System Programming Lab #7
Review of Shell Scripting and System Calls

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Objective

The objective of this lab is to provide students with hands-on experience in:

- Writing Bash shell scripts to manage command-line arguments and perform system operations.
- Implementing file handling and metadata retrieval using system calls in C.
- Understanding symbolic links and file attributes in Linux.

Tasks

Task 1: Bash Shell Scripting

Write a Bash script that performs the following tasks:

1. Accepts three command-line arguments:
   - Your Name
   - Your University Name
   - Your Date of Birth
2. Saves these arguments into separate files named `sys1`, `sys2`, and `sys3`.
3. Displays system information including:

- The username of the currently logged-in user.
- The current date and time.
- The present working directory.
- A list of files in the current directory, showing each file's permissions and inode number.

4. Loops through all files in the current directory whose names begin with `sys`, counts these files, and displays the total count.

Task 2: System Calls in C

Write a C program that:

1. Copies the contents of a source file to a destination file.
    - Accepts two command-line arguments: source file name and destination file name.
    - Reads data from the source file using a buffer of 100 bytes and writes it to the destination file.
2. Creates a symbolic link named `dest_link` that points to the destination file.
3. Retrieves metadata of the symbolic link and displays:
    - File size
    - Inode number
    - File type (regular, symbolic, or block device)
    - Last modified time