Guide Chapter 1
Variables, Input/Output, Arithmetic

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Program Design Strategies

- Goals when designing a program:
  - Separation of concerns
    - Each method should do one, and only one, thing
  - Design for reuse
    - Eliminate redundant code
    - Generalize by using parameters
  - Design only what is needed
    - A good programmer is lazy
      - Don't do any more than what is required
- Why these three goals?
  - Easier to test
  - Increases possibility of finding logic errors
  - Decreases possibility of vulnerabilities

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Program Design Strategies (cont'd)

- Things to think about as you design a program:
  - KIS (KISS)
    - Keep It Simple (Keep It Simple Stupid)
    - Helps with goals
      - Separation of Concerns, Design for Reuse, Design only what is Needed
  - Abstraction
    - Sometimes, you need to ignore details of a concept
      - Other times, you must pay attention to the details!
    - Generalize based on common characteristic(s)
      - e.g., ball vs. football, baseball, softball, tennis ball
    - Helps with goals
      - Separation of Concerns, Design for Reuse

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Program Design Strategies (cont'd)

- Things to think about as you design a program (cont'd):
  - Information hiding
    - Use method w/out knowing how it's implemented (coded)
      - e.g., we've used turtle graphics library without knowing how it works!
      - You will likely reuse a few methods in many of your solutions
        - Eventually, you'll ignore the details of these methods and simply focus on what it does
    - Helps with goals
      - Separation of Concerns, Design for Reuse

Separation of concerns
Design for reuse
Design only what is needed
Keep it simple
Abstraction
Information hiding

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