Beginning Cobol For Programmers

Beginning Cobol For Programmers Beginning COBOL for Programmers: A Complete Guide to Getting Started with COBOL Programming If you're venturing into the world of legacy systems or seeking to understand one of the oldest yet most reliable programming languages, beginning COBOL for programmers is a crucial step. COBOL (Common Business-Oriented Language) has been the backbone of many financial, governmental, and business applications since its inception in the late 1950s. Despite its age, COBOL remains relevant, especially in mainframe environments, and understanding its fundamentals can open doors to lucrative career opportunities. This comprehensive guide aims to introduce programmers to COBOL, covering its history, syntax, structure, development tools, and best practices to ensure a smooth learning curve. --- Understanding COBOL: An Overview What Is COBOL? COBOL is a high-level programming language designed primarily for business, finance, and administrative systems. Its syntax emphasizes readability, making it accessible for non-programmers and ensuring that business analysts can understand and review code easily. Why Learn COBOL Today? - Legacy System Maintenance: Many critical systems still run on COBOL, requiring maintenance and modernization. - Job Opportunities: Companies seek developers familiar with COBOL for legacy system updates. - Integration with Modern Technologies: Bridges now exist to connect COBOL systems with modern platforms. - Stability and Reliability: COBOL systems are known for their robustness and efficiency. The History of COBOL - Developed in 1959 by a committee led by Grace Hopper. - Designed to be a business-oriented language focusing on data processing. - Evolved through various standards, with COBOL-85, COBOL 2002, and COBOL 2014 being notable versions. - Continues to be maintained and updated, ensuring relevance. --- Setting Up Your COBOL Development Environment Choosing the Right Tools To begin coding in COBOL, you'll need a development environment. Here are some popular options: - Open- Source Compilers: - GnuCOBOL (formerly OpenCOBOL): Free and cross-platform. - TinyCOBOL: Lightweight COBOL compiler. - Commercial IDEs: - Micro Focus Visual COBOL: Integrated development environment with extensive features. - IBM COBOL for z/OS: For mainframe development. - Online IDEs: - TutorialsPoint COBOL Compiler. - JDoodle COBOL Online. Installing GnuCOBOL GnuCOBOL is an excellent starting point

for beginners due to its simplicity and open-source nature. Steps to install GnuCOBOL: 1. On Windows: - Use WSL (Windows Subsystem for Linux) or install via Cygwin. - Download from [GnuCOBOL official site](https://www.gnu.org/software/gnucobol/). 2. On Linux: - Use package managers: ```bash sudo apt-get install gnu-cobol ``` 3. On macOS: - Use Homebrew: ```bash brew install gnu-cobol ``` Once installed, verify with: ```bash cobc --version ``` --- Core COBOL Concepts and Syntax The Structure of a COBOL Program A typical COBOL program consists of four divisions: 1. Identification Division 2. Environment Division 3. 2 Data Division 4. Procedure Division Each serves a specific purpose. --- The COBOL Program Skeleton ```cobol IDENTIFICATION DIVISION. PROGRAM-ID. HelloWorld. ENVIRONMENT DIVISION. DATA DIVISION. PROCEDURE DIVISION. DISPLAY "Hello, World!". STOP RUN. ``` Let's explore each division: --- 1. Identification Division Specifies the program's identity and author. ```cobol IDENTIFICATION DIVISION. PROGRAM-ID. ProgramName. ``` 2. Environment Division Defines the environment, such as input/output devices. ```cobol ENVIRONMENT DIVISION. ``` (Often optional for simple programs) 3. Data Division Declares all variables, constants, and data structures. ```cobol DATA DIVISION. WORKING-STORAGE SECTION. 01 WS-NAME PIC A(20). ``` 4. Procedure Division Contains the executable code. ```cobol PROCEDURE DIVISION. DISPLAY "Hello, World!". STOP RUN. ``` --- Key COBOL Programming Elements Variables and Data Types COBOL uses PIC (picture) clauses to define data types.

Data Type	Example	Description
Alphabetic	PIC A(10)	String of alphabetic characters
Alphanumeric	PIC X(10)	String of any characters
Numeric	PIC 9(5)	Numeric digits
Packed Decimal	PIC S9(5) COMP-3	Compressed numeric data

Data Declaration Example ```cobol WORKING-STORAGE SECTION. 01 CUSTOMER-NAME PIC A(30). 01 CUSTOMER-BALANCE PIC S9(7)V99. ``` Basic Statements - DISPLAY: Outputs data to the screen. - ACCEPT: Receives input from the user. - MOVE: Assigns values. - IF/ELSE: Conditional logic. - PERFORM: Loop or call routines. --- Writing Your First COBOL Program Here's a simple program that asks for the user's name and greets them: ```cobol IDENTIFICATION DIVISION. PROGRAM-ID. GreetingProgram. ENVIRONMENT DIVISION. DATA DIVISION. WORKING-STORAGE SECTION. 01 USER-NAME PIC A(20). PROCEDURE DIVISION. DISPLAY "Enter your name: ". ACCEPT USER-NAME. DISPLAY "Hello, " USER-NAME "!". STOP RUN. ``` Steps to run: 1. Save as `greeting.cob`. 2. Compile: ```bash cobc -x greeting.cob ``` 3. Run: ```bash ./greeting ``` --- Advanced Topics for Beginners Arrays and Tables COBOL uses tables to implement arrays. ```cobol 01 ORDERS. 05 ORDER-ITEM OCCURS 10 TIMES. 10 ITEM-NAME PIC A(30). 10 ITEM-QUANTITY PIC 9(3). ``` File Handling COBOL excels at batch processing and file management. ```cobol FILE-CONTROL. SELECT CUSTOMER-FILE

ASSIGN TO 'CUSTOMER.DAT' ORGANIZATION IS LINE SEQUENTIAL. DATA DIVISION. FILE SECTION. FD CUSTOMER-FILE. 01 CUSTOMER-RECORD. 05 CUSTOMER-ID PIC 9(5). 05 CUSTOMER-NAME PIC A(30). ``` Error Handling Always include error handling routines when working with files or external systems. --- Best Practices for Beginners - Understand the structure: Know your divisions and sections. - Use meaningful variable names: Enhances readability. - Comment thoroughly: Use `` in column 7 for comments. - Test incrementally: Build simple programs and add features gradually. - Document your code: Maintain clear documentation for future reference. --- Resources for Learning COBOL - Official Standards: [ISO/IEC 1989](https://www.iso.org/standard/18960.html) - Books: - "Murach's Mainframe COBOL" by Mike Murach - "Beginning COBOL for Programmers" by Michael Coughlan - 3 Online Courses: - Coursera and Udemy offer introductory COBOL courses. - Communities: - Reddit r/cobol - Stack Overflow COBOL tags --- Future of COBOL and Career Opportunities While many assume COBOL is obsolete, it remains vital in critical sectors: - Mainframe Modernization: Integrating legacy COBOL with cloud and microservices. - Legacy System Support: Many financial institutions and governments require COBOL expertise. - Interoperability Projects: Connecting COBOL systems with Java, .NET, and cloud services. Having a foundational knowledge of COBOL can position you uniquely in the IT landscape, especially for roles involving legacy system maintenance and modernization. --- Conclusion Beginning COBOL for programmers opens a window into one of the most enduring programming languages in history. From understanding its basic structure and syntax to writing simple programs, this guide provides the essential knowledge needed to start your COBOL journey. Remember, patience and practice are key. As you grow more comfortable with COBOL, you'll be equipped to handle complex business logic, file processing, and integration tasks—skills that are still highly valued in many industries today. Embark on your COBOL learning adventure today and unlock opportunities in the world of legacy systems and beyond! QuestionAnswer What is COBOL and why is it still relevant for programmers today? COBOL (Common Business-Oriented Language) is a legacy programming language primarily used in business, finance, and administrative systems. Its relevance persists because many critical systems in banks, government agencies, and corporations run on COBOL, requiring maintenance and modernization efforts. What are the basic concepts I should learn first when beginning COBOL programming? Start with understanding COBOL's structure, data types, file handling, and the syntax of the basic program structure (IDENTIFICATION, ENVIRONMENT, DATA, PROCEDURE divisions). Familiarize yourself with simple input/output operations and performing basic calculations. What tools or environments are recommended for beginners to learn COBOL? Popular options include GNU COBOL (an open-source compiler), IBM COBOL for z/OS,

and online IDEs like Visual Studio Code with COBOL plugins. For beginners, GNU COBOL is often recommended due to its ease of setup and community support. How difficult is it to learn COBOL for programmers who already know modern languages? While COBOL's syntax is verbose and different from modern languages like Python or Java, programmers with experience in structured programming will find it straightforward to grasp. The primary challenge is adapting to its unique syntax and understanding its business- oriented data handling. 4 Are there any certifications or courses available for beginner COBOL programmers? Yes, platforms like Coursera, Udemy, and edX offer beginner courses on COBOL. Additionally, IBM offers COBOL programming certifications. These courses typically cover fundamentals, syntax, and practical programming exercises. What are common use cases for COBOL in today's technology landscape? COBOL is mainly used in legacy systems such as banking transaction processing, insurance claims, government record keeping, and other enterprise business applications where stability and reliability are critical. How can I practice COBOL programming as a beginner? Start with simple programs like Hello World, then progress to file handling, data processing, and business calculations. Use free compilers like GNU COBOL, and explore sample projects or online coding platforms. Many tutorials and code samples are available online to practice with. What are the key differences between COBOL and modern programming languages? COBOL is verbose, business-oriented, and designed for processing large volumes of data with a focus on readability for business users. Modern languages tend to be more concise, support object-oriented paradigms, and have broader application domains. COBOL's syntax reflects its legacy and business focus. Is it worth learning COBOL in 2024, and what career opportunities exist? Learning COBOL can be valuable if you aim to work in industries maintaining legacy systems, such as banking or government. There is demand for programmers skilled in COBOL for system maintenance, modernization, and migration projects, offering niche but stable career opportunities. Beginning COBOL for Programmers: A Comprehensive Guide to Getting Started COBOL (Common Business-Oriented Language) remains one of the most enduring programming languages, especially in the banking, finance, and government sectors. Despite its age, COBOL's importance persists due to the vast legacy systems it powers. For programmers new to COBOL, understanding its fundamentals, syntax, structure, and practical applications is essential to harness its full potential. This guide provides an in-depth exploration of COBOL for beginners, ensuring a solid foundation for further learning and development. --- Understanding the Origins and Significance of COBOL The History of COBOL - Developed in 1959 by a committee headed by Grace Hopper, COBOL was designed to facilitate business data processing. - Its primary goal was to create a language that was readable, portable, and easy

to maintain. - Over the decades, COBOL has evolved but has maintained its core principles, especially clarity and business-oriented features. Beginning Cobol For Programmers 5 Why Learn COBOL Today? - Many critical financial systems, government databases, and enterprise applications still rely on COBOL. - Legacy systems require maintenance, updates, and sometimes migration—creating ongoing demand for COBOL programmers. - Understanding COBOL can open opportunities in sectors where modernization or integration is needed. --- Core Features and Characteristics of COBOL Business-Oriented Language - Designed to handle large volumes of data and business transactions. - Emphasizes readability and natural language-like syntax. Portability and Longevity - Code written in COBOL can run on multiple hardware platforms with minimal changes. - Its stable and mature ecosystem ensures reliability in mission-critical applications. Structured Programming Support - Modern COBOL supports structured programming constructs like IF, PERFORM, and CASE statements. - Facilitates modular code development and maintenance. Data Processing Capabilities - Robust support for file handling, database access, and data formatting. - Built-in features for decimal and fixed-point arithmetic, suitable for financial calculations. --- Getting Started with COBOL: Basic Concepts The COBOL Program Structure A typical COBOL program is divided into four main divisions: 1. Identification Division: Identifies the program; includes program name. 2. Environment Division: Specifies the environment details like input/output devices. 3. Data Division: Defines data structures, variables, and file descriptions. 4. Procedure Division: Contains executable instructions and logic. Sample Skeleton of a COBOL Program:

```cobol
IDENTIFICATION DIVISION. PROGRAM-ID. HelloWorld. ENVIRONMENT DIVISION.
DATA DIVISION. PROCEDURE DIVISION. DISPLAY "Hello, World!". STOP RUN.
```

--- Deep Dive into COBOL Syntax and Concepts Beginning Cobol For Programmers 6 Data Types and Data Division - COBOL primarily distinguishes data based on layout rather than strict type declarations. - Data is defined in the Working-Storage Section or File Section. Common Data Types: - Numeric: Used for calculations, defined with PIC 9. - Alphanumeric: Text data, defined with PIC X. - Decimal and Fixed-Point: Handled via PIC 9 with scale. Example Data Declaration:

```cobol
WORKING-STORAGE SECTION. 01 CUSTOMER-NAME PIC
X(30). 01 ACCOUNT- BALANCE PIC 9(9)V99.
```

Control Structures and Logic - Conditional Statements: IF, EVALUATE (similar to switch/case). - Loops: PERFORM statement handles iteration. - GOTO: Used but discouraged in structured programming. Example IF statement:

```cobol
IF ACCOUNT-BALANCE > 1000
DISPLAY "Premium Customer" ELSE DISPLAY "Standard Customer" END-IF.
```

Example PERFORM loop:

```cobol
PERFORM VARYING I FROM 1 BY 1 UNTIL I > 10
DISPLAY I END-PERFORM.
```

File Handling - Files are described in the File Section. - Typical process involves opening, reading/writing, and closing files. Sample

File Handling: ```cobol FD CUSTOMER-FILE. 01 CUSTOMER-RECORD. 05 CUSTOMER-ID PIC X(10). 05 CUSTOMER-NAME PIC X(30). OPEN INPUT CUSTOMER-FILE. READ CUSTOMER-FILE INTO CUSTOMER-RECORD AT END DISPLAY "End of File" NOT AT END DISPLAY CUSTOMER-NAME. CLOSE CUSTOMER-FILE. ``` --- Advanced Topics for Beginners Working with Subprograms and Modular Code - Using PARSE and CALL statements allows code reuse. - Modular design improves readability and maintainability. Debugging and Error Handling - COBOL provides ON SIZE ERROR and INVALID KEY handlers. - Proper error checking ensures robust applications. Database Integration - COBOL can interface with databases like DB2, Oracle, or VSAM files. - Embedded SQL (EXEC SQL) statements enable direct database commands within COBOL programs. --- Beginning Cobol For Programmers 7 Development Environment and Tools Choosing a COBOL Compiler - Popular options include Micro Focus COBOL, GnuCOBOL, IBM COBOL, and others. - Many compilers support modern IDEs with debugging, syntax highlighting, and project management features. Setting Up Your Environment - Install your chosen COBOL compiler. - Configure environment variables and paths. - Write, compile, and run sample programs to ensure setup correctness. Sample Development Workflow 1. Write COBOL source code in an editor or IDE. 2. Compile the code to generate executable object code. 3. Run and test the program. 4. Debug and refine as necessary. --- Practical Tips for Beginners - Start with simple programs: Hello World, data input/output, calculations. - Understand data layouts thoroughly: Proper data definitions prevent errors. - Practice file handling: Read/write files, process data streams. - Use comments generously: COBOL supports comments with an asterisk () in the first column. - Study existing legacy code: Gain insights into common patterns and practices. - Leverage online resources and communities: Many forums, tutorials, and documentation are available. --- Common Challenges and How to Overcome Them - Verbose syntax: Focus on understanding the structure; over time, the syntax becomes intuitive. - Legacy code complexity: Break down large programs into smaller modules. - Limited modern features: Use current compiler extensions and practices for better productivity. - Integration issues: Test interfaces thoroughly, especially with databases and external systems. --- Resources for Learning COBOL - Books: - "Murach's Mainframe COBOL" by Mike Murach - "COBOL for Beginning Cobol For Programmers 8 Programmers" by Michael Coughlan - Online Tutorials: - GnuCOBOL official documentation - TutorialsPoint COBOL tutorial - Communities and Forums: - Stack Overflow (COBOL tag) - IBM Developer Community - Practice Platforms: - GnuCOBOL online compilers - Mainframe simulation environments --- Conclusion: Embracing COBOL as a Modern Programmer While COBOL might seem archaic at first glance, its continued relevance in critical systems makes it a valuable language to learn for programmers interested in enterprise, financial, or

GOVERNMENTAL DOMAINS. STARTING WITH A SOLID UNDERSTANDING OF ITS STRUCTURE, SYNTAX, AND CORE FEATURES PREPARES YOU FOR MAINTAINING EXISTING SYSTEMS OR EVEN MODERNIZING LEGACY APPLICATIONS. PATIENCE, PRACTICE, AND LEVERAGING AVAILABLE RESOURCES WILL ENABLE YOU TO MASTER COBOL AND OPEN DOORS TO UNIQUE CAREER OPPORTUNITIES IN A NICHE YET VITAL PROGRAMMING LANDSCAPE. EMBRACE THE CHALLENGE, AND YOU'LL FIND THAT COBOL'S CLARITY AND ROBUSTNESS OFFER REWARDING PROGRAMMING EXPERIENCES—KEEPING THIS VENERABLE LANGUAGE ALIVE AND VITAL IN TODAY'S DIGITAL WORLD. COBOL TUTORIAL, COBOL PROGRAMMING BASICS, COBOL FOR BEGINNERS, COBOL SYNTAX, COBOL DATA TYPES, COBOL PROGRAMMING EXAMPLES, COBOL CODE STRUCTURE, COBOL LEARNING RESOURCES, COBOL DEVELOPMENT ENVIRONMENT, COBOL CODING TIPS

BEGINNING COBOL FOR PROGRAMMERSCOBOL PROGRAMMERS GUIDE - VOLUME IC FOR COBOL PROGRAMMERSSTRUCTURED PROGRAMMING WITH COBOL EXAMPLESFROM COBOL TO OOPLEARN C AND SAVE YOUR JOBSTRUCTURED PROGRAMMING FOR THE COBOL PROGRAMMERCOBOL PROGRAMMINGA GUIDE TO COBOL PROGRAMMINGPROGRAMMING IN COBOLCOBOL WITH STYLECOBOL PROGRAMMERS GUIDE - VOLUME IIA PROGRAMMER'S GUIDE TO COBOLTHE COBOL PROGRAMMER'S DESIGN BOOKMASTERING COBOL PROGRAMMINGCOBOL PROGRAMMER'S NOTEBOOKA SIMPLIFIED GUIDE TO STRUCTURED COBOL PROGRAMMINGSTRUCTURED COBOL PROGRAMMINGCHALLENGES OF INFORMATION TECHNOLOGY MANAGEMENT IN THE 21ST CENTURYOS/2 PRESENTATION MANAGER PROGRAMMING FOR COBOL PROGRAMMERS MICHAEL COUGHLAN KEISUKE NISHIDA JIM GEARING EARL H. PARSONS MARKUS KNASM⬜LLER KENNETH PUGH PAUL NOLL PETER ABEL DANIEL D. MCCRACKEN G. T. LANCASTER LOUIS J. CHMURA KEISUKE NISHIDA WILLIAM J. HARRISON GARY ROBERT ROGERS ROGER HUTTY JAMES EDWARD KEOGH DANIEL D. MCCRACKEN NANCY B. STERN INFORMATION RESOURCES MANAGEMENT ASSOCIATION. INTERNATIONAL CONFERENCE ROBERT BLAIR CHAPMAN

BEGINNING COBOL FOR PROGRAMMERS COBOL PROGRAMMERS GUIDE - VOLUME I C FOR COBOL PROGRAMMERS STRUCTURED PROGRAMMING WITH COBOL EXAMPLES FROM COBOL TO OOP LEARN C AND SAVE YOUR JOB STRUCTURED PROGRAMMING FOR THE COBOL PROGRAMMER COBOL PROGRAMMING A GUIDE TO COBOL PROGRAMMING PROGRAMMING IN COBOL COBOL WITH STYLE COBOL PROGRAMMERS GUIDE - VOLUME II A PROGRAMMER'S GUIDE TO COBOL THE COBOL PROGRAMMER'S DESIGN BOOK MASTERING COBOL PROGRAMMING COBOL PROGRAMMER'S NOTEBOOK A SIMPLIFIED GUIDE TO STRUCTURED COBOL PROGRAMMING STRUCTURED COBOL PROGRAMMING CHALLENGES OF INFORMATION TECHNOLOGY MANAGEMENT IN THE 21ST CENTURY OS/2 PRESENTATION MANAGER PROGRAMMING FOR COBOL PROGRAMMERS *MICHAEL COUGHLAN KEISUKE NISHIDA JIM GEARING EARL*

H. Parsons Markus Knasm☐*llerKenneth Pugh Paul Noll Peter Abel Daniel D. McCracken G. T. Lancaster Louis J. Chmura Keisuke Nishida William J. Harrison Gary Robert Rogers Roger Hutty James Edward Keogh Daniel D. McCracken Nancy B. Stern Information Resources Management Association. International Conference Robert Blair Chapman*

BEGINNING COBOL FOR PROGRAMMERS IS A COMPREHENSIVE SOPHISTICATED TUTORIAL AND MODULAR SKILLS REFERENCE ON THE COBOL PROGRAMMING LANGUAGE FOR ESTABLISHED PROGRAMMERS THIS BOOK IS FOR YOU IF YOU ARE A DEVELOPER WHO WOULD LIKE TO OR MUST ADD COBOL TO YOUR REPERTOIRE PERHAPS YOU RECOGNIZE THE OPPORTUNITIES PRESENTED BY THE CURRENT COBOL SKILLS CRISIS OR ARE WORKING IN A MISSION CRITICAL ENTERPRISE WHICH RETAINS LEGACY COBOL APPLICATIONS WHATEVER YOUR SITUATION BEGINNING COBOL FOR PROGRAMMERS MEETS YOUR NEEDS AS AN ESTABLISHED PROGRAMMER MOVING TO COBOL BEGINNING COBOL FOR PROGRAMMERS INCLUDES COMPREHENSIVE COVERAGE OF ANS 85 COBOL FEATURES AND TECHNIQUES INCLUDING CONTROL STRUCTURES CONDITION NAMES SEQUENTIAL AND DIRECT ACCESS FILES DATA REDEFINITION STRING HANDLING DECIMAL ARITHMETIC SUBPROGRAMS AND THE REPORT WRITER THE FINAL CHAPTER INCLUDES A SUBSTANTIAL INTRODUCTION TO OBJECT ORIENTED COBOL BENEFITING FROM OVER ONE HUNDRED EXAMPLE PROGRAMS YOU LL RECEIVE AN EXTENSIVE INTRODUCTION TO THE CORE AND ADVANCED FEATURES OF THE COBOL LANGUAGE AND WILL LEARN TO APPLY THESE THROUGH COMPREHENSIVE AND VARIED EXERCISES IF YOU VE INHERITED SOME LEGACY COBOL YOU LL BE ABLE TO GRASP THE COBOL IDIOMS UNDERSTAND THE CONSTRUCTS AND RECOGNIZE WHAT S HAPPENING IN THE CODE YOU RE WORKING WITH TODAY S ENTERPRISE APPLICATION DEVELOPERS WILL FIND THAT COBOL SKILLS OPEN NEW OR OLD DOORS AND THIS EXTENSIVE COBOL REFERENCE IS THE BOOK TO HELP YOU ACQUIRE AND DEVELOP YOUR COBOL SKILLS

A SELF INSTRUCTIONAL REFERENCE MANUAL COMES IN 2 VOLUMES REFER TO BOTH THE VOLUMES TO COMPLTER THE GNU COBOL PROGRAMMER S GUIDE THIS BOOK DESCRIBES THE SYNTAX SEMANTICS AND USAGE OF THE COBOL PROGRAMMING LANGUAGE AS IMPLEMENTED BY THE CURRENT VERSION OF GNU COBOL FORMERLY KNOWN AS OPENCOBOL THIS DOCUMENT WAS INTENDED TO SERVE AS A FULL FUNCTION REFERENCE AND USER S GUIDE SUITABLE FOR BOTH THOSE READERS LEARNING COBOL FOR THE FIRST TIME AS WELL AS THOSE ALREADY FAMILIAR WITH SOME DIALECT OF THE COBOL LANGUAGE COBOL CODING PROGRAMMING WILL NEVER BE THE SAME ARTIFICIAL INTELLIGENCE THAT WILL CHANGE EVERYTHING IT IS HIGHLY RECOMMENDED THAT TO REFER VOLUME II PUBLISHED ALONG WITH THIS TO COMPLETE GNU COBOL PROGRAMMERS GUIDE WE RECOMMEND THIS PRODUCT AT AMAZON COM COBOL PROGRAMMERS GUIDE VOLUME II FULL FUNCTION REFERENCE LEARN MORE AMAZON COM DP B08928JQ8M REF CM SW EM R MT DP U 0MLZEBK8K703N

HERE IS THE IDEAL BOOK FOR THE TENS OF THOUSANDS OF COBOL PROGRAMMERS IN BUSINESS WHO WANT TO BECOME QUICKLY PROFICIENT IN C WRITTEN BY AN EXPERIENCED BUSINESS DATA SYSTEMS ENGINEER IT IS A TRUE SURVIVAL GUIDE WHICH USES THE READER S KNOWLEDGE OF COBOL TO BUILD A FRAMEWORK FOR LEARNING C EASILY AND QUICKLY

AS THE CONVERSION OF LEGACY SYSTEMS CONTINUES THE ABILITY TO UNDERSTAND EMBEDDED BUSINESS RULES BECOMES MORE AND MORE CRITICAL THIS ABILITY IS DIRECTLY RELATED TO THE STRUCTURE OF THE PROGRAMS WITHIN THOSE SYSTEMS WE ALSO SEE THE NEED TO TEACH STRUCTURED PROGRAMMING TO A NEW GENERATION OF PROGRAMMERS WHO MUST MAINTAIN THE BILLIONS OF LINES OF EXISTING COBOL CODE THE ULTIMATE PURPOSE OF THIS TEXT IS TO DISCUSS HOW TO JUDGE THE LEVEL OF STRUCTURE OF A PROGRAM WE DO THIS BY DEFINING STRUCTURED PROGRAMMING AND THEN DISCUSSING HOW A STRUCTURED PROGRAM CAN BE BUILT THROUGH THE APPLICATION OF THE CONCEPTS OF COUPLING AND COHESION WE ALSO SHOW HOW EMBEDDED BUSINESS RULES OF THE PROGRAM CAN BE SEPARATED FROM THE DATA AND PRESENTATION FUNCTIONS THE READER WILL BE ABLE TO USE TO THESE SKILLS TO JUDGE AND TO IMPROVE THE STRUCTURE OF A NEW PROGRAM OR AN EXISTING PROGRAM

PROGRAMMING AS AN ENGINEERING DISCIPLINE BASICS DATA STRUCTURES AND ALGORITHMS TRUE OBJECT ORIENTED PROGRAMMING OBJECT ORIENTED PROGRAMMING DATABASES GRAPHICAL USER INTERFACES COBOL TO OOP IN PRACTICE

PUGH AN EXPERIENCED TRAINER HAS DESIGNED A REGIMEN BUILDING UPON THE COBOL PROGRAMMER S SKILLS TO GUIDE SUCH WORKERS INTO THE MAJOR OPEN SYSTEM LANGUAGE ANNOTATION COPYRIGHT BY BOOK NEWS INC PORTLAND OR

THIS MAJOR NEW REVISION OFFERS A FRESH APPROACH TO LEARNING THE COBOL LANGUAGE FIRST IT USES SIMPLE PROGRAM EXAMPLES TO INTRODUCE THE MOST ELEMENTARY FEATURES OF COBOL AND AFTER ONLY ONE CHAPTER OF COBOL READERS CAN WRITE A SIMPLE PROGRAM BY CONCENTRATING ON JUST THE STATEMENTS NECESSARY TO WRITE IT AND BY TEMPORARILY USING THE SIMPLE ACCEPT AND DISPLAY STATEMENTS FOR INPUT OUTPUT THROUGHOUT ALL NEW CONCEPTS ARE ACCOMPANIED BY PROGRAM EXAMPLES PRESENTED IN A STEP BY STEP MANNER

PROGRAMMING IN COBOL IS A SIMPLE YET CONCISE HOW TO BOOK THAT TEACHES THE PROGRAMMING LANGUAGE IN A SHORT YET EFFECTIVE STEP BY STEP MANNER WHICH CAN BE

EASILY UNDERSTOOD BY ANYONE WITH SUFFICIENT KNOWLEDGE IN INFORMATION TECHNOLOGY COVERING FIRST THE ADVANTAGES OF COBOL OVER OTHER PROGRAMMING LANGUAGES THE BOOK DISCUSSES COBOL S DIVISIONS IDENTIFICATION ENVIRONMENT PROCEDURE AND DATA AND THEN DESCRIBES THE TESTING OF THE COBOL SOURCE PROGRAMS AND PROGRAM QUESTIONS THE BOOK IS VALUABLE FOR THOSE WHO WISH TO LEARN BASIC COBOL LANGUAGE BUT DO NOT HAVE THE TIME TO TAKE MANUFACTURERS OR TECHNICAL COLLEGE COURSES INTENDED READERS INCLUDE EXPERIENCED COMPUTER PROGRAMMERS FAMILIAR WITH OTHER PROGRAMMING LANGUAGES BUT NOT WITH COBOL AS WELL AS STUDENTS TAKING A COURSE IN COMPUTER SCIENCE THE BOOK IS ALSO HELPFUL AS IT INCLUDES SELF ASSESSMENT QUESTIONS FOR READERS TO ENSURE THEY UNDERSTOOD THE PRINCIPLES COVERED

INSPIRED BY THE ELEMENTS OF STYLE BY STRUNK AND WHITE IN THAT THE AUTHORS ADDRESS THOSE COBOL PROGRAMMERS WHO SIMILARLY VALUE RIGOR CONCISENESS AND CLARITY WHEN WRITING CAREFULLY CONSTRUCTED READABLE PROGRAMS THE PROVERBS ARE A SET OF SIMPLE GUIDELINES AS AN EASIER WAY TO LEARN GOOD PROGRAMMING WHILE RULES OF STYLE DO RESTRICT THE PROGRAMMER THEY ALSO ENABLE PROGRAMMERS TO FOCUS CREATIVITY ON THE DEEPER ISSUES IN PROGRAMMING THIS BOOK IS DESIGNED AS A GUIDE TO BETTER COBOL PROGRAMMING ESPECIALLY FOR THOSE PROGRAMMERS WHO HAVE AN INTEREST IN IMPROVING SOFTWARE QUALITY

A SELF INSTRUCTIONAL REFERENCE MANUAL COMES IN 2 VOLUMES REFER TO BOTH THE VOLUMES TO COMPLTER THE GNU COBOL PROGRAMMER S GUIDE THIS BOOK DESCRIBES THE SYNTAX SEMANTICS AND USAGE OF THE COBOL PROGRAMMING LANGUAGE AS IMPLEMENTED BY THE CURRENT VERSION OF GNU COBOL FORMERLY KNOWN AS OPENCOBOL THIS DOCUMENT WAS INTENDED TO SERVE AS A FULL FUNCTION REFERENCE AND USER S GUIDE SUITABLE FOR BOTH THOSE READERS LEARNING COBOL FOR THE FIRST TIME AS WELL AS THOSE ALREADY FAMILIAR WITH SOME DIALECT OF THE COBOL LANGUAGE IT IS HIGHLY RECOMMENDED THAT TO REFER VOLUME I PUBLISHED ALONG WITH THIS TO COMPLETE GNU COBOL PROGRAMMERS GUIDE WE RECOMMEND THIS PRODUCT AT AMAZON COM COBOL PROGRAMMERS GUIDE VOLUME I FULL FUNCTION REFERENCE LEARN MORE AMAZON COM DP B089729GGK REF PE 3052080 397514860

DIRECTED AT THE BUSINESS PROGRAMMER THIS BOOK TREATS PROGRAMMING AS A DESIGN RATHER THAN A CODING EXERCISE IT DESCRIBES METHODS THAT CAN BE USED TO CONSTRUCT SIMPLE MAINTAINABLE RELIABLE PROGRAMS FOR THE MOST COMMON TYPES OF BUSINESS APPLICATIONS CONTAINS DETAILED EXAMPLES OF MODERN BUSINESS PROGRAM PROBLEMS ALL PROGRAMS ARE CODED IN THE NEW AMERICAN NATIONAL COBOL STANDARD

THIS SECOND EDITION OF MASTERING COBOL PROGRAMMING IS A COMPREHENSIVE GUIDE TO GOOD PROGRAMMING PRACTICE PROGRAM DESIGN AND CODE IT CONTAINS TWO NEW CHAPTERS ON INTRINSIC FUNCTIONS AND PROGRAM ERRORS TESTING AND DEBUGGING EACH CHAPTER HAS BEEN REVISED TO MAKE FULL USE OF THE COBOL 85 STANDARD THE BOOK DISCUSSES THE DIFFERENT GROUPS OF MODULES THAT COMPRISE THE COBOL LANGUAGE AND EACH CHAPTER ENDS WITH PRACTICAL EXERCISES IT IS SUITABLE FOR UNDERGRADUATE AND DIPLOMA STUDENTS ON COMMERCIAL COMPUTING AND BUSINESS COURSES AND IS A VALUABLE REFERENCE FOR PROFESSIONALS IN DATA PROCESSING IT IS A COMPLETE SELF STUDY COBOL TEXT

COBOL IS MAKING A COMEBACK THERE S A SHORTAGE OF COBOL PROGRAMMERS TO MAINTAIN MILLIONS OF BUSINESS CRITICAL COBOL APPLICATIONS AND TO FIX CRITICAL Y2K BUGS THIS EASY TO USE TUTORIAL REFERENCE IS PERFECT FOR PROGRAMMERS WHO WANT TO REFRESH THEIR COBOL SKILLS OR LEARN NEW ONES COBOL PROGRAMMER S NOTEBOOK S UNIQUE DUAL PAGE FORMAT PLACES CODE EXAMPLES ON THE RIGHT WITH ANNOTATIONS AND EXPLANATIONS ON THE LEFT PERFECT FOR PROGRAMMERS WHO SAY SHOW ME THE CODE AND HELP ME FIGURE OUT THE REST BEST SELLING AUTHOR JIM KEOGH WALKS THROUGH EVERY IMPORTANT ELEMENT OF COBOL PROGRAMMING INCLUDING WORKING WITH THE EDITOR COMPILER AND LINKER VARIABLES CONSTANTS OPERATORS AND EXPRESSIONS ARRAYS PROGRAM CONTROL DATA STRUCTURES DATA INPUT I O INDEXED FILES PRINTED OUTPUT AND FUNCTIONS THERE S A FULL CHAPTER DEDICATED SPECIFICALLY TO IDENTIFYING AND FIXING Y2K PROBLEMS

THIS IS FOR THE PERSON WHO WANTS TO LEARN WHAT COBOL IS WHAT PROGRAMMING IS AND HOW TO USE COBOL IN TYPICAL BUSINESS DATA PROCESSING APPLICATIONS ASSUMES NO PREVIOUS BACKGROUND IN PROGRAMMING HANDS ON PROGRAMMING BEGINS IN CHAPTER 1 EACH CHAPTER IS BASED ON ONE OR MORE EXAMPLE PROGRAMS APPLICABLE TO REAL LIFE BUSINESS SETTINGS TREATMENT IS BASED ON THE CONCEPTS OF STRUCTURED PROGRAMMING ONLY A FEW LOGICAL CONTROL STRUCTURES ARE USED THROUGHOUT THE BOOK EMPHASIZES A CLEAR PROGRAM STYLE FOR EASE OF READING AND DEBUGGING ALL PROGRAMS HAVE BEEN TESTED AND RUN AND COMPUTER OUTPUT IS DISPLAYED IN EACH CASE

A TEXT FOR USE IN COLLEGE COURSES ON COBOL BOTH IN TWO YEAR AND FOUR YEAR SCHOOLS IT TEACHES STUDENTS WHO MAY OR MAY NOT HAVE PREVIOUS PROGRAMMING EXPERIENCE HOW TO DESIGN AND WRITE COBOL PROGRAMS THIS REVISED EDITION SIXTH WAS 1991 HIGHLIGHTS STRUCTURED PSEUDOCODE AS WELL AS STANDARD PSEUDOCODE AS PROGRAM PLANNING TOOLS INCLUDES A COPY OF THE WILEY COBOL SYNTAX REFERENCE GUIDE FOR THE TEXT WITHOUT THE GUIDE THE ISBN IS 0 471 59747 3 A COMPILER IS SEPARATELY AVAILABLE FROM THE PUBLISHER ANNOTATION COPYRIGHT BY BOOK NEWS INC PORTLAND OR

AS THE 21ST CENTURY BEGINS WE ARE FACED WITH OPPORTUNITIES AND CHALLENGES OF AVAILABLE TECHNOLOGY AS WELL AS PRESSURED TO CREATE STRATEGIC AND TACTICAL PLANS FOR FUTURE TECHNOLOGY WORLDWIDE IT PROFESSIONALS ARE SHARING AND TRADING CONCEPTS AND IDEAS FOR EFFECTIVE IT MANAGEMENT AND THIS CO OPERATION IS WHAT LEADS TO SOLID IT MANAGEMENT PRACTICES THIS VOLUME IS A COLLECTION OF PAPERS THAT PRESENT IT MANAGEMENT PERSPECTIVES FROM PROFESSIONALS AROUND THE WORLD THE PAPERS SEEK TO OFFER NEW IDEAS REFINE OLD ONES AND POSE INTERESTING SCENARIOS TO HELP THE READER DEVELOP COMPANY SENSITIVE MANAGEMENT STRATEGIES

IF YOU ALLY DEPENDENCE SUCH A REFERRED **BEGINNING COBOL FOR PROGRAMMERS** BOOKS THAT WILL PAY FOR YOU WORTH, ACQUIRE THE UTTERLY BEST SELLER FROM US CURRENTLY FROM SEVERAL PREFERRED AUTHORS. IF YOU WANT TO HILARIOUS BOOKS, LOTS OF NOVELS, TALE, JOKES, AND MORE FICTIONS COLLECTIONS ARE NEXT LAUNCHED, FROM BEST SELLER TO ONE OF THE MOST CURRENT RELEASED. YOU MAY NOT BE PERPLEXED TO ENJOY EVERY EBOOK COLLECTIONS BEGINNING COBOL FOR PROGRAMMERS THAT WE WILL UNCONDITIONALLY OFFER. IT IS NOT ALMOST THE COSTS. ITS JUST ABOUT WHAT YOU INFATUATION CURRENTLY. THIS BEGINNING COBOL FOR PROGRAMMERS, AS ONE OF THE MOST ENTHUSIASTIC SELLERS HERE WILL CATEGORICALLY BE ALONG WITH THE BEST OPTIONS TO REVIEW.

1. WHERE CAN I BUY BEGINNING COBOL FOR PROGRAMMERS BOOKS? BOOKSTORES: PHYSICAL BOOKSTORES LIKE BARNES & NOBLE, WATERSTONES, AND INDEPENDENT LOCAL STORES. ONLINE RETAILERS: AMAZON, BOOK DEPOSITORY, AND VARIOUS ONLINE BOOKSTORES OFFER A WIDE RANGE OF BOOKS IN PHYSICAL AND DIGITAL FORMATS.

2. WHAT ARE THE DIFFERENT BOOK FORMATS AVAILABLE? HARDCOVER: STURDY AND DURABLE, USUALLY MORE EXPENSIVE. PAPERBACK: CHEAPER, LIGHTER, AND MORE PORTABLE THAN HARDCOVERS. E-BOOKS: DIGITAL BOOKS AVAILABLE FOR E-READERS LIKE KINDLE OR SOFTWARE LIKE APPLE BOOKS, KINDLE, AND GOOGLE PLAY BOOKS.

3. HOW DO I CHOOSE A BEGINNING COBOL FOR PROGRAMMERS BOOK TO READ? GENRES: CONSIDER THE GENRE YOU ENJOY (FICTION, NON-FICTION, MYSTERY, SCI-FI, ETC.). RECOMMENDATIONS: ASK FRIENDS, JOIN BOOK CLUBS, OR EXPLORE ONLINE REVIEWS AND RECOMMENDATIONS. AUTHOR: IF YOU LIKE A PARTICULAR AUTHOR, YOU MIGHT ENJOY MORE OF THEIR WORK.

4. HOW DO I TAKE CARE OF BEGINNING COBOL FOR PROGRAMMERS BOOKS? STORAGE: KEEP THEM AWAY FROM DIRECT SUNLIGHT AND IN A DRY ENVIRONMENT. HANDLING: AVOID FOLDING PAGES, USE BOOKMARKS, AND HANDLE THEM WITH CLEAN HANDS. CLEANING: GENTLY DUST THE COVERS AND PAGES OCCASIONALLY.

5. CAN I BORROW BOOKS WITHOUT BUYING THEM? PUBLIC LIBRARIES: LOCAL LIBRARIES OFFER A WIDE RANGE OF BOOKS FOR BORROWING. BOOK SWAPS: COMMUNITY BOOK EXCHANGES OR ONLINE PLATFORMS WHERE PEOPLE EXCHANGE BOOKS.

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