


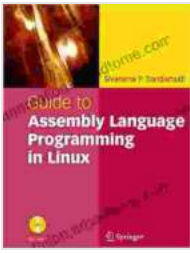
Unveiling the Secrets of Assembly Language Programming in Linux: A Comprehensive Guide for Beginners

Embark on an enthralling journey into the realm of assembly language programming with this comprehensive guide. Dive into the intricacies of Linux assembly, unlocking the secrets of low-level computing and optimizing your system's performance.

Chapter 1: Getting Started with Assembly Language



<u>Operation</u>	<u>What it means to the CPU</u>
JLT	Jump if less than (Status register = -1) to a specified memory location
JGT	Jump if greater than (Status register = 1) to a specified memory location
JEQ	Jump if equal (Status register = 0) to a specified memory location
JMP	Unconditional jump to a specified memory location
CMP	Compare register A to register B and set Status Register value



Guide to Assembly Language Programming in Linux

by Sivarama P. Dandamudi

★ ★ ★ ★ ☆ 4.4 out of 5

Language : English

File size : 7671 KB

Text-to-Speech: Enabled

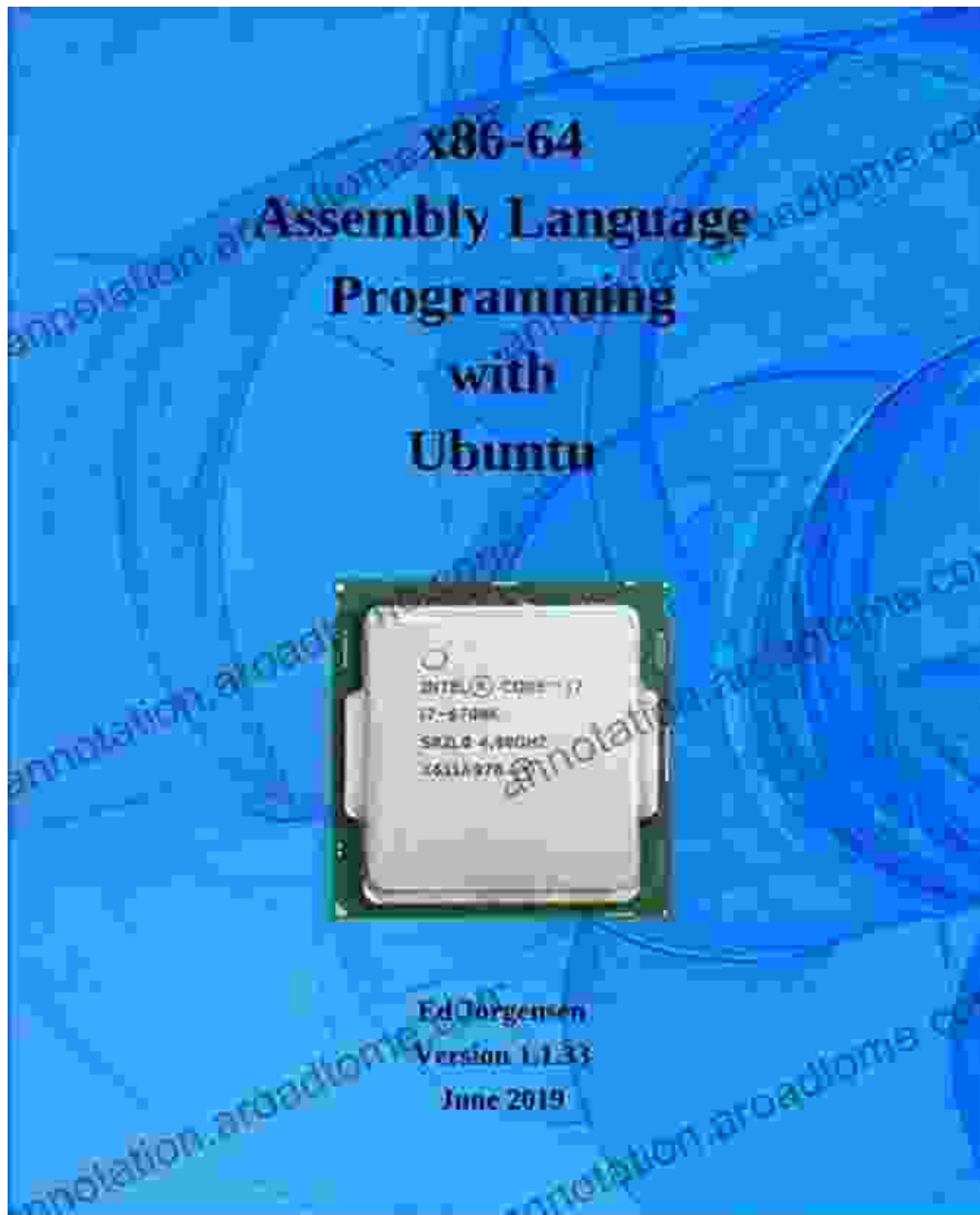
Print length : 561 pages



In this chapter, we lay the foundation for your assembly language adventure. We explore:

- Understanding the fundamentals of assembly language
- Installing necessary tools and setting up your development environment
- Writing and compiling basic assembly programs

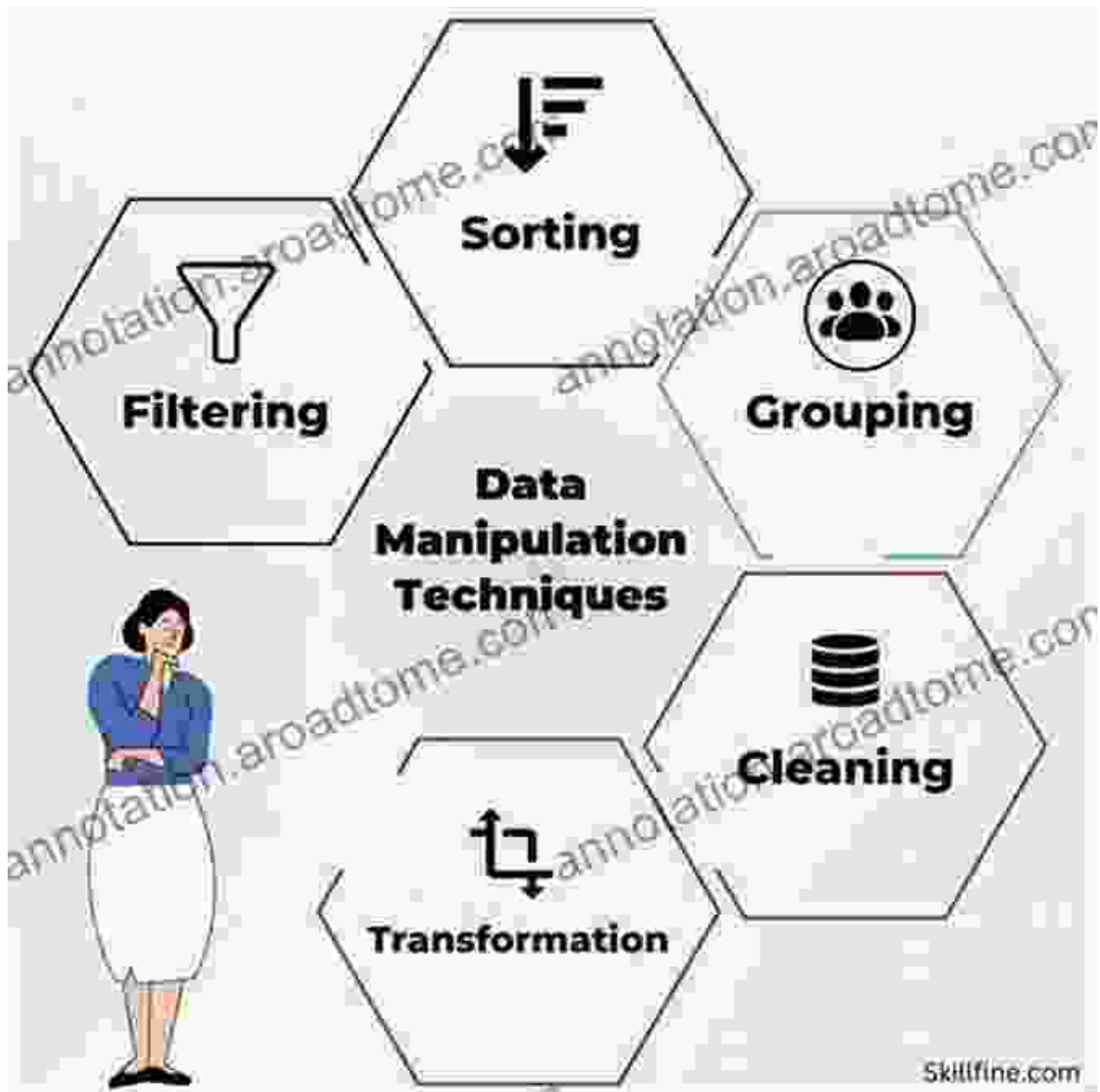
Chapter 2: The x86-64 Architecture



Delve into the intricate details of the x86-64 architecture, the heart of modern Linux systems. This chapter covers:

- Registers, memory addressing, and data types
- Instruction formats and encoding
- Memory segmentation and protection

Chapter 3: Control Flow and Data Manipulation

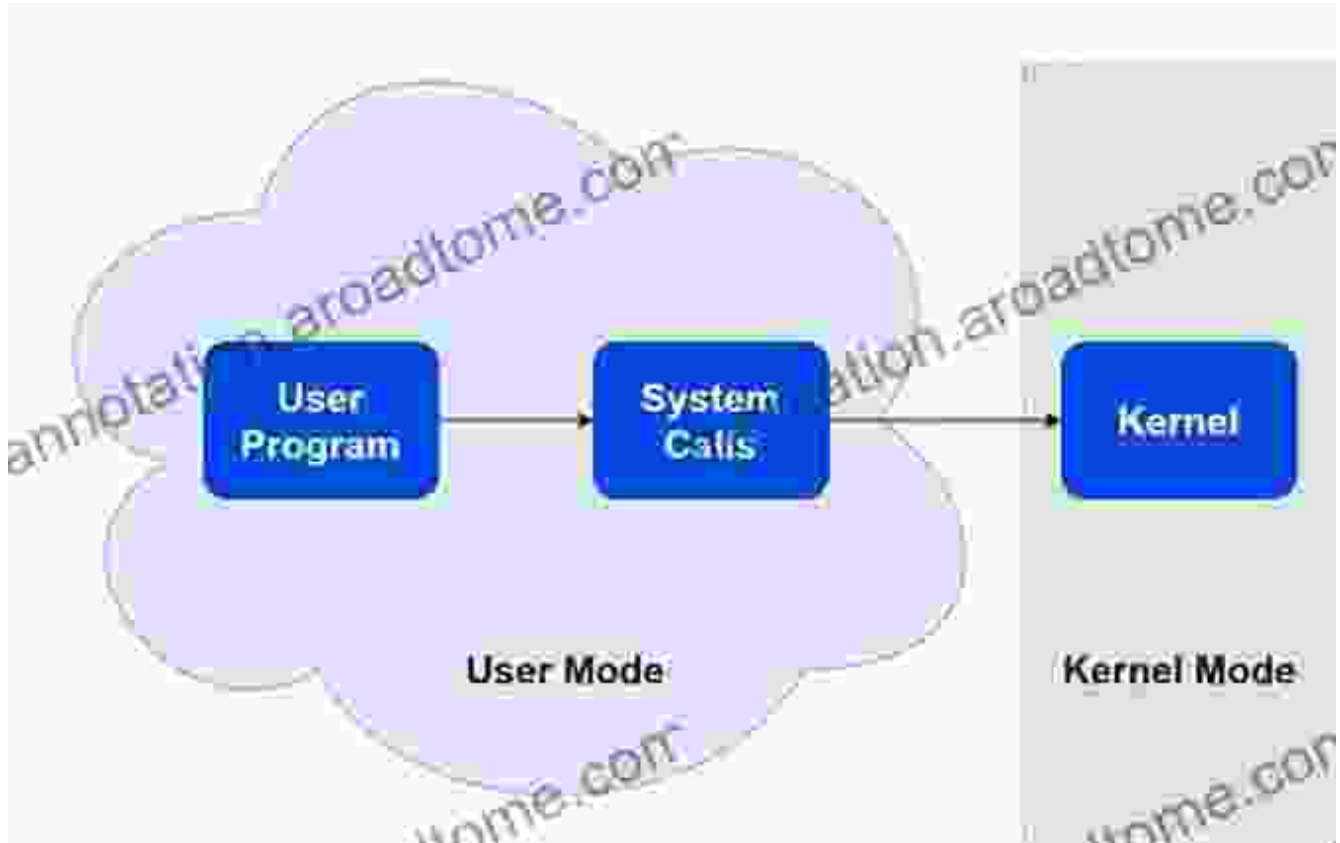


Master the art of program execution with control flow instructions and data manipulation techniques. We delve into:

- Branching, looping, and conditional execution
- Arithmetic, logical, and bitwise operations

- Working with strings and arrays

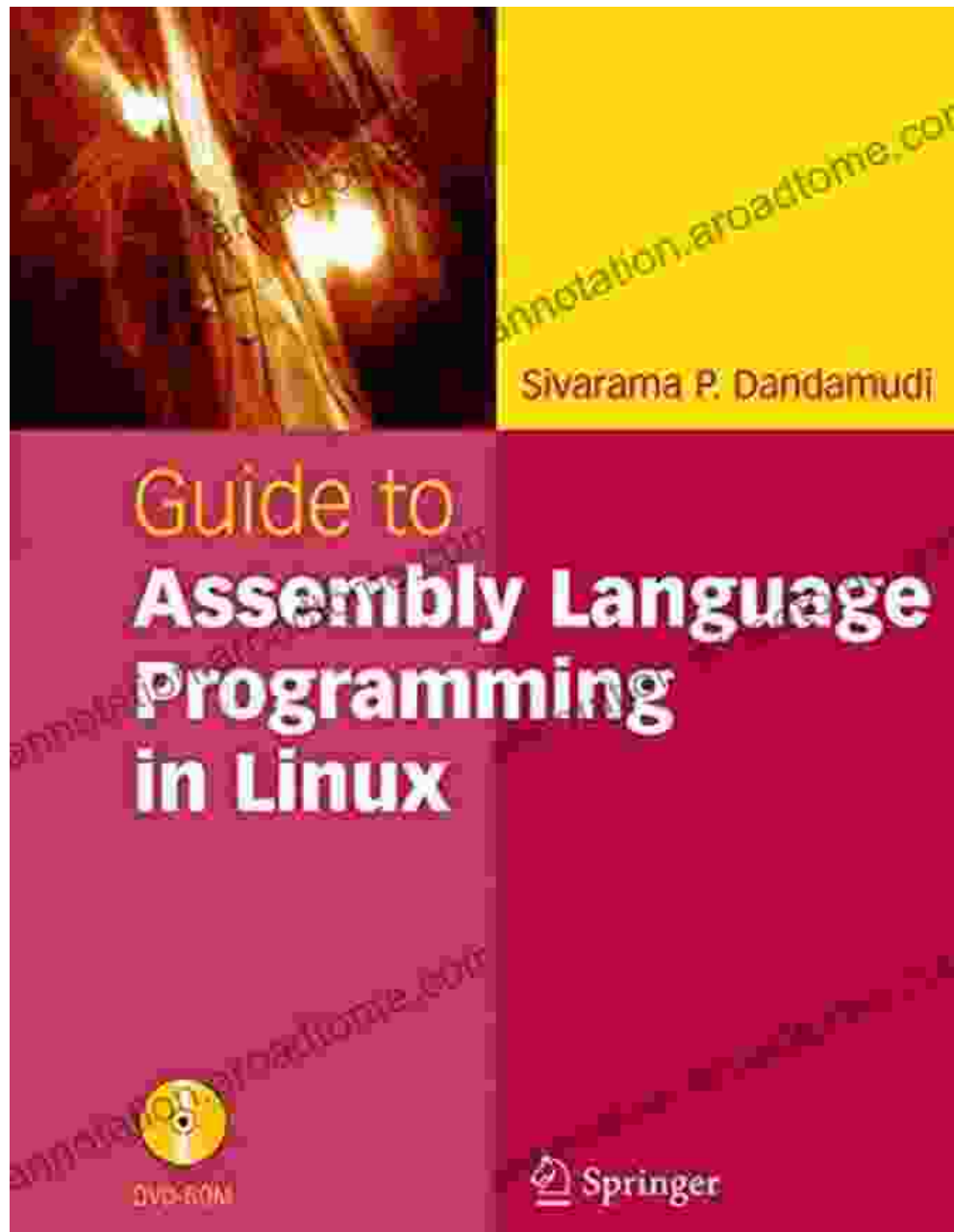
Chapter 4: System Calls and Interrupts



Enhance your understanding of system interaction through system calls and interrupts. This chapter explores:

- Accessing system services via system calls
- Handling hardware interrupts and exceptions
- Writing device drivers and kernel modules

Chapter 5: Advanced Topics



Expand your assembly language proficiency with advanced topics that delve into:

- Assembly optimization techniques
- Debugging and error handling
- Multithreading and synchronization

Chapter 6: Case Studies and Projects



Apply your newfound knowledge through engaging case studies and hands-on projects, including:

- Writing a text editor
- Implementing a simple operating system

- Interfacing with hardware devices

This comprehensive guide empowers you with a solid foundation in assembly language programming in Linux, unlocking the full potential of your system. Whether you're a seasoned programmer or an aspiring enthusiast, this book will equip you with the skills to master this low-level language and enhance your understanding of computer architecture.

Embrace the journey into the realm of assembly language and witness the transformative power of low-level programming.



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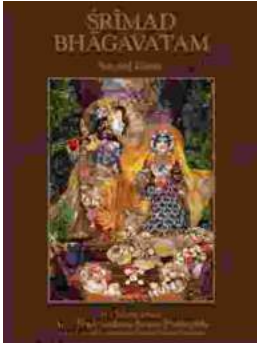
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