# CLA CS-101 (A1)
## Introduction to Computers
Spring 1995

# Review

**1** In class we discussed the short history of computing. Try to answer the following:

- ◇ Explain the difference between batch processing and time-sharing. What is meant by the "operating system overhead"?
- ◇ What are the technological breakthroughs that made the second and third computer generations possible?
- ◇ What is the technological breakthrough that made personal computers possible?

**2** In class we talked about UNIX as an example of an operating system. The following are sample questions you should be able to answer.

- ◇ Define what is meant by an Operating System. Why are operating systems necessary?
- ◇ What are the different parts of a Unix Command line?
- ◇ What are the default standard input and standard output for most Unix commands?
- ◇ How can you redirect a Unix command's output so that it would be stored in a file rather than being sent to the screen?
- ◇ Many UNIX commands would accept "default" arguments. What do we mean by a "default"? Give two examples.
- ◇ In 1-2 sentences explain what each of the following commands does (Assume that you are in your home directory when you execute them.)
- ◇ In 1-2 sentences explain what each of the following commands does (Assume that you are in your home directory when you execute them.)
  - ◇ `mkdir papers`
  - ◇ `finger lellouch@leland.stanford.edu > foo`
  - ◇ `who | grep kennedy >> foo`
  - ◇ `cp cs101-essay papers/foobar`
  - ◇ `rm cs101-essay`
- ◇ If you execute the above 5 commands in the order shown, what would be the result of executing the following 2 commands:
  - ◇ `more cs101-essay`
  - ◇ `cd papers`
  - ◇ `chmod og+r foobar`
  - ◇ `lpr foo`
  - ◇ `cd`
  - ◇ `lpr foo`

**3** In class we discussed the different components of a computer system. Make sure you understand these by trying to answer the following questions:

- ◇ Give 4 examples of input devices?
- ◇ Give 4 examples of output devices?
- ◇ What is the difference between sequential and random access memories? Give one example of each.
- ◇ What is the difference between main and secondary memories? Give an example of each.
- ◇ What are the two components that make up what we call the CPU?
- ◇ If we envision the components of a computer system as an orchestra. Which one of the following would you call the "conductor": (a) ALU (b) Memory (c) Controller. Why?
- ◇ Explain what is meant by the "concept of a stored program".
- ◇ Name at least 3 different *media* for computer memory.
- ◇ Give one example for a *read/write* media, a *read-only* media, and a *write-once* media.
- ◇ Does it make any sense to have a direct connection between the ALU and an output device?

**4** In class we talked about programming. Can you answer the following questions?

- ◇ What is "divide and conquer"?
- ◇ Contrast compilers and interpreters. Why are these programs needed?
- ◇ What is the difference between an algorithm and a program?
- ◇ What are the main parts of a Pascal program?
- ◇ What is meant by initializing a variable? Why is that important?
- ◇ What is meant by a syntax error? a semantic error? which one is easier to catch? why? give an example for each.
- ◇ You should be able to find out what is wrong with a given Pascal statement or procedure.
- ◇ You should be able to come up with simple Pascal programs. For example:
    - ◇ Write a program that would ask the user to enter a weight in pounds and would transform that into grams (1 pound = 254 grams).
    - ◇ Write a program that will continuously ask the user to enter a integer number. If the number is less than or equal to zero, the program should stop. Otherwise, it should print the product of all the positive integers less than or equal to that number (By the way this is called the factorial function).

*Good Luck!*