Pointer Arithmetic

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These slides introduce pointer arithmetic in C

Pointer Arithmetic

- Pointer Arithmetic
  - Pointers have a type
  - The type can be used to allow pointer arithmetic
    - Addition and subtraction of pointers is done in increments of the “type” size.
      - E.g. ints → 4Bytes, chars → 1Byte
      - The allowed operations on pointers are: +, -, ++, --

No bounds checking is done when using pointer arithmetic

Pointer Arithmetic

- Examples
  - Assuming 4 byte int

```
int loo;
int boo;                // create and initialize boo with value 25
boo = 25;               // assume boo is located at 0x1000

int * foo;              // create two pointers
int * soo;
foo = &boo;             // initialize foo to 0x1000

soo = foo + 2;          // pointer addition
                        // soo now has the value 0x1008

foo++;                  // pointer increment
                        // foo now has the value 0x1004

loo = *(soo – 2);       // pointer subtraction and dereference
                        // loo now equals 25
```

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- Pointer Arithmetic

No bounds checking is done when using pointer arithmetic