

CISC 3320 MW3  
System Services and  
Applications

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# Acknowledgement

- These slides are a revision of the slides by the authors of the textbook

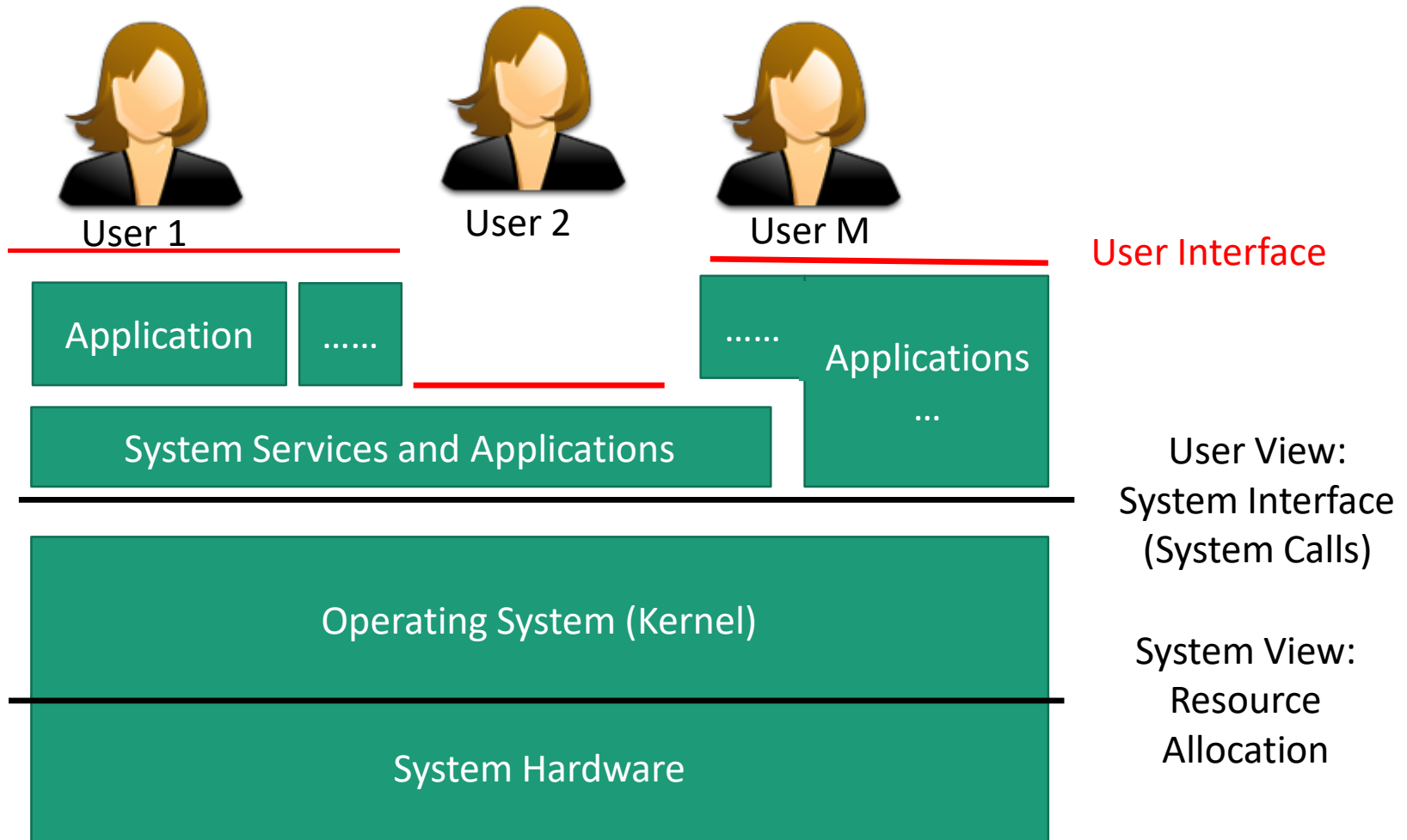
# Outline

- System Programs
- Operating System Design and Implementation
- Operating System Structure
- Operating System Debugging
- Operating System Generation
- System Boot

# System Programs and Users' View

- Most users' view of the operation system is defined by system programs, not the actual system calls

# Operating System



# System Programs

- System programs provide a convenient environment for program development and execution.
- Some of them are simply user interfaces to system calls; others are considerably more complex

# Types of System Programs

- File manipulation
- Status information sometimes stored in a File modification
- Programming language support
- Program loading and execution
- Communications
- Background services
- Application programs

# File Management

- Create, delete, copy, rename, print, dump, list, and generally manipulate files and directories



# Status Information

- Some ask the system for info, e.g., date, time, amount of available memory, disk space, number of users
- Others provide detailed performance, logging, and debugging information
- Typically, these programs format and print the output to the terminal or other output devices
- Some systems implement a registry: used to store and retrieve configuration information
  - Example: Microsoft Windows

# File Modification

- Text editors to create and modify files
- Special commands to search contents of files or perform transformations of the text

# Programming-Language Support

- Compilers, assemblers, debuggers and interpreters sometimes provided

# Program Loading and Execution

- Absolute loaders, relocatable loaders, linkage editors, and overlay-loaders, debugging systems for higher-level and machine language

# Communications

- Provide the mechanism for creating virtual connections among processes, users, and computer systems
  - Allow users to send messages to one another's screens, browse web pages, send electronic-mail messages, log in remotely, transfer files from one machine to another

# Background Services

- Launch at boot time
  - Some for system startup, then terminate
  - Some from system boot to shutdown
- Provide facilities like disk checking, process scheduling, error logging, printing
- Run in user context not kernel context
- Known as services, subsystems, daemons

# Application Programs

- Don't pertain to system
- Run by users
- Not typically considered part of OS
- Launched by command line, mouse click, finger poke

# Questions?

- Types of system programs and application programs