

Advanced C

CS 300

Sept 9, 2011

# C code tool chain

- Pre-processor (gcc -E)
- Compiler (gcc -c)
- Linker (ld, but invoked via gcc for us)
- Loader (ld-linux.so)

# Define

- Pointer
- Memory Address
- Value

# Files to review

- `pointerToStaticData.c`
- `pointers.c`
- `charArraysAndStrings.c`
- `pointersWorksheet.c`
- `defineVsConst.c`
  
- `Makefile`

# Pointers to static data

```
#include <stdio.h>
```

```
int main ()  
{
```

```
    int value;
```

```
    int *pValue = &value;
```

```
    value = 8;
```

```
    printf ("%d %d\n", value, *pValue);
```

```
    return 0;
```

```
}
```

# Pointers & functions

```
void printIt (int *pInt)
{
    int input;
    scanf ("%d", &input);
    *pInt = input * 2;
}
```

```
int value;
printIt( &value );
```

# Pointers & functions

```
void printIt (int *pInt, int size)
              // int pInt[]
{
    int i;
    for (i = 0; i < size; i++)
    {
        printf("%d %d %d \n",
              (unsigned int) (pInt + i),
              pInt[i], *(pInt + i) );
    }
}
```

Output if the base of the array is location 1000 and size is 4?

# C Topics

```
void foo(int arr[], int len, char *str)
{
    int index = 0;
    for( ; index < len ; index ++ )
    {
        printf("%d\t", arr[index]);
    }
    printf("%s\n", str);
}

// the function call
foo(array, ARRAY_SIZE, "the message");
```