Teaching Programming Without Tears

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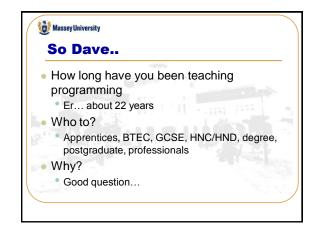Massey University
New Zealand

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Programming

- The magic of myth and legend has come true in our time. One types the correct incantation on a keyboard, and a display screen comes to life, showing things that never were nor could be.
  - Fred Brooks
  - (author of 'The Mythical Man Month')

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So Dave..

- How long have you been teaching programming
  - Er… about 22 years
- Who to?
  - Apprentices, BTEC, GCSE, HNC/HND, degree, postgraduate, professionals
- Why?
  - Good question…

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Can you teach it?

- Computer science education cannot make anybody an expert programmer any more than studying brushes and pigment can make somebody an expert painter.
  - Eric Raymond
  - (Open Source spokesman and author of the New Hacker's Dictionary)

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The Point…

- What are you trying to achieve in your teaching of programming at Solent?
- What do you teach and why?
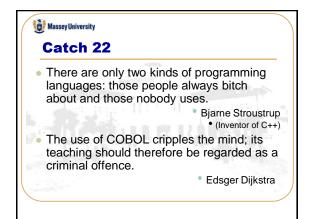

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Making a choice

- A most important, but also most elusive, aspect of any tool is its influence on the habits of those who train themselves in its use. If the tool is a programming language this influence is, whether we like it or not, an influence on our thinking habits.
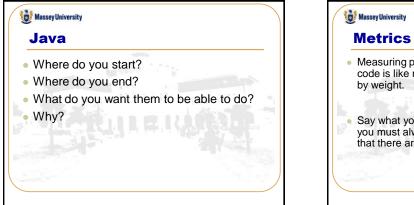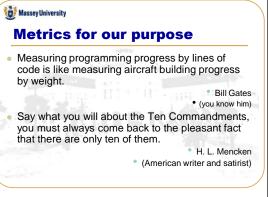 - Edsger Dijkstra
  - (Famous Dutch computer scientist)

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Languages

- Can you teach all languages the same way?
- Why choose one language over another?
- How long does it take to learn the 'conversational' language?
- Is that any good to anyone?

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Catch 22

- There are only two kinds of programming languages: those people always bitch about and those nobody uses.
  - Bjarne Stroustrup
    - (Inventor of C++)
- The use of COBOL cripples the mind; its teaching should therefore be regarded as a criminal offence.
  - Edsger Dijkstra

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Java

- Where do you start?
- Where do you end?
- What do you want them to be able to do?
- Why?

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Metrics for our purpose

- Measuring programming progress by lines of code is like measuring aircraft building progress by weight.
  - Bill Gates
    - (you know him)
- Say what you will about the Ten Commandments, you must always come back to the pleasant fact that there are only ten of them.
  - H. L. Mencken
  - (American writer and satirist)

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Making it easy

- Less is more
  - Panic in the library
  - One path is enough
  - One piece of the jigsaw is more realistic
- No-one can remember syntax, menus, click and drag
- So what the heck do they remember?

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Glitter and concrete

- Fashion is something barbarous, for it produces innovation without reason and imitation without benefit.
  - George Santayana
    - (Spanish philosopher and writer)
- Without requirements or design, programming is the art of adding bugs to an empty text file
  - Louis Srygley
  - (or possibly not – I have no idea)

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Holy grails

- Over the years…
  - Design over implementation – ideas!
  - Windows – wow factor (back then)
  - Design patterns – more ideas!
  - New languages – they always start simple!
  - New tools – shiny stuff syndrome
  - Things that reward quickly – browser programming
  - Test first – more ideas to turn your head upside down!
  - Agile games – design over implementation
  - Mobile – wow factor (back then)

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Some ideas to ponder

- Java persistence API (finally)
- NetBeans for Mobile (Rails?)
- Eclipse for plugins
- Jade for quick wins and support
- Non programming tools like XMLSpy
- .NET – what is it trying to say?

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And another thing…

- Journals:
  - PAIST http://www.paist.org
  - IJMBL http://www.igi-global.com/ijmbl