

Operating System Concepts

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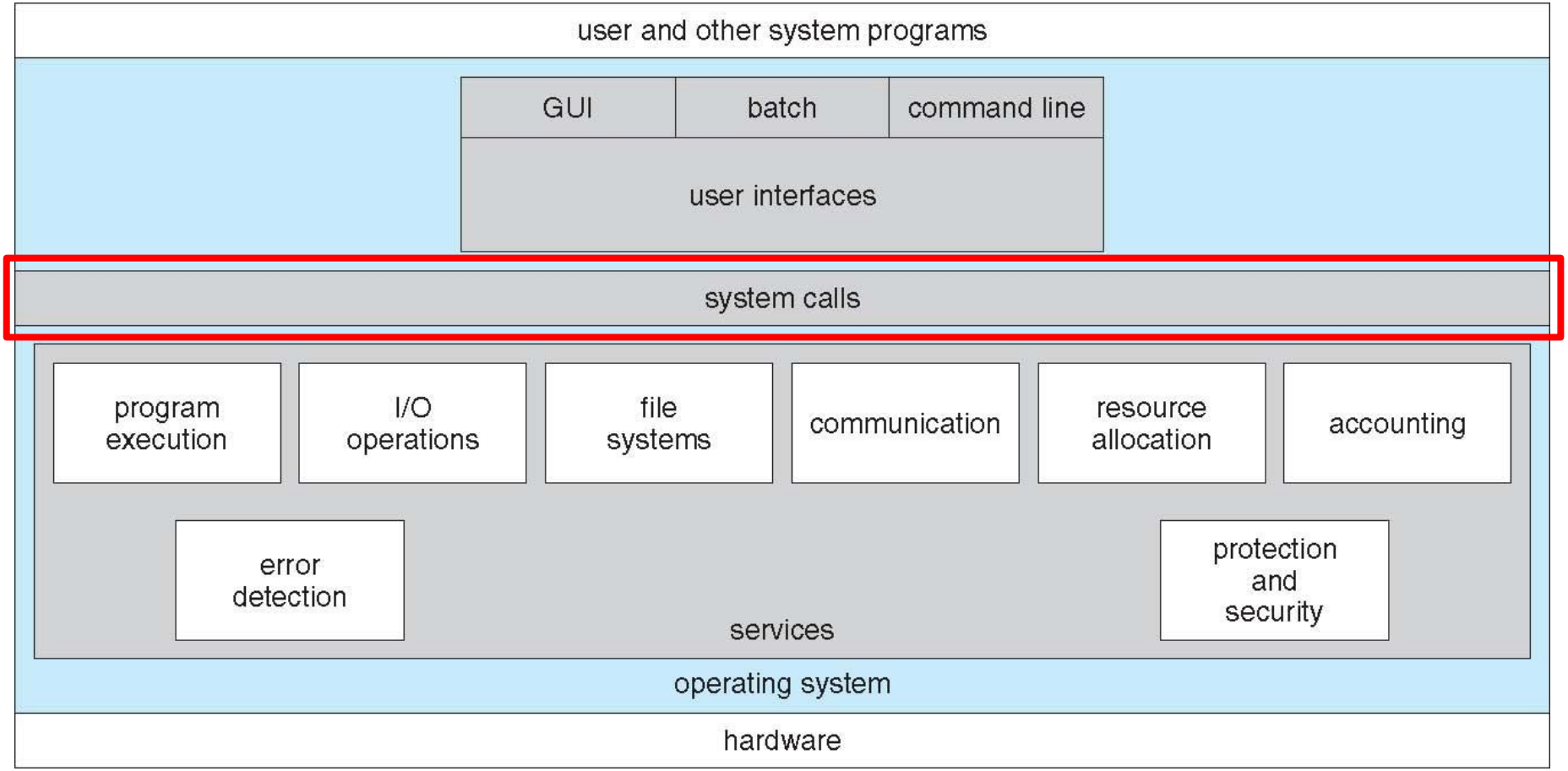
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Homework 3– Implement a System Call

System Calls in an OS



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Types of System Calls

- Process Control
- File Management
- Device Management
- Information Maintenance
- Communications
- Protection

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Requirements

- Implement your system call and recompile the kernel
- The new system call just has to print out the following message by printk(): “I am Student-ID at OS 2026!”
- Write some C program to invoke the new system call
- Use dmesg command to check the result of using the new system call

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The Sketch of Implementation

- Write system call in your Linux source code directory: #include <linux/kernel.h>, asmlinkage, printk()
- Modify the Makefile so as to build the new system call into the Kernel
- Put the prototype of the new system call into syscall.h
- Add the mapping number of your new system call into the system call table in your system
- Compile the Kernel
- Use the function syscall() to invoke the new system call in a user C program

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Report

1. The steps for your implementation
2. The problem you met, and how you solved it
3. **The reference of this homework**

- The report is limited within 2 pages in PDF

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Grading

- Implementation
  - Implement a system call and recompile the Kernel 30%
  - Write a C program to invoke the system call 30%
- Report
  - 20%
- Demo Q&A
  - 20%

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Submission

- Homework 3 deadline: at 23:00 on 2026-12-8

➔**NO DELAY!**

- Upload to e-learning system
- The title of the report: OSHomework3StudentID
- **Point deduction for wrong format: 10%**

➔DEMO will be arranged!

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