-Test average 75%
- P1 office "hour" Oct 31, 2-5, BA4270
- SLOGs: write a little weekly

CSC104 winter 2013
Computational thinking
week 8

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BA4270 (behind elevators)

http://www.cdf.toronto.edu/~heap/104/F12/

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Text: Picturing Programs

Outline

operators and operating systems

Notes

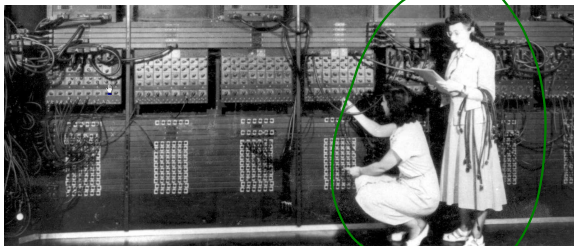# machines take over in batches

output — paper tape

input (cards)
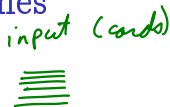
operators

Machines began to take over setting the program counter to a new job, collecting the output, fetching memory...but it was still one job at a time.

users waited in another room ↓ if there was a bug, go to the end of the line

time sharing, version 0.1

Print job

databas

payroll

graphics

tron (game)

spread-sheet

word processor

mainframe gave
each user 1/20 th
of a second, delay
often not noticable
(who can type that
fast ?)

one user, one program, one computer

- often used to run one program that was custom-written for that hardware ⟶ no need for OS to sort out hardware details
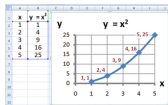
early IBM PC

TRS

Early Apple

- no need for multi-tasking, networking, etc.

task-switching to time-splitting, v 1.0

print text

suspend
word processing

suspend
printing

look at
spreadsheet

Does one task stop, or only appear to stop, for the other?

This awkward schem was much better than
turning If and completely re-starting programs.

unix (mostly) to the desktop

GUIs, time-sharing, networking, flame-wars

– more powerful machines at home, more demands...

Mac runs
BSD unix "underneath"

Windows NT
got unix-like
powers, then

Linux → small
market share,
uses unix variant

filtered down
to XP, etc.

added
– multi-tasking
– networking
– multi-user support.

an operating system should have

any operating system will give you these.

- ▶ kernel (shell, shielded access to hardware, referee sharing)

- ▶ utilities (backup, restore, defrag disk)

Choose an OS based on
— your social network
— the apps you plan to run

Notes