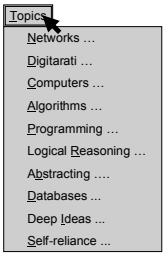
Fluency – A Summary of FIT100

FIT 100

Being Fluent With Information Technology requires life long learning. Though FIT100 is only the starting point, we have been exposed to many topics.

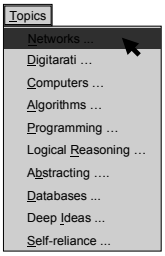
FIT 100 The 10 Most Important Topics ...



Exposure to Skills …
Pine
Web browsers (Netscape & IE)
HTML
FTP
Word
Access
VB6.0
Anti-virus software
Secure web & telnet connections

FIT 100 Networks

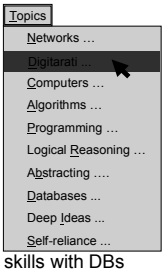
- Internet, Local Area Network
- TCP/IP and postcard analogy
- Ethernet and conversation analogy
- IP Address, DNS
- Hierarchical domain names
- **`spiff.cs.washington.edu`**
- World Wide Web
- HTML, FTP, http://
- Physical/logical separation



FIT 100 What the Digitarati Know

- A human's innate knowledge of technology
- The perfect GUI: Mac CD Player
- Consistent interfaces
- Standard metaphors
- Standard information processing operations
- Clicking Around
- Blazing Away
- Notice how extensively you used this skills with DBs

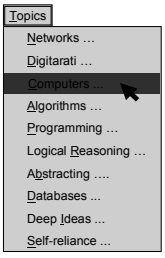
Go boldly where you have never gone before



FIT 100 Computer Basics

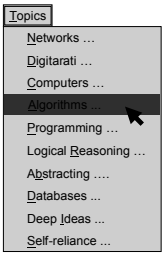
- Fetch/Execute cycle and analogy to Nenana Ice Classic
- Five components of a computer
- Memory and container analogy
- Machine instructions and the indirect reference to operands
- Instruction reference via PC
- Memory and speed terminology

Knowing how computers work it should be obvious why they are always so annoyingly literal-minded!



FIT 100 Algorithmic Thinking

- Five basic properties of algorithms
  - Input Specified … like procedure formals
  - Output Specified … like procedure results
  - Effectiveness } Assured by language
  - Definiteness }
  - Finiteness … iterations stop
- Alphabetize CD's example
- Importance of language in being precise
- Difference between algorithms and programs



FIT 100 Alphabetize CDs

```
Private Sub AlphabetizeCD (slots() As String, n As Integer)
   Dim alpha As Integer, bet As Integer
   Dim temp As String
   alpha = 0
   bet = 1
   Do While alpha < n - 1
      Do While bet < n
         If slots(alpha) > slots(bet) Then
            temp = slots(alpha)
            slots(alpha) = slots(bet)
            slots(bet) = temp
         End If
         bet = bet + 1
      Loop
      alpha = alpha + 1
      bet = alpha + 1
   Loop
End Sub
```

FIT 100 Programming

- Names, values and variables
- Assignment
- Expressions
- Conditionals
- Procedures with parameters
- Iteration
- Indexing and arrays
- VB6 Integrated Development Env

These are a sufficient set of concepts to solve any problem by computer, though there is much more to learn about programming

Topics
- Networks …
- Digitarati …
- Computers …
- Algorithms …
- Programming …
- Logical Reasoning …
- Abstracting ….
- Databases ...
- Deep Ideas ...
- Self-reliance ...

FIT 100 Reasoning Exercises

- Worked through as series of problem solving and reasoning situations
  - Binary search algorithm
  - CDC database design
  - Weight Guesser program
  - Inch Worm program
  - Art program examples (boxes, squirals etc)
  - Body Mass Index program
- Programming exercises
  - Zodiac problems
  - Art program
  - Game of Life modifications

Topics
- Networks …
- Digitarati …
- Computers …
- Algorithms …
- Programming …
- Logical Reasoning …
- Abstracting ….
- Databases ...
- Deep Ideas ...
- Self-reliance ...

FIT 100 Abstraction

- On several occasions abstraction was discussed
  - Procedural abstraction
  - Algorithms as more abstract programs
  - Debugging and trouble shooting
  - Testing solutions
- Think abstractly about processes
  - How do things work
  - Am I being as effective with computers as possible
  - Can I apply more or better technology

Topics
- Networks …
- Digitarati …
- Computers …
- Algorithms …
- Programming …
- Logical Reasoning …
- Abstracting ...
- Databases ...
- Deep Ideas ...
- Self-reliance ...

FIT 100 Databases

- Basic structure of relational DBs, including tables, tuples, fields, types
- Forming relationships in DBs
- Queries
- Basics of Access
  - Tables, Forms, Reports
  - Wizards
  - Editing and revising the system

Build a database for your own needs … catalog your books or CDs, address book, help out your club or organization with record keeping

Topics
- Networks …
- Digitarati …
- Computers …
- Algorithms …
- Programming …
- Logical Reasoning …
- Abstracting ….
- Databases ...
- Deep Ideas ...
- Self-reliance ...

FIT 100 Deep Ideas

- Can computers think?
- Interpretation of instructions
- Digital representation of information
- Simulation
- Problems unsolvable by computers
- Searching for information
- Public key encryption
- Algorithmic thinking
- Communication design

There is much more to say about each of these, but key aspects of the ideas have been introduced

Topics
- Networks …
- Digitarati …
- Computers …
- Algorithms …
- Programming …
- Logical Reasoning …
- Abstracting ….
- Databases ...
- Deep Ideas ...
- Self-reliance ...

FIT 100 IT and Social & Ethical Issues

- Politics and the internet
- E-mail etiquette; flaming
- What is the relation between technology and moral values?
- Issues around security; viruses

- Stuff I wish we had time for:
  - Privacy and databases
  - Inequitable access to information and production of information
  - Copyright and patents in the internet age (Napster anyone?)
  - Software entrepreneurship
  - ….

FIT 100 You're On Your Own

- How to find information
- Finding work-arounds to bugs or system incompatibilities
- Experience with contemporary systems
- Reasoning by analogy and example

FIT100's goal is to initiate you on a live-long learning process, wherein you determine when you need to learn more about IT and then to do so on your own!