IC150

Lecture 26: Spreadsheets

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Spreadsheets

- A simple yet powerful computational tool
- Programming model:
  - A grid of cells, named *a1, a2, ..., b1, b2, ...*
  - Each cell contains a *value* or an *expression*
  - Expression depends on values of other cells
  - Value of expression is recomputed automatically whenever referred cell changes
    Dataflow paradigm
  - First spreadsheet: Visicalc (early 1980s)
    Widely used now: OpenOffice Calc
    Microsoft Excel

Basics

- Editing cells:
  - Numbers: type digits
  - Text: type alphabets, or start with '
  - Formulae: start with =
- Formatting cells:
  - Data type and format
    - number of decimal places
    - Date format
  - Font, colour, justification

Basics

- Copy and paste:
  - Adjusts cell references in formulae
  - Paste Special -- paste value not formula
- Delete:
  - Contents
  - Cell(s) -- shifts adjacent cells
- Protect -- contents cannot be changed
- Workbook (file) consists of several sheets
  - Formula can refer to cells in other sheets or other workbooks

Tools

- Sort -- a block of cells
  - Ascending or descending
  - Selected column as sort key
- Chart -- plot graph of a block of cells containing <x, y>
- Equation solver
- Macros
  - Keyboard (records your keystrokes)
  - Basic programming language

Some Applications

- Course marks and grades
- Financial accounts and budgets
- Staff payroll
- Factory production
- Engineering computation
- Project management
- *and many more ...*

An essential tool for tomorrow's engineer!