Computer Programming 1

Introduction to CA165

Computer Programming

- What is a program?
  - A set of instructions for a computer
- What is a computer?
- How do we write the instructions?
  - in a programming language: Java
- What is programming?
- Why would one want to program?

But first the Module Details

- The Timetable
- The Syllabus
- The Web page
- Module Objectives
- What you need to do
- How the module is graded
- How the module fits in with other modules

Timetable

- Lectures: Tuesday, Wednesday and Thursday mornings.
- There will be a two hour lab on Tuesdays and Thursdays.
- There will be workshop on Tuesday where you do programming exercises.

You will also need

- The World Wide Web (WWW).
  - The page for this module is http://polya.computing.dcu.ie/ca165/index.html
- The Textbook
  - "Computing Concepts"
  - Author: Cay Horstmann

Academic Year

- See the module Web page

Module Objectives

- At the end of the module the student will
  - have a good working knowledge of syntax (structural rules) and semantics (meaning) of a subset of the Java programming language.
  - understand what happens when a Java instruction is executed.
  - be able to write and debug Java programs.
  - understand how to solve certain problems using Java.

What you need to do

- You will have to work to learn to program
- Use the facilities provided; lectures, workshops, labs, email, WWW and get the book.
- Do all the exercises on time
- Think on the bus!

How the Module is Graded

- Lab exercises.
- Programming exams.
- Programming exercises. (These will be discussed in the workshops.)

This Module and the Degree

- This module leads onto computer Programming 2.
- The ability to program will be required for almost every module on the course.
- Computer Architecture looks at a related area, assembly language programming.

The Computer

- Software (programs)
  - Operating system: Windows (XP, NT, 2000), UNIX, MAC OS
  - Applications: Word, Quake
- Hardware
  - Processor (brains)
  - RAM (short term memory)
  - Hard Disk (long term memory)
  - Input/Output: Screen, Speakers, keyboard, mouse

DCU Computers

- Computers in the labs have
  - a processor that operates at 3 GHz
  - 2 GB RAM
  - 250 Gbyte hard disc
- The Network
  - The computers in computer applications are connected in a network. You have an account which means you have a network drive. You can access this drive from any computer in the building.
  - You can also access the internet (and use email)

Programming

- Computer instructions are very simple
- Many instructions combine to make a complex program
- To be a good programmer you need
  - to be precise
  - to manage complexity: there are many techniques to help manage complexity, structured programming, modular programming and Object-oriented programming

Summary

- What is a program?
- To program you must
  - be precise
  - manage complexity (using objects)
- This requires lots of practice
  - do the exercises
  - think!
  - Ask questions. Make friends
- Buy the book.