Topics: Arrays, Pointers, Functions

Approach: Introduce Pointers, Explore their use

Main Ideas:

Quick Review - Forms, Connector, Scripts, Tools in C
Focus tonight on memory usage in C

Recall Memory
A sequence of boxes, each numbered
All data and code live in memory
Today we learn to program with the addresses of memory

Why?
Pass by reference: useful!
Linked data structures: Really useful
dynamic memory: super useful
other reasons: no so important

Types of storage:

single values: char, int, float
array: contiguous sequence of one type
struct: varied types in one container

Single values:
Where are the values stored?
ex1pa.c -- print the addresses
ex1sa.c -- store the addresses
What can we do with pointers?
ex1dp.c -- dereference pointers
ex1cp.c -- compare pointers
ex1pf.c -- pass pointers to functions
Question: Do pointers have addresses?

Arrays:
ex2.c -- take address, deref, compare
What can we do with pointers to arrays?
ex2ia.c -- index into array using [] notation
ex2ao.c -- arithmetic (++,--,+,--)
ex2ae.c -- more exercises -- trace these

Structs:
ex3.c -- pointers and structs
What can we do?
Take addresses, compare, assign, select members
pass to functions by reference

Arrays of Pointers
ex4.c -- what does this code do?
Draw a picture.