Conclusion.

Summary: Part I

- Basic Programming Constructs
  - for/while
  - if/then/else switch/case
  - variables, literals, basic datatypes
  - basic I/O: printf/scanf
- Pointers, Array, Strings
  - pointer arithmetic
  - dynamic memory allocation malloc/free

Summary: Part II

- Recursion
- Abstract Data Types
  - Structs, Struct Array, Struct Pointer, Struct of Struct
  - Recursive structs using pointers
    (Linked Lists, Social Net)
- File I/O : fgets/fputs fscanf/fprintf fread/fwrite
- Misc
  - Macros
  - Commandline Arguments
  - Multifile Programs
  - C std Libraries

Programs Covered

- Store Reciept Management System
- Social Network
- Bank Account Management
- Linked Lists

C Features not covered

- Unions and Bitfields
- Macros with arguments
- Function Pointers

Languages/Tools to explore

- Make files
- Git Version Control
- TMux: Terminal Multiplexer
- C++ Programming
  - Object Oriented Programming
  - Generic Programing (STL)
- Other Languages
  - Python
  - Golang
  - Haskel
  - Swift/Kotlin/C#/Java/Dart

Upcoming Courses

- Datastructures and Algorithms
- Algorithm Design
- Computer Systems Organization
- OS and Compilers
-

Recursion and Fractals

https://fiddle.skia.org/c/7b96d0cb407d99a0e81ed220ba47409c

Homework

HW: Draw above using https://fiddle.skia.org. See examples of drawing API here 1 2 3.

Recursion in Nature

https://en.wikipedia.org/wiki/Romanesco_broccoli

Fractals

https://en.wikipedia.org/wiki/Fractal
https://en.wikipedia.org/wiki/Mandelbrot_set
https://en.wikipedia.org/wiki/Julia_set

Some Books

- Godel, Escher & Bach, David Hofstradter.
- Emperors New Mind, Roger Penrose.

Simulations

Black Hole Simulation

Margaret Hamilton

Appolo Missions (1960) Softare Architect

https://solarsystem.nasa.gov/people/320/margaret-hamilton/

Thanks and Goodluck!