

# Software Engineering 265

## Week 03

# Announcements

- Attendance ([attend\\_and\\_reference.html](#))
- The assignment due date is postponed to Saturday September 27 at midnight

# This Week

- Programming in C!
- C shell quick exercise
- C Pointers
- Arrays and Arrays of char.
- Touch on sizeof() and malloc

# C: Introduction

- **Make a folder in your work space.**
- **Write and compile a C shell program:**

```
#include <stdio.h> // Add the std i/o library for reference
```

```
// says it will return an integer – the ‘int’ in front of ‘main’
```

```
int main() {
```

```
/*
```

```
Multi-line comment
```

```
*/
```

```
int a = 1;
```

```
printf("This is a number: %2d\n", a);
```

```
return(0); // note how it returns an integer!
```

```
}
```

# C: Compiling Options

- To compile your source code you need to use **gcc** **<progrname.c>**
- **On Unix gcc** produces an output file called **a.out** (This is the binary)
- Use the flag **-o <filename>** to specify an output name other than a.out:  
Ex: **gcc hello.c -o hello**
- **Turn on warnings:**  
**gcc -Wall <progrname.c>**

# C: Hello World!

- Now you need to run your code!
- To run your code, you need to call the binary you created

You do this by using the `./` command

**`./hello`**  
**or `./a.out`**

# C: Extra Notes

- Strings in C are arrays of characters
- Arrays are just indexed groups of things:

Index:    0        1        2        3        4        5  
Data: 

H	e	l	l	o	\0
---	---	---	---	---	----

- If you do not specify a size of the string like **char c[6];**  
you will not get the end of string character **\0**.

# More examples

- **Copy the c programs from this weeks folder into your work space.**
- **We will open, examine and modify each of the programs.**

We will proceed through the programs listed completing them as instructed.

1. malloc1.c
2. fileio.c and indata.txt
3. chararray.c
4. bsort.c

Finally visit:

<<http://www.cs.cf.ac.uk/Dave/C/node19.html>>

for string library prototypes and examples.