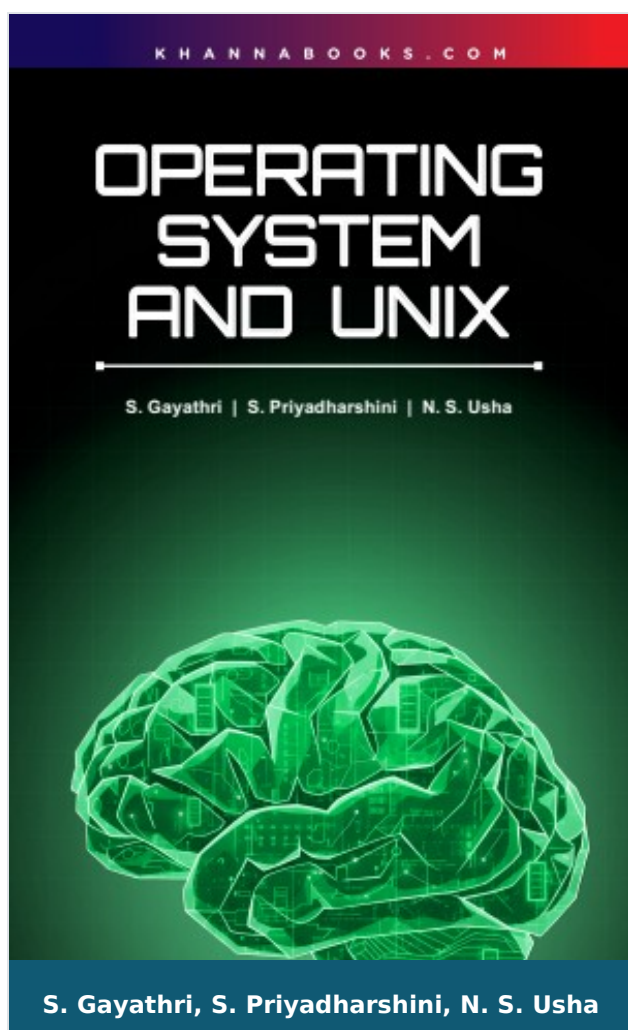




## Operating System and Unix

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## Product Description

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### Operating System and Unix

The Operating System (OS) is the fundamental software that manages a computer's resources, making it the core of all modern computing. This book provides a comprehensive, two-part exploration of both the theoretical principles of operating systems and the practical application of the UNIX/Linux environment.

Starting with the bedrock of OS design, the book clarifies essential concepts like Resource Management, Process Management, Memory Management, and Security. It meticulously details how the OS handles multitasking, deadlocks, and various memory allocation techniques.

The second part transitions seamlessly into hands-on skills, focusing on the powerful and enduring UNIX system. Readers will master the UNIX file system structure, essential shell commands, and the art of Shell Scripting, including arithmetic expansion and floating-point calculations using tools like `bc` and `awk`. Whether you are a student, developer, or systems administrator, this book is the definitive resource for understanding how computers work and mastering the command-line tools that power the digital world.

### Salient Features:

- **Operating System Fundamentals:** In-depth coverage of OS Goals (Resource Management, Reliability, Performance Optimization) and the role of System Software versus Application Software.
- **Core Management Concepts:** Detailed units on Process Management (scheduling, threads, synchronization) and Memory Management (paging, segmentation, virtual memory).
- **Security and Deadlocks:** Clear explanation of system security features and mechanisms to prevent or handle deadlocks and starvation.

- **UNIX Mastery:** Comprehensive guide to the UNIX File System, Directory Structure, and mastering crucial shell commands for effective navigation and file manipulation.
- **Shell Scripting:** Practical, step-by-step instruction on Bash Shell Scripting, including Arithmetic Operations using `let` and `${(...)}` and handling Floating-Point Arithmetic with `bc` and `awk`.
- **User Interaction:** Focus on the different ways users interact with the OS, from the command-line interface to the graphical user interface.
- **Ideal for:** Undergraduate and postgraduate students in Computer Science, and IT professionals seeking a robust understanding of both OS theory and practical UNIX command-line skills

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