Computer Science – Lecture 12
Pascal Programming IV

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Blackboard IFP

Objectives

- To talk about program design
- To introduce Pascal functions
- Tomorrow's practical:
  - More Pascal Programming!

What is a "good" program?

- It does what it is supposed to do
  - Prove it by testing!

- It is easy use
  - Provides prompts to the user
  - Checks information entered
  - Displays output clearly
  - Has meaningful error messages

Program Maintenance

- Most programs need to be changed sometime
- May not be done by the person who wrote it
- Even the person who wrote it may have forgotten why!
- So:
  - Use plenty of (useful!) comments
  - Give variables meaningful names
  - Layout (indent) code neatly
  - Try to keep things simple
  - (even if it makes the program longer)
- See examples on practical sheet

Procedures and Functions

- Procedures carry out a particular task
  - writeln writes out a line of text
  - readln reads in a line of text
- Functions return a result or value
  - Of a particular type
- We can assign this to a variable
- Or use it in further calculations

Example Mathematical Functions

Function	Type	Description
Sqrt(x)	Real	Square root of x
Sin(x)	Real	Sine of x (x in radians NOT degrees)
Ln(x)	Real	Natural logarithm of x
Exp(x)	Real	Exponent of x
Trunc(x)	Integer	Returns integer part of real x
Round(x)	Integer	Nearest integer to real x

Other Functions

- See the practical sheet for other example functions
- And an example program using functions

- Some you may not be familiar with:
  - Succ – gives the "next" value of an integer or an enumeration type
  - Pred – gives the "previous" value
  - Ord – converts a character to the decimal value
  - Chr – converts a decimal value to a character
    - Both the above use the ASCII character set

Tomorrow's Practical

- Try to write some of the programs on page 2
  - See work sheet
- Worksheets available today if required
- Karl will be available to help between 13:45 and 15:00 in the IT Degree Lab