

# Comp. Prog.

## lec 36

# Header file Issues

# Generic Linked List using `void` Pointer

# 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 (time.h, string.h)

# Programs Covered

- Enumerating Permutations using Recursion
- Mergesort using Recursion
- Drawing tree using Recursion
- Store Reciept Management System
- Social Network: 6 degrees of seperation
- Bank Account Management
- Generic Linked Lists

# C Features not covered

- Unions and Bitfields
- Function Pointer
- Macros with arguments

# Languages/Tools to explore

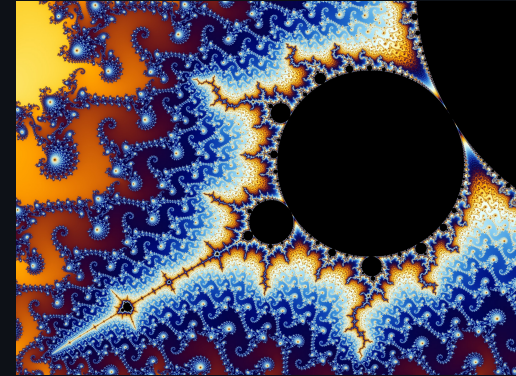
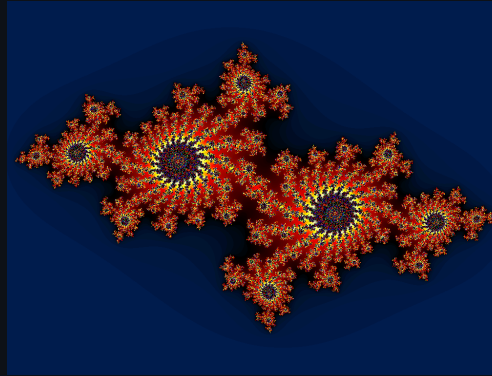
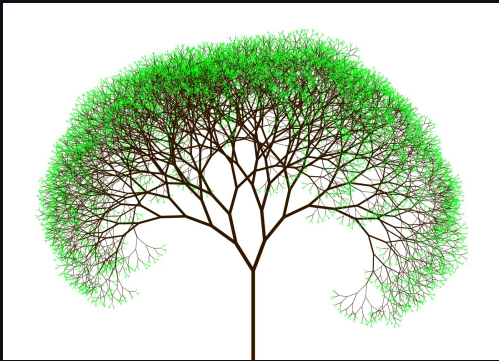
- Make files
- Git Version Control
- C++ Programming
  - Object Oriented Programming
  - Generic Programming (STL)
- Other Languages
  - Python/Javascript
  - Golang
  - Haskell
  - Swift/Kotlin/C#



# Upcoming Courses

- Datastructures and Algorithms
- Algorithm Design
- Computer Systems Organization
- OS and Compilers
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# Recursion and Fractals



## Some Books

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

# Build a game using allegro

- [https://github.com/liballeg/allegro\\_wiki/wiki/Allegro-Vivace](https://github.com/liballeg/allegro_wiki/wiki/Allegro-Vivace)

# Margaret Hamilton

Appolo Missions (1960) Software Architect



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

**Thanks and Goodluck!**

