Assignment#3

Automating Linux Kernel Compilation with Shell Scripting

Course: Operating Systems

Instructor: Saad Ahmad

Due Date: Sunday, November 17th, 2024

Time: 11:59 PM

Objective

The purpose of this assignment is to create a fully automated Bash script for downloading, compiling, and installing the Linux kernel, enhancing students' knowledge of shell scripting and Linux kernel management.

Task

Write a Bash script that automates the following steps:

- Downloads the latest Linux kernel from kernel.org.

- Verifies the integrity of the downloaded file.

- Extracts and configures the kernel source code.

- Compiles and installs the kernel with modules.

- Updates the bootloader (e.g., GRUB) to include the new kernel.

- Reboots the system if required and verifies the installation.

Compiling a kernel is like baking a cake. If you skip steps, you'll end up with a mess, not magic!

Submission Details

Submit the following:

- The Bash script file named `kernel_automator_name_roll_no.sh`.

- A report describing the approach and challenges.

- Screenshots of key steps in the automation process.

Fact

Automating with a shell script is like setting up your own robot chef—if only it could bring you coffee, too!

A Note on Safety

Be cautious while working with kernel-level scripts. Testing on a virtual machine is strongly recommended. Any unintentional errors could impact system stability, so make sure you thoroughly review your code before executing it on a production system.

A Bit of Motivation

Remember, creating an automated process to handle such a complex task is like building a mini DevOps pipeline for your system! Not only are you automating tasks, but you're also gaining insights into kernel-level operations and mastering scripting—a skill that will serve you well in any systems role.

Good luck, and happy scripting!

This is the last assignment ;)