CISC 1600/1610
Computer Science I

Programming in practice: testing and debugging

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JMH 328A

To err is human

- Syntax errors ("Compiler errors")
  - Violate grammar rules of the language
  - Discovered by the compiler
- Logic errors ("Run-time errors")
  - Incorrect algorithm to solve problem
  - Compiler does not see the error
  - Results in unexpected program behavior

Start programming assignments/projects early – leave ample time for "debugging"

The earliest computer bugs

- Programming with vacuum tubes
- If a bug crawls into a tube, the circuitry is altered and calculations cannot be performed correctly

The cycle of programming

Edit Program → Compile → Test → Compile error?
  → No error → Runtime error?
  → No error → DONE!