

# C - POINTERS

# BASIC IDEA

Q. What is a pointer? A. A different variable type that stores a memory address

- Associated with a specific variable type, aka
  - int pointer stores the memory address of an int
  - float pointer stores the memory address of a float
  - char pointer stores the memory address of a char

# RELEVANT OPERATORS

- & -> "dereference operator"
  - aka "address of" operator
  - using it is called "dereferencing"
  - used to get the memory address of a variable
- \* -> "value of" operator
  - used to get the actual value stored at the memory address pointed to

# DECLARING POINTERS

```
int *iptr;  
char *cptr;  
float *fptr;
```

- Notice the \* in front of the variable name (this is what makes a pointer)
- They don't have to have "ptr" in the name

# ASSIGNING VALUES

- How do I change what value is stored at the memory address pointed to by a pointer?

```
int *iptr;  
int *jptr;  
int a, b;  
  
a = 5;  
b = 6;  
*jptr = b;  
*iptr = 5;
```

# PRINTING POINTERS

- `printf` command
- printing memory address:
  - need to use a different formatter: `%p`
- printing value stored:
  - use appropriate formatter for datatype

## BE CAREFUL

- C will let you do a lot of things
- You can easily do something other than what you intended...
- Pay attention to warnings - they can help