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Section AE
Outline Chapter 7
Participation Points

"To Err is Human..."

One of a computer's defining characteristics-and perhaps for many the source of its greatest frustration-is that it does exactly what it is told to do, and nothing more. So in truth, the computer doesn't foul things up at all. We have to recognize that the greatest, most consistent source of problems is our lack of precision.

PRECISION:

We must say EXACTLY what we mean to a computer for it to carry out an execution correctly. When using information technology we must be precise. The standards of accuracy are extremely high. A common error is to confuse "OH" and "Zero", or "EL" and "One".

Why don't they just catch mistakes in email addresses?
The reason is simple, Whereas "Oh: and "El" are illegal in all phone numbers, they are not illegal in all email addresses or URLs.

For example: flo@exisp.com and F10@exisp.com could both be legitimate email addresses.
Case does not matter in Internet domain names. But frequently the "local" information URLs, i.e. the text after '/' symbols is case sensitive because it is resolved by the destination Web Server.

DEBUGGING:

Debugging is the act of figuring out why a deterministic mechanism doesn't work properly. The techniques are the same whether the system is mechanical, electronic or software.

(The term "bug" for a glitch in a computer system was coined by Admiral Grace Murray Hopper, a computer pioneer, while she was working on the Harvard Mark I. When the Mark II computer got a moth jammed in one of its relays, bringing the machine down, technicians taped the bug into the machine's logbook)

Two ways that an Information System has a "bug" in it:

-Entered wrong data or wrong configuration information.
-Logical error.

DEBUGGING STEPS:

-Think about yourself performing the debugging process, asking if you need more data or can trust your assumption.

-Verify that the error is reproducible.

-Determine exactly what the problem is.

-Eliminate the "obvious" causes.

-Partition the process, separating out the parts that work from the parts that does not.

-When you reach a dead end, reassess the information you have, trying to identify what mistake you are making.

-Work thought the process from start to finish, making predictions of what should happen and verifying that the predictions are fulfilled.