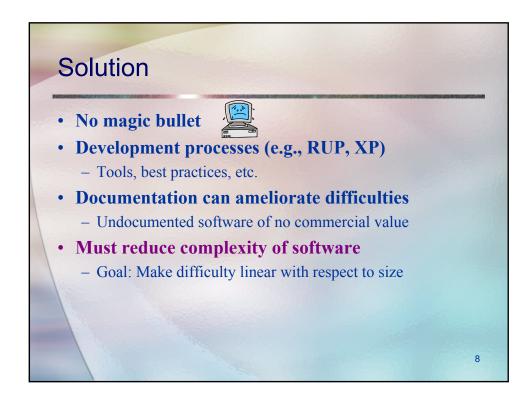
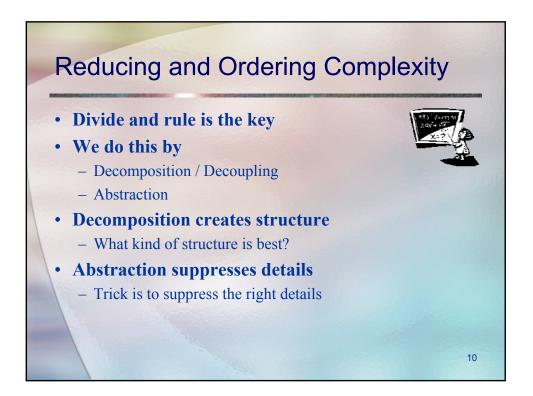


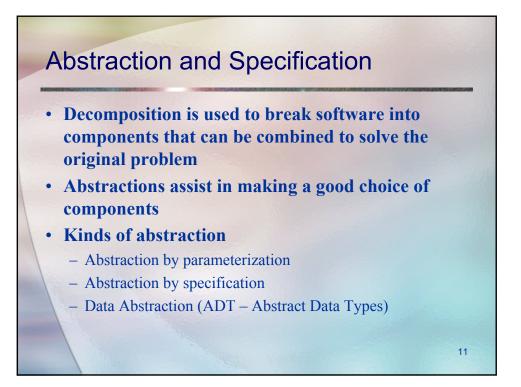
Programming today is a race between software engineers striving to build bigger and better idiotproof programs, and the Universe trying to produce bigger and better idiots. So far, the Universe is winning.

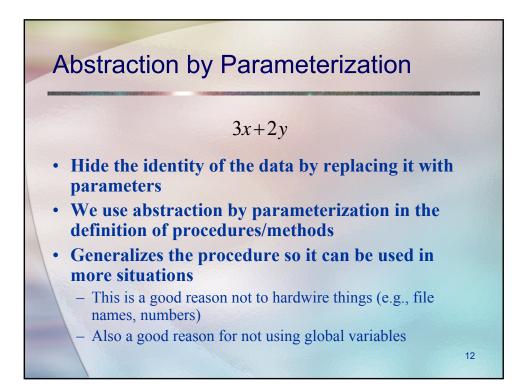
Rich Cook

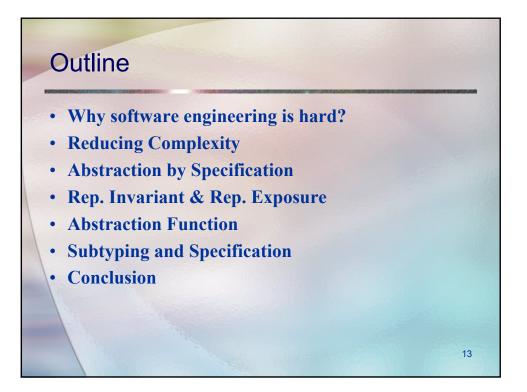




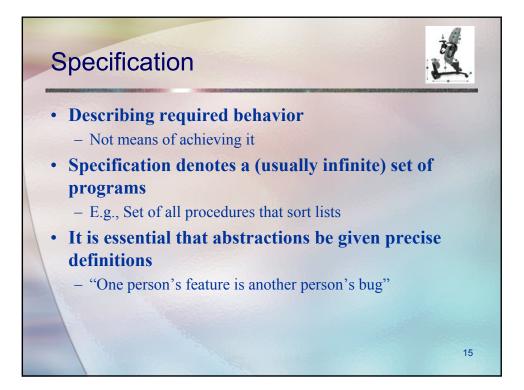


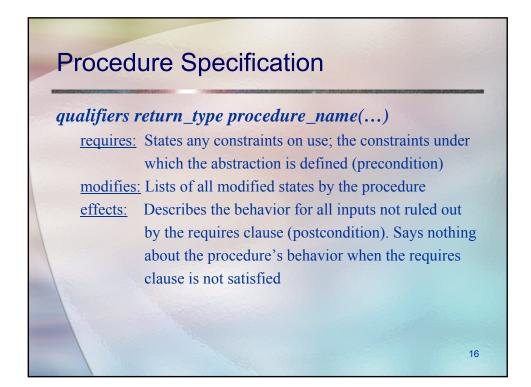


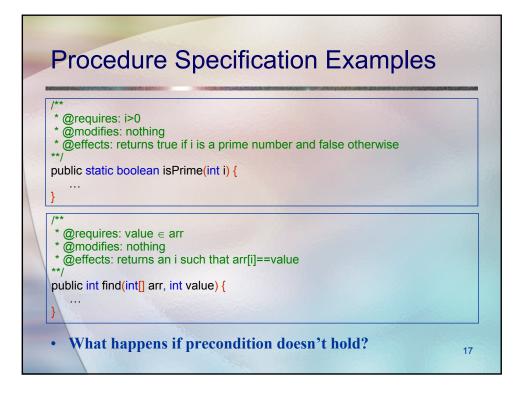


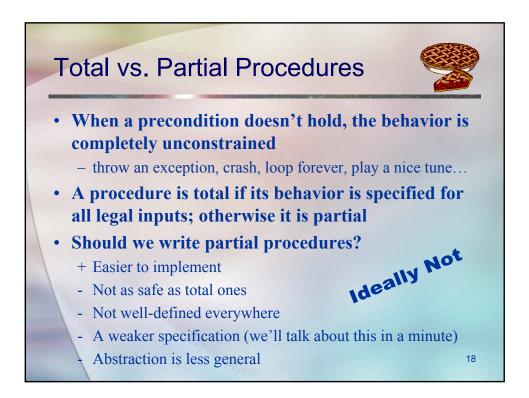






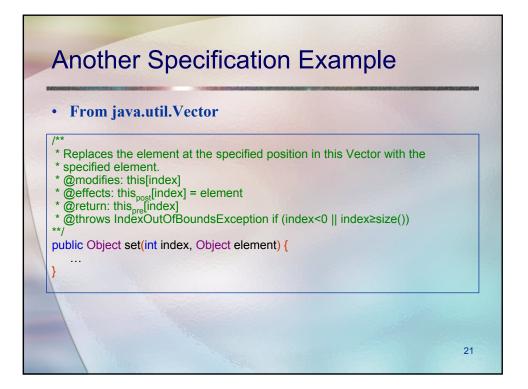




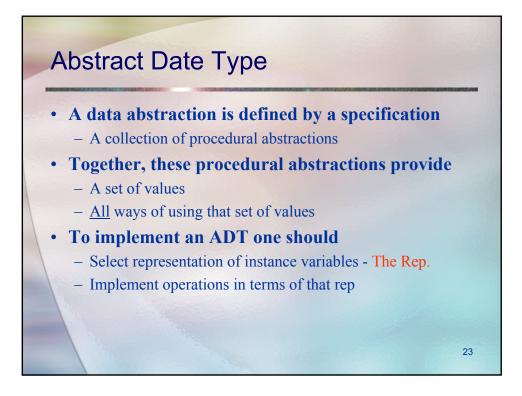


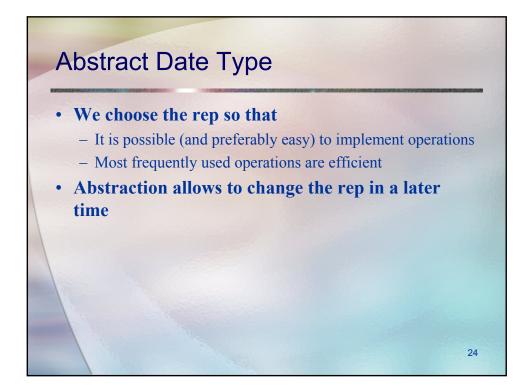


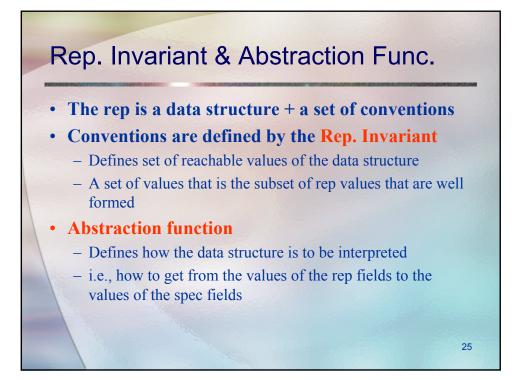


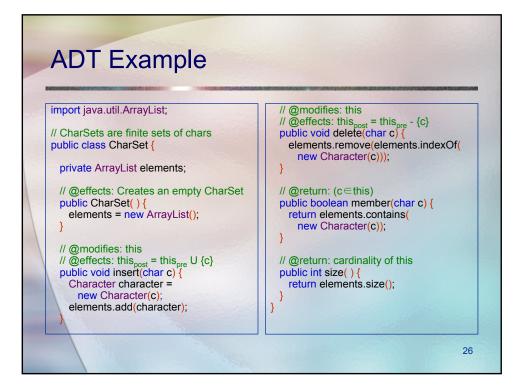


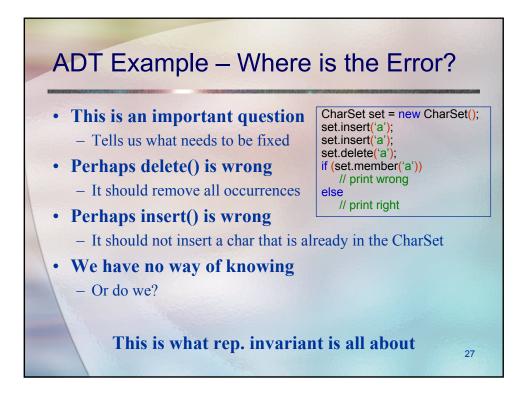


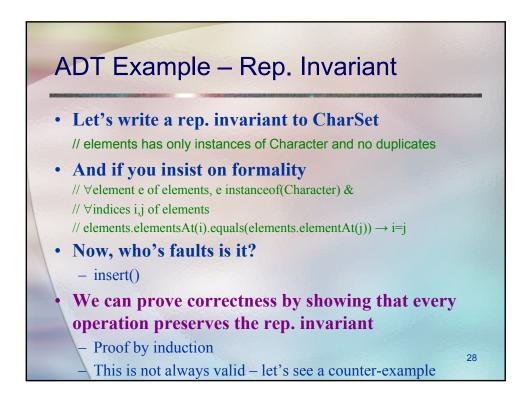


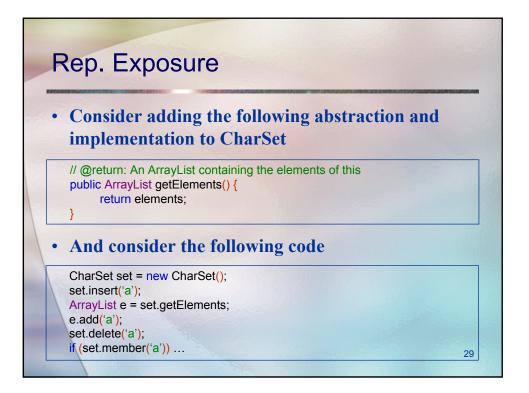






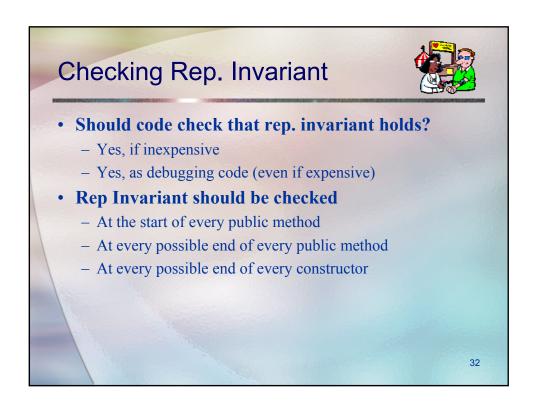


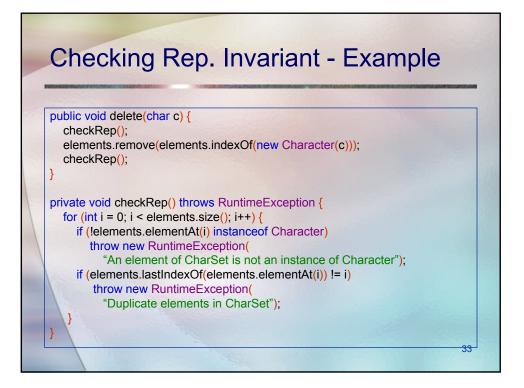


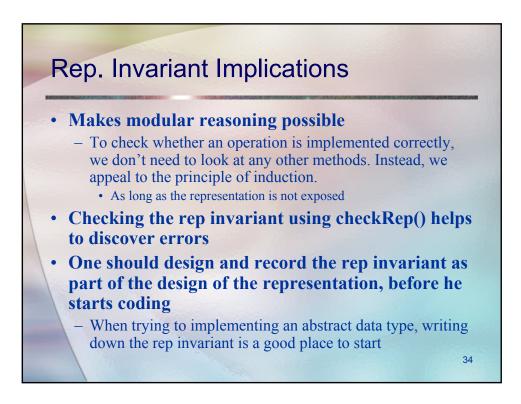




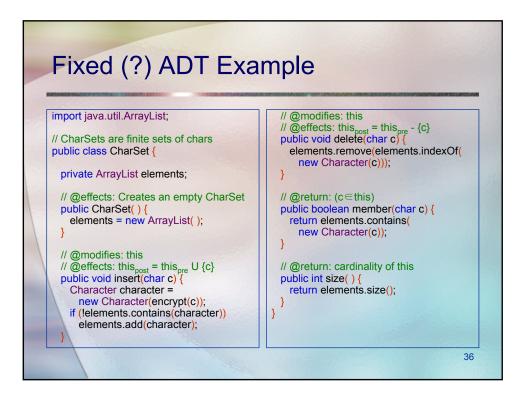


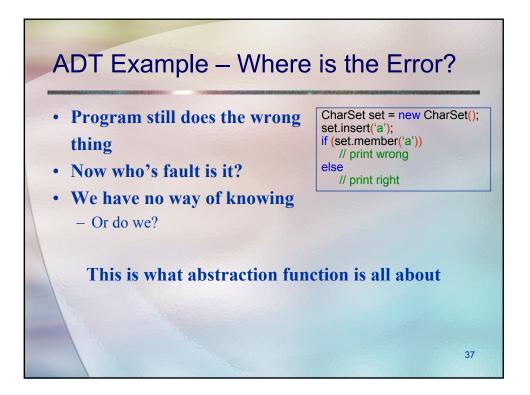


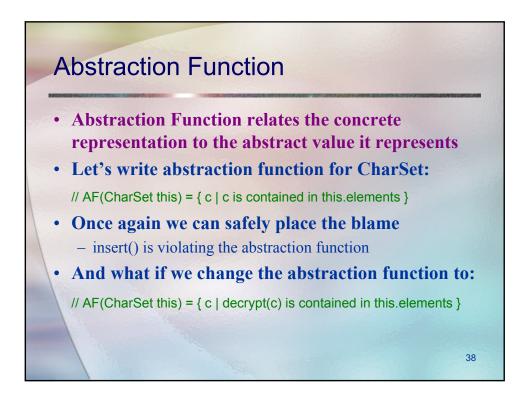


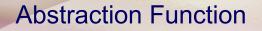










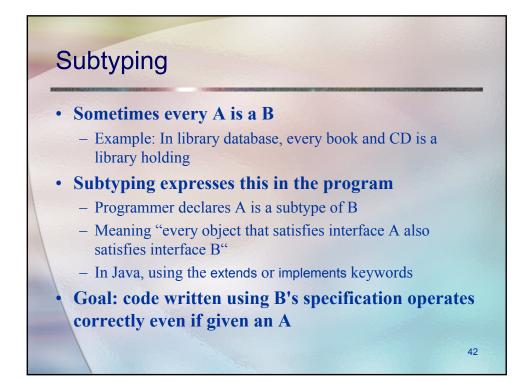


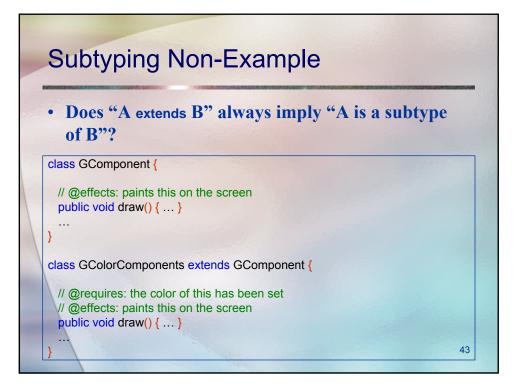
- Abstraction function needs to be defined properly on all representations that satisfy the rep invariant
- Valuable for debugging
- While writing rep invariant is usually easy, writing abstraction function is often a challenge
 - Problem lies in denoting the range of abstraction function
- The abstraction function and the specification go together, since they link the code to the abstract view of the type seen by the client
 - The rep invariant, in contrast, can be used without any reference to the specification

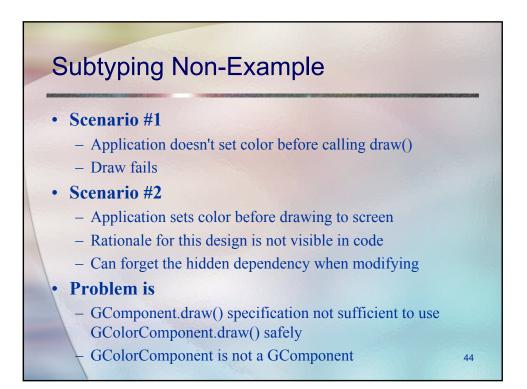
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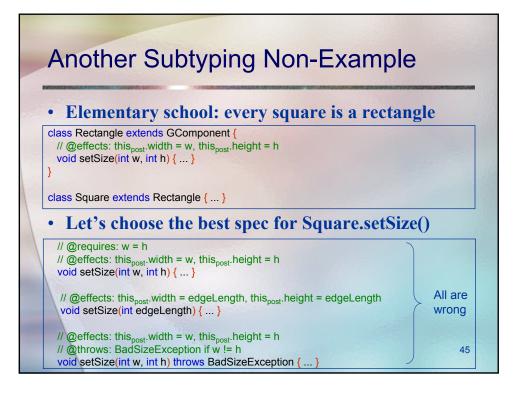


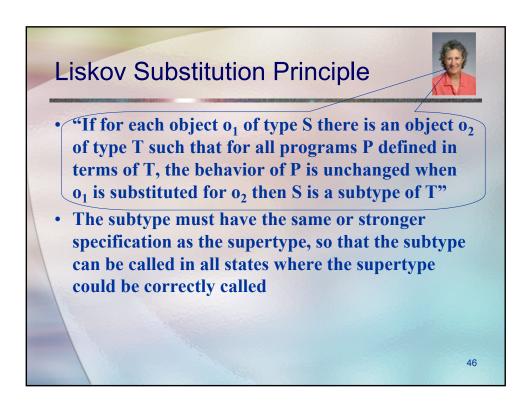


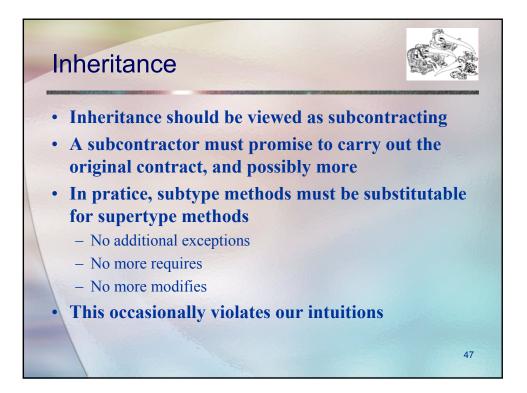


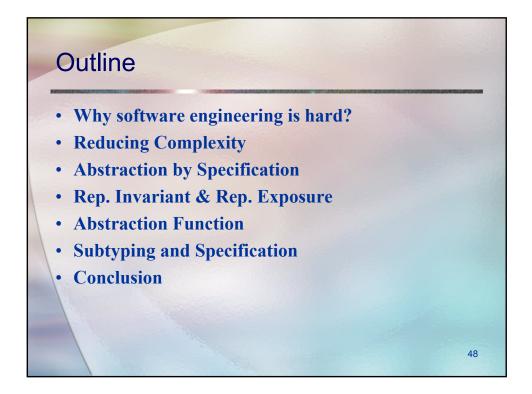














- Decomposition and abstraction are the key to reduce software complexity
- Specification gives abstraction precise definitions
- Rep invariant and abstraction function allow us to examine methods correctness independently

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• Liskov substitution principle - A subtype must promise to carry out the original supertype's contract, and possibly more

