DEVICE DRIVERS

CURRICULUM

» An Introduction to Device Drivers
- The Role of the Device Driver
- Splitting the Kernel
- Classes of Devices and Modules
- Version Numbering
- License Terms
- Joining the Kernel Development Community

» Building and Running Modules
- Setting Up Your Test System
- The Hello World Module
- Kernel Modules Versus Applications
- Compiling and Loading
- The Kernel Symbol Table
- Module Parameters

» Char Drivers
- The Design of scull
- Major and Minor Numbers
- Some Important Data Structures
- Char Device Registration
- open and release
- scull's Memory Usage
- read and write
- Playing with the New Devices

» Concurrency and Race Conditions
- Pitfalls in scull
- Concurrency and Its Management
- Semaphores and Mutexes
- Completions
- Spinlocks

» Advanced Char Driver Operations
- ioctl
- Blocking I/O
- poll and select
- Asynchronous Notification
- Seeking a Device

» Time, Delays, and Deferred Work

- Measuring Time Lapses
- Knowing the Current Time
- Delaying Execution
- Kernel Timers
- Tasklets
- Work queues

» Communicating with Hardware

- I/O Ports and I/O Memory
- Using I/O Ports
- An I/O Port Example
- Using I/O Memory

» Interrupt Handling

- Installing an Interrupt Handler
- Implementing a Handler
- Top and Bottom Halves
- Interrupt Sharing

» A parallel port driver

- Preparing your System
- Setting up Parallel I/O in your module
- Interrupt Handler
- Interrupt-Driven I/O

» Project

- Led Blinking using PC parallel port interface
- 16*2 alphanumerical LCD display system using PC parallel port interface
- 14 segment display using PC parallel port interface
- Stepper Motor control using PC parallel port interface

Partners : ORACLE WORKFORCE DEVELOPMENT PROGRAM | redhat. CERTIFIED TRAINING PARTNER | UBI | edexcel | **Java**

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