CMPT 300: Introduction to Operating Systems

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Agenda for Today

- Course overview
  - Topic list
- Administrative details
  - Marking scheme
  - Course components
- How to get help and do well in the course

Not for the faint of heart!

- This is a *difficult* course with *challenging* material
- You will be forced to think of the *low-level* issues in computer systems
- Having taken CMPT 295 before this class will be helpful!
- Note: This is *not* a remote offering
  - At the very least, you are required to attend the midterms and final exam **in-person**

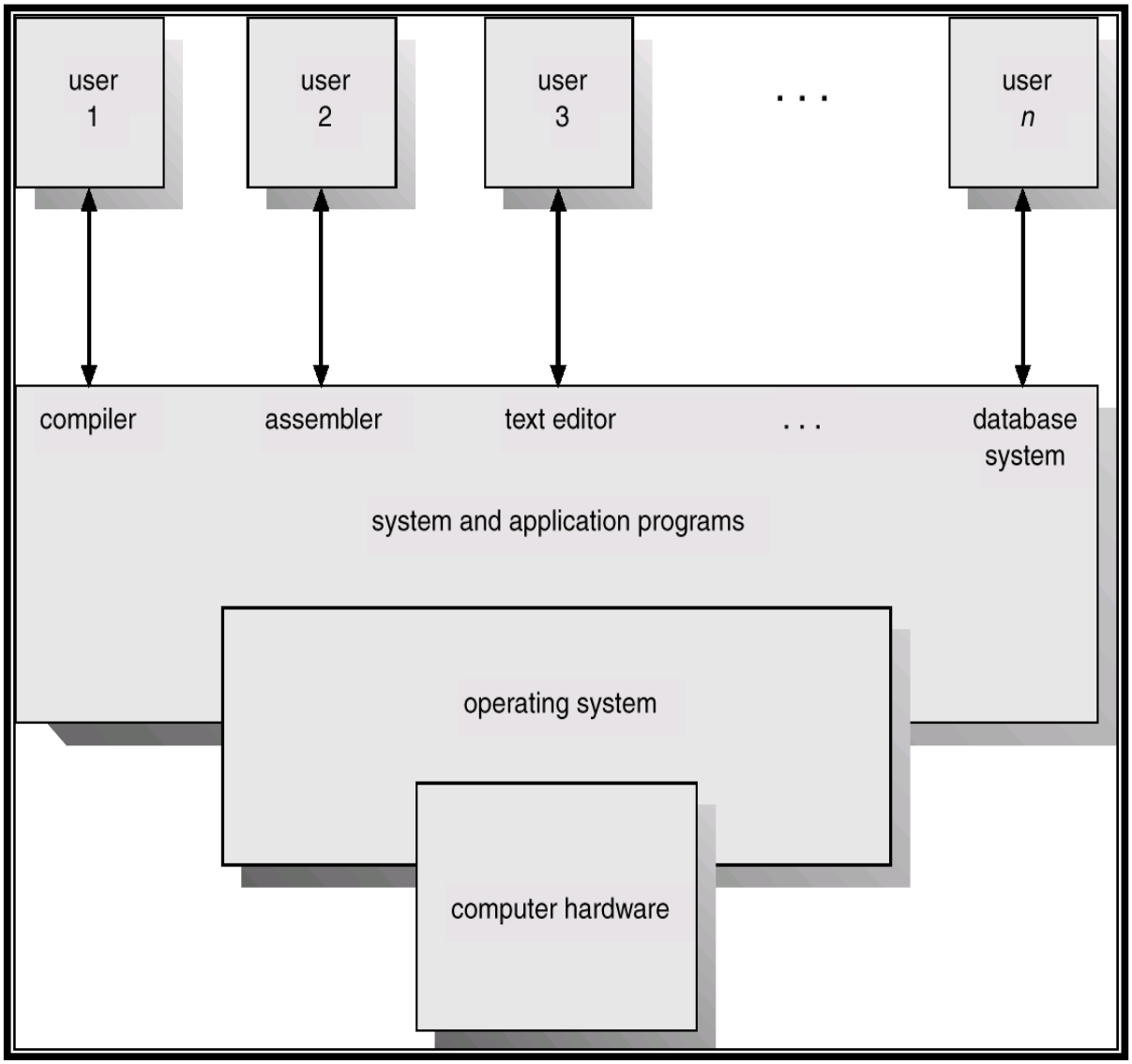
What is an Operating System?

- Software that controls the execution of programs and that provides services such as resource allocation, scheduling, input/output control, and data management
- The OS acts as an intermediary between a user of the computer and the computer hardware
- OS goals:
  - Execute user programs and make solving user problems easier
  - Make the computer system convenient to use
- Use the computer hardware in an efficient manner

Computer System Components

1. **Hardware** – provides basic computing resources (CPU, memory, I/O devices).
2. **Operating system** – controls and coordinates the use of the hardware among the various application programs for the various users.
3. **Application programs** – define the ways in which the system resources are used to solve the computing problems of the users (compilers, database systems, video games, business programs).
4. **Users** - people, machines, other computers.

Abstract View of System Components



Topics Covered in this Course

- History, Evolution, and Philosophies
- Tasking and Processes
- Critical sections and mutual exclusion
- Synchronization and IPC
- Process and Kernel Design
- Physical and Virtual Memory Organization
- I/O processing and File systems
- Deadlock (time permitting)

Assignments: 25%

- ~4 assignments due roughly every three weeks
- Will involve C programming
- We will compare your submissions to each other, and to submissions for similar assignments in previous semesters
- Late assignments are penalized 5% per day (including weekends)
  - Assignments will not be accepted if more than 7 days late
  - Exception: illness

Exams

- Midterm Exam: **25%**
  - Tentatively scheduled for week 9 of the term
  - Will be held in lecture
- Final Exam: **50%**
- No calculators, books, or aids of any kind allowed during exams
- You must attain an overall passing grade on the weighted average of exams in the course in order to obtain a clear pass (C- or better)

What if I miss something?

- We will use an online system for tracking any concessions given
- If you will miss an assignment, fill out the concession form *as soon as possible*
  - You **do not need** medical documentation in this case
- If you will miss a midterm or the final exam, fill out the concession form *as soon as possible*
  - You **will need** medical documentation in this case

Academic Conduct

- You must abide by the SFU Academic Integrity Policy
- Assignments must be done alone (or with your group)
  - No sharing of work with others, or looking at others work
- You may discuss the general approach you use to solve a problem
  - No written/recorded notes should be taken away
- You may get help on implementation issues (e.g. debugging code)

Academic Conduct: The Facts

- I *was* on the **Academic Integrity Committee**
  - Deals with severe cheating cases for Computing Science
  - There was been an explosion of cheating cases during the pandemic
- There were 3 cases of cheating for CMPT 300 the last time I taught it
  - Mostly assignment cheating (e.g., finding solutions from previous semesters online)

The Contract – My Responsibilities

- I will treat you with respect
- I will come to class prepared
- I will endeavor to make the class interesting
- We will be fair in my grading practices
- We will grade assignments/tests as promptly as possible
- We will either answer questions that are posed, or suggest someone who can answer the questions
- We will help you deal with personal and study problems whenever possible

The Contract – Your Responsibilities

- You will treat professors, TAs, and speakers with respect
- You will come to the classes prepared
- You will turn in your assignments on time
- You will listen to the professors, TAs, and speakers when they are lecturing
- You will maintain a respectful environment during classes and on the discussion forum
- You will ask questions when something is not clear
- You will follow the policy on academic integrity