



# Operating System Concepts

Che-Wei Chang

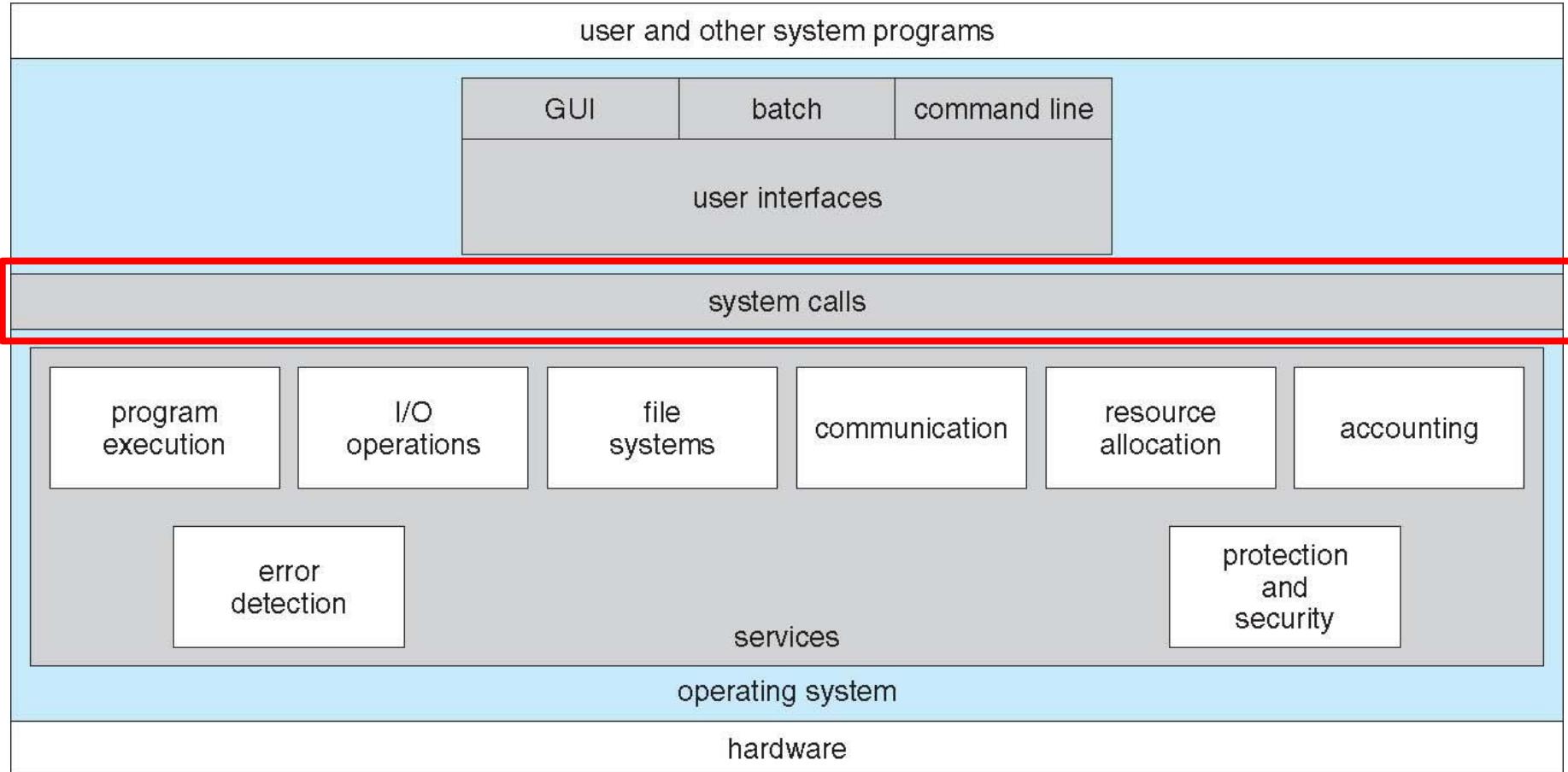
[chewei@mail.cgu.edu.tw](mailto:chewei@mail.cgu.edu.tw)

Department of Computer Science and Information  
Engineering, Chang Gung University



# Homework 3– Implement a System Call

# System Calls in an OS



# Types of System Calls

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

# 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 2025!”
- ▶ Write some C program to invoke the new system call
- ▶ Use dmesg command to check the result of using the new system call

# 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

# 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 4 pages in PDF

# 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%

# Submission

- ▶ Homework 3 deadline: at 23:00 on 2025-11-25  
**→NO DELAY!**
- ▶ Upload to e-learning system
- ▶ The title of the report: OSHomework3StudentID
- ▶ **Point deduction for wrong format: 10%**

**→DEMO will be arranged!**