#### **EECS10** Discussion Week4

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### Formatted output

- Detailed formatting sequence for integral values
  % flags width length conversion
- Detailed formatting sequence for floating-point values
  % flags width precision length conversion
- Please check lecture 7 slide 5-7 for details.

## **Structured Programming**

- Sequential execution
- Selection
  - if
  - if else
  - switch
- Repetition
  - while
  - do while
  - for

Spaghetti Code



intellyx.com

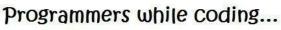
• And no usage of arbitrary jumps (goto)

## Programming == Thinking

- Programming ...
  - ... is not a mechanical procedure!
  - ... requires thinking!
- Program
  - ... writing requires an intelligent human being!
  - ... execution can be done by a dumb machine.
- General programming steps:
  - 1. Understand the problem
  - 2. Define the input and output data
  - 3. Develop the algorithm (and specify it in psudocode)
  - 4. Define the control flow
  - 5. Write the program in programming language
  - 6. Build, test and debug

# **Programming Tips**

- Use simple examples to help you coming up with a solution
- Use simple words to describe the steps of your solution
- Map the steps to the programming constructs
- Consider corner cases and refine your algorithm
- Think simple!
- Be curious!
- Ask yourself why?





## Assignment 5 Part 1

- Monte Carlo Calculation of Pi
  - Use rand() function to generate multiple random points
  - Use a fixed seed to generate same series of random numbers
- Let's now do some coding by writing a program to generate multiple double precision floating pointer numbers in the range [0,x]

## Assignment 5 Part 2

• Square Root Approximation

- Use long double for all variables to achieve the required precision

• Bonus part: Calculate nth root of any positive integer