its data. Examples include MySQL for structured data and custom storage solutions like RocksDB. The backend also incorporates caching layers such as Memcached to accelerate data retrieval.

Frontend Development Languages and Frameworks

The frontend of Facebook, responsible for the user interface and client-side interactivity, is primarily built using JavaScript and related technologies. This combination ensures rich, dynamic experiences and responsive interactions for users across devices.

JavaScript and React

JavaScript is the core language for Facebook's frontend development. Facebook created React, an open-source JavaScript library, to build reusable UI components and manage application state efficiently. React's virtual DOM and component-based architecture allow Facebook to deliver fast and scalable user interfaces.

CSS and HTML

Alongside JavaScript, standard web technologies such as CSS and HTML form the backbone of Facebook's frontend presentation. These technologies handle styling and layout, ensuring consistent design and accessibility across browsers and devices.

Mobile Application Programming Languages

Facebook's mobile applications for iOS and Android are developed using languages suited for each platform, ensuring optimal performance and native user experiences.

Objective-C and Swift for iOS

Historically, Facebook's iOS app was written in Objective-C, Apple's primary language for iOS development. More recently, Swift, a modern language introduced by Apple, has been adopted for new features and improvements due to its safety and performance advantages.

Java and Kotlin for Android

For Android development, Java was the original language used. Kotlin, officially supported by Google and known for its concise syntax and safety features, is increasingly used alongside Java to enhance the Android codebase.

Facebook's Custom Languages and Tools

To meet unique challenges of scale and efficiency, Facebook has developed several custom programming languages, compilers, and tools. These innovations enable the company to optimize performance and improve developer workflows.

Reason: Facebook's Scale Demands Innovation

Standard programming languages and tools cannot always address the extreme demands of Facebook's infrastructure. Custom solutions allow Facebook to tailor features, optimize resource utilization, and maintain a competitive edge.

Examples of Custom Technologies

- **Hack:** Enhances PHP with static typing and modern features.
- **HHVM:** A high-performance runtime for executing Hack and PHP.
- **Flow:** A static type checker for JavaScript used to improve code quality.
- **Presto:** A distributed SQL query engine developed for fast data analytics.

These tools highlight Facebook's commitment to evolving its technology stack beyond conventional programming languages.

Frequently Asked Questions

In what programming language is Facebook primarily written?

Facebook's backend is primarily written in PHP, which is then optimized using a tool called HipHop Virtual Machine (HHVM) that converts PHP code into C++ for better performance.

Does Facebook use only one programming language for its development?

No, Facebook uses multiple programming languages including PHP for backend logic, C++ for performance-critical components, JavaScript for frontend, and Python for various services.

What is HHVM and how does it relate to Facebook's programming language?

HHVM (HipHop Virtual Machine) is a virtual machine developed by Facebook that executes programs written in Hack and PHP, translating PHP code into optimized C++ to improve performance.

Is PHP still relevant in Facebook's current codebase?

Yes, PHP remains a core part of Facebook's codebase, but it is enhanced with Hack, a programming language developed by Facebook that extends PHP with additional features.

What is Hack and how is it connected to Facebook's programming languages?

Hack is a programming language created by Facebook that is built on top of PHP, adding static typing and other features to improve developer productivity and code safety.

Which language does Facebook use for its mobile app development?

Facebook's mobile apps are primarily developed using Swift and Objective-C for iOS, and Java and Kotlin for Android.

Does Facebook use JavaScript in its technology stack?

Yes, Facebook extensively uses JavaScript, especially with React, a front-end library developed by Facebook for building user interfaces.

Why did Facebook choose PHP as its initial programming language?

Facebook chose PHP for its ease of use, rapid development capabilities, and wide adoption at the time of Facebook's inception.

How does Facebook ensure high performance despite using PHP?

Facebook uses HHVM to convert PHP code into highly optimized machine code, and also incorporates C++ components to handle performance-critical tasks.

Are there any other programming languages used by Facebook for backend services?

Yes, besides PHP and C++, Facebook also uses languages like Python, Erlang, and Java for various backend services and infrastructure.

Additional Resources

1. Programming PHP: Creating Dynamic Web Pages

This book offers a comprehensive introduction to PHP, the primary server-side scripting language originally used by Facebook. It covers the basics of PHP syntax, functions, and best practices for developing dynamic web applications. Readers will gain insights into how PHP powers large-scale platforms like Facebook and learn techniques for optimizing PHP code for performance and scalability.

2. Hack Programming Language for Beginners

Hack is a programming language developed by Facebook that interoperates seamlessly with PHP while adding static typing and other modern features. This book provides a beginner-friendly guide to Hack, explaining its syntax, type system, and how it enhances code reliability and maintainability. It also explores how Hack enables Facebook to build robust applications efficiently.

3. Mastering the HipHop Virtual Machine (HHVM)

HHVM is an open-source virtual machine created by Facebook to execute PHP and Hack code with high performance. This book delves into the architecture of HHVM, its just-in-time compilation techniques, and how it accelerates Facebook's backend services. Readers will learn to deploy and optimize HHVM for their own PHP/Hack applications.

4. The Art of Scaling Web Applications with PHP and Hack

Focusing on scalability challenges, this book examines how Facebook scales its massive user base using PHP and Hack. It discusses design patterns, caching strategies, and distributed systems concepts tailored for PHP/Hack environments. Practical examples illustrate how to build scalable and maintainable web applications.

5. Inside Facebook: Building the World's Leading Social Network

This book provides an in-depth look at Facebook's technology stack, with a strong emphasis on the programming languages and tools used, including PHP, Hack, and C++. It explores Facebook's engineering culture, coding standards, and system design principles. Readers gain a holistic understanding of how Facebook's software ecosystem works.

6. PHP to Hack: Transitioning to a Modern Programming Language

Designed for PHP developers, this book guides readers through the process of migrating to Hack. It covers language differences, new features, and how to leverage Hack's static typing and collections. The book also includes practical tips for refactoring existing PHP codebases to Hack for improved performance and safety.

7. Building High-Performance Web Services with PHP and HHVM

This title focuses on creating efficient web services using PHP and Facebook's HHVM. It covers asynchronous programming, API design, and performance tuning techniques. Readers will learn how to build responsive and scalable backend services that can handle large traffic volumes like those at Facebook.

8. The Hack Cookbook: Practical Recipes for Modern Web Development

Offering a collection of practical examples and recipes, this book helps developers harness the power of Hack for everyday programming tasks. From type annotations to collections and async programming, it provides hands-on guidance to write clean and efficient code. The book is ideal for those looking to adopt Hack in production environments.

9. Facebook Engineering: Open Source Tools and Technologies

This book explores the open-source projects released by Facebook, including HHVM, Hack, and other developer tools. It explains how these technologies integrate and support Facebook's massive infrastructure. Readers get insights into real-world applications of Facebook's programming languages and frameworks in large-scale software development.

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in what programming language is facebook written: The C++ Programming Language Bjarne Stroustrup, 2013-07-10 The new C++11 standard allows programmers to express ideas more clearly, simply, and directly, and to write faster, more efficient code. Bjarne Stroustrup, the designer and original implementer of C++, has reorganized, extended, and completely rewritten his definitive reference and tutorial for programmers who want to use C++ most effectively. The C++ Programming Language, Fourth Edition, delivers meticulous, richly explained, and integrated coverage of the entire language—its facilities, abstraction mechanisms, standard libraries, and key design techniques. Throughout, Stroustrup presents concise, “pure C++11” examples, which have been carefully crafted to clarify both usage and program design. To promote deeper understanding, the author provides extensive cross-references, both within the book and to the ISO standard. New C++11 coverage includes Support for concurrency Regular expressions, resource management pointers, random numbers, and improved containers General and uniform initialization, simplified for-statements, move semantics, and Unicode support Lambdas, general constant expressions, control over class defaults, variadic templates, template aliases, and user-defined literals Compatibility issues Topics addressed in this comprehensive book include Basic facilities: type, object, scope, storage, computation fundamentals, and more Modularity, as supported by namespaces, source files, and exception handling C++ abstraction, including classes, class hierarchies, and templates in support of a synthesis of traditional programming, object-oriented programming, and generic programming Standard Library: containers, algorithms, iterators,

utilities, strings, stream I/O, locales, numerics, and more The C++ basic memory model, in depth This fourth edition makes C++11 thoroughly accessible to programmers moving from C++98 or other languages, while introducing insights and techniques that even cutting-edge C++11 programmers will find indispensable. This book features an enhanced, layflat binding, which allows the book to stay open more easily when placed on a flat surface. This special binding method—noticeable by a small space inside the spine—also increases durability.

in what programming language is facebook written: Starting a Tech Business Alex Cowan, 2012-04-10 The non-technical guide to building a booming tech-enabled business Thinking of starting a technology-enabled business? Or maybe you just want to increase your technology mojo so you can do your job better? You do not need to learn programming to participate in the development of today's hottest technologies. But there are a few easy-to-grasp foundation concepts that will help you engage with a technical team. Starting a Tech Business explains in practical, actionable terms how to formulate and reality test new ideas package what you learn into frameworks that are highly actionable for engineers understand key foundation concepts about modern software and systems participate in an agile/lean development team as the 'voice of the customer' Even if you have a desire to learn to program (and I highly recommend doing whatever unlocks your 'inner tinkerer'), these foundation concepts will help you target what exactly you want to understand about hands-on technology development. While a decade ago the barriers to creating a technology-enabled business required a pole vault, getting started today only requires a determined step in the right direction. Starting a Tech Business supplies the tools prospective entrepreneurs and business enterprises need to avoid common pitfalls and succeed in the fast-paced world of high-tech business. Successful execution requires thoughtful, evidence-based product formulation, well-articulated design, economic use of systems, adaptive management of technical resources, and empathetic deployment to customers. Starting a Tech Business offers practical checklists and frameworks that business owners, entrepreneurs, and professionals can apply to any tech-based business idea, whether you're developing software and products or beginning a technology-enabled business. You'll learn: 1. How to apply today's leading management frameworks to a tech business 2. How to package your product idea in a way that's highly actionable for your technical team 3. How to ask the right questions about technology selection and product architecture 4. Strategies to leverage what your technology ecosystem has to offer 5. How to carefully define the roles on your team, and then effectively evaluate candidates 6. The most common disconnects between engineers and business people and how to avoid them 7. How you can apply process design to your tech business without stifling creativity 8. The steps to avoid the most common pitfalls tech founders encounter Now is one of the best times to start a technology-enabled business, and anyone can do it with the right amount and kind of preparation. Starting a Tech Business shows you how to move a product idea to market quickly and inexpensively—and to tap into the stream of wealth that a tech business can provide.

in what programming language is facebook written: Programming in PHP scripting language Pavel Bartoš, 2022-01-01 When I first encountered PHP, I was impressed by its simplicity and versatility. PHP, which stands for PHP: Hypertext Preprocessor, is a scripting language that is primarily used for developing web applications. Its wide range of features and easy integration with HTML code quickly convinced me of its importance to modern web programming.

in what programming language is facebook written: Transactions on Pattern Languages of Programming V Eugene Wallingford, Uwe Zdun, Christian Kohls, 2025-03-20 The Transactions on Pattern Languages of Programming subline aims to publish papers on patterns and pattern languages as applied to software design, development, and use, throughout all phases of the software life cycle, from requirements and design to implementation, maintenance and evolution. The primary focus of this LNCS Transactions subline is on patterns, pattern collections, and pattern languages themselves. The journal also includes reviews, survey articles, criticisms of patterns and pattern languages, as well as other research on patterns and pattern languages. This book, the fifth volume in the Transactions on Pattern Languages of Programming series, includes papers on patterns and pattern languages for engineering specific kinds of application and for improving

processes, as well as papers on the discovery, validation, and systemic use of patterns more broadly.

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George A. Tsihrintzis, Lakhmi C. Jain, 2020-07-23 At the dawn of the 4th Industrial Revolution, the field of Deep Learning (a sub-field of Artificial Intelligence and Machine Learning) is growing continuously and rapidly, developing both theoretically and towards applications in increasingly many and diverse other disciplines. The book at hand aims at exposing its reader to some of the most significant recent advances in deep learning-based technological applications and consists of an editorial note and an additional fifteen (15) chapters. All chapters in the book were invited from authors who work in the corresponding chapter theme and are recognized for their significant research contributions. In more detail, the chapters in the book are organized into six parts, namely (1) Deep Learning in Sensing, (2) Deep Learning in Social Media and IOT, (3) Deep Learning in the Medical Field, (4) Deep Learning in Systems Control, (5) Deep Learning in Feature Vector Processing, and (6) Evaluation of Algorithm Performance. This research book is directed towards professors, researchers, scientists, engineers and students in computer science-related disciplines. It is also directed towards readers who come from other disciplines and are interested in becoming versed in some of the most recent deep learning-based technological applications. An extensive list of bibliographic references at the end of each chapter guides the readers to probe deeper into their application areas of interest.

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Nikhil Abraham, 2015-08-03 Your friendly guide to getting a job in coding Getting a Coding Job For Dummies explains how a coder works in (or out of) an organization, the key skills any job requires, the basics of the technologies a coding pro will encounter, and how to find formal or informal ways to build your skills. Plus, it paints a picture of the world a coder lives in, outlines how to build a resume to land a coding job, and so much more. Coding is one of the most in-demand skills in today's job market, yet there seems to be an ongoing deficit of candidates qualified to take these jobs. Getting a Coding Job For Dummies provides a road map for students, post-grads, career switchers, and anyone else interested in starting a career in coding. Inside this friendly guide, you'll find the steps needed to learn the hard and soft skills of coding—and the world of programming at large. Along the way, you'll set a clear career path based on your goals and discover the resources that can best help you build your coding skills to make you a suitable job candidate. Covers the breadth of job opportunities as a coder Includes tips on educational resources for coders and ways to build a positive reputation Shows you how to research potential employers and impress interviewers Offers access to online video, articles, and sample resume templates If you're interested in pursuing a job in coding, but don't know the best way to get there, Getting a Coding Job For Dummies is your compass!

in what programming language is facebook written: The Thinking Machine Stephen Witt,

2025-04-08 "Stephen Witt's deep reporting shines through every page of The Thinking Machine. The result is a page-turning biography of perhaps the most consequential CEO and company in the world." —David Epstein, New York Times bestselling author of Range Nvidia is as valuable as Apple and Microsoft. It has shaped the world as we know it. But its story is little known. This is the definitive story of the greatest technology company of our times. In June of 2024, thirty-one years after its founding in a Denny's restaurant, Nvidia became the most valuable corporation on Earth. The Thinking Machine is the astonishing story of how a designer of video game equipment conquered the market for AI hardware, and in the process re-invented the computer. Essential to Nvidia's meteoric success is its visionary CEO Jensen Huang, who more than a decade ago, on the basis of a few promising scientific results, bet his entire company on AI. Through unprecedented access to Huang, his friends, his investors, and his employees, Witt documents for the first time the company's epic rise and its single-minded and ferocious leader, now one of Silicon Valley's most influential figures. The Thinking Machine is the story of how Nvidia evolved to supplying hundred-million-dollar supercomputers. It is the story of a determined entrepreneur who defied Wall Street to push his radical vision for computing, becoming one of the wealthiest men alive. It is the

story of a revolution in computer architecture, and the small group of renegade engineers who made it happen. And it's the story of our awesome and terrifying AI future, which Huang has billed as the 'next industrial revolution,' as a new kind of microchip unlocks hyper-realistic avatars, autonomous robots, self-driving cars, and new movies, art, and books, generated on command. This is the story of the company that is inventing the future.

in what programming language is facebook written: *Hack and HHVM* Owen Yamauchi, 2015-09-02 How can you take advantage of the HipHop Virtual Machine (HHVM) and the Hack programming language, two new technologies that Facebook developed to run their web servers? With this practical guide, Owen Yamauchi—a member of Facebook's core Hack and HHVM teams—shows you how to get started with these battle-tested open-source tools. You'll explore static typechecking and several other features that separate Hack from its PHP origins, and learn how to set up, configure, deploy, and monitor HHVM. Ideal for developers with basic PHP knowledge or experience with other languages, this book also demonstrates how these tools can be used with existing PHP codebases and new projects alike. Learn how Hack provides static typechecking while retaining PHP's flexible, rapid development capability Write typesafe code with Hack's generics feature Explore HHVM, a just-in-time compilation runtime engine with full PHP compatibility Dive into Hack collections, asynchronous functions, and the XHP extension for PHP Understand Hack's design rationale, including why it omits some PHP features Use Hack for multitasking, and for generating HTML securely Learn tools for working with Hack code, including PHP-to-Hack migration

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in what programming language is facebook written: Advances in Computer Science, Engineering and Applications David C. Wyld, Jan Zizka, Dhinakaran Nagamalai, 2012-05-17 The International conference series on Computer Science, Engineering & Applications (ICCSEA) aims to bring together researchers and practitioners from academia and industry to focus on understanding computer science, engineering and applications and to establish new collaborations in these areas. The Second International Conference on Computer Science, Engineering & Applications (ICCSEA-2012), held in Delhi, India, during May 25-27, 2012 attracted many local and international delegates, presenting a balanced mixture of intellect and research both from the East and from the West. Upon a strenuous peer-review process the best submissions were selected leading to an exciting, rich and a high quality technical conference program, which featured high-impact presentations in the latest developments of various areas of computer science, engineering and applications research.

in what programming language is facebook written: Programming Language Explorations Ray Toal, Rachel Rivera, Alexander Schneider, Eileen Choe, 2017-08-09 Programming Language Explorations is a tour of several modern programming languages in use today. The book teaches fundamental language concepts using a language-by-language approach. As each language is presented, the authors introduce new concepts as they appear, and revisit familiar ones, comparing their implementation with those from languages seen in prior chapters. The goal is to present and explain common theoretical concepts of language design and usage, illustrated in the context of practical language overviews. Twelve languages have been carefully chosen to illustrate a wide range of programming styles and paradigms. The book introduces each language with a

common trio of example programs, and continues with a brief tour of its basic elements, type system, functional forms, scoping rules, concurrency patterns, and sometimes, metaprogramming facilities. Each language chapter ends with a summary, pointers to open source projects, references to materials for further study, and a collection of exercises, designed as further explorations. Following the twelve featured language chapters, the authors provide a brief tour of over two dozen additional languages, and a summary chapter bringing together many of the questions explored throughout the text. Targeted to both professionals and advanced college undergraduates looking to expand the range of languages and programming patterns they can apply in their work and studies, the book pays attention to modern programming practice, covers cutting-edge languages and patterns, and provides many runnable examples, all of which can be found in an online GitHub repository. The exploration style places this book between a tutorial and a reference, with a focus on the concepts and practices underlying programming language design and usage. Instructors looking for material to supplement a programming languages or software engineering course may find the approach unconventional, but hopefully, a lot more fun.

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in what programming language is facebook written: *The Wiley Encyclopedia of Personality and Individual Differences, Measurement and Assessment* , 2020-11-03 Volume 2, Measurement and

Assessment of The Wiley Encyclopedia of Personality and Individual Differences The Encyclopedia of Personality and Individual Differences (EPID) is organized into four volumes that look at the many likenesses and differences between individuals. Each of these four volumes focuses on a major content area in the study of personality psychology and individuals' differences. The first volume, Models and Theories, surveys the significant classic and contemporary viewpoints, perspectives, models, and theoretical approaches to the study of personality and individuals' differences (PID). The second volume on Measurement and Assessment examines key classic and modern methods and techniques of assessment in the study of PID. Volume III, titled Personality Processes and Individuals Differences, covers the important traditional and current dimensions, constructs, and traits in the study of PID. The final volume discusses three major categories: clinical contributions, applied research, and cross-cultural considerations, and touches on topics such as culture and identity, multicultural identities, cross-cultural examinations of trait structures and personality processes, and more. Each volume contains approximately 100 entries on personality and individual differences written by a diverse international panel of leading psychologists Covers significant classic and contemporary personality psychology models and theories, measurement and assessment techniques, personality processes and individuals differences, and research Provides a comprehensive and in-depth overview of the field of personality psychology The Encyclopedia of Personality and Individual Differences is an important resource for all psychology students and professionals engaging in the study and research of personality.

in what programming language is facebook written: *Winning with Data* Tomasz Tunguz, Frank Bien, 2016-05-26 Crest the data wave with a deep cultural shift *Winning with Data* explores the cultural changes big data brings to business, and shows you how to adapt your organization to leverage data to maximum effect. Authors Tomasz Tunguz and Frank Bien draw on extensive background in big data, business intelligence, and business strategy to provide a blueprint for companies looking to move head-on into the data wave. Instrumentation is discussed in detail, but the core of the change is in the culture—this book provides sound guidance on building the type of organizational culture that creates and leverages data daily, in every aspect of the business. Real-world examples illustrate these important concepts at work: you'll learn how data helped Warby-Parker disrupt a \$13 billion monopolized market, how ThredUp uses data to process more than 20 thousand items of clothing every day, how Venmo leverages data to build better products, how HubSpot empowers their salespeople to be more productive, and more. From decision making and strategy to shipping and sales, this book shows you how data makes better business. Big data has taken on buzzword status, but there is little real guidance for companies seeking everyday business data solutions. This book takes a deeper look at big data in business, and shows you how to shift internal culture ahead of the curve. Understand the changes a data culture brings to companies Instrument your company for maximum benefit Utilize data to optimize every aspect of your business Improve decision making and transform business strategy Big data is becoming the number-one topic in business, yet no one is asking the right questions. Leveraging the full power of data requires more than good IT—organization-wide buy-in is essential for long-term success. *Winning with Data* is the expert guide to making data work for your business, and your needs.

in what programming language is facebook written: PYTHON PROGRAMMING SIMPLIFIED Vikas Thada, 2024-08-30 *Python Programming Simplified: An Absolute Beginner's Guide* by Dr. Vikas Thada, Professor & Head (CSE), Amity University Madhya Pradesh Welcome to *Python Programming Simplified: An Absolute Beginner's Guide*, a meticulously crafted resource designed for those embarking on their Python programming journey. Authored by Dr. Vikas Thada, a seasoned educator and head of the Computer Science and Engineering department at Amity University Madhya Pradesh, this book offers a clear and comprehensive introduction to the world of Python programming. About the Book: *Python Programming Simplified* is structured to provide a gradual and thorough understanding of Python, making it accessible for readers with no prior programming experience. With 14 well-organized chapters, this guide covers everything from the basics of Python to more advanced concepts, ensuring that beginners can grasp the fundamentals

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