**Arrays of Pointers**

The following code declares an array of pointers to char:

```c
char *arr[7];
```

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Each element can contain a pointer to char. Often used for strings.

**Arrays of Pointers**

The following would define element 3 to point to a string:

```c
arr[3] = "Hello world";
```

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The letter 'r' in the string could be addressed with:

```c
*(arr[3] + 8) or arr[3][8]
```
char *month_name(int n) // return name of nth month
{
    static char *name[] =
    {
        "illegal month",
        "January",
        "February",
        "March",
        "April",
        "May",
        "June",
        "July",
        "August",
        "September",
        "October",
        "November",
        "December"
    };
    return(n < 1 || n > 12) ? name[0] : name[n]);
} // END month_name

Ragged Array

0 ——— illegal month /0
1 ——— January /0
2 ——— February /0
3 ——— March /0
4 ——— April /0
5 ——— May /0
6 ——— June /0
7 ——— July /0
8 ——— August /0
9 ——— September /0
10 ——— October /0
11 ——— November /0
12 ——— December /0
Are These Two Declarations Different?

```c
char a[2][16] =
{"abc: ", "a is for apple"};

char *p[2] =
{"abc: ", "a is for apple"};
```

Command Line Arguments

```c
int main(int argc, char *argv[])
```

- **argc** - the number of arguments on the command line (incl the command name itself)
- **argv** - pointer to array of pointers to char – an "array of strings" containing the command line arguments
- **argv[0]** - the command name itself
Command Line Interface

Typing the following command will produce the values shown:

```
./a.out Hello world
```

```
int main(int argc, char *argv[]) {
    int i;

    cout << "This program was called with " << argc << " arguments\n";
    for(i = 0; i < argc; i++)
        cout << argv[i] << "\n";
} // END main
```
```c
#include <stdio.h>

void printn(int val, int base) {
    int remainder, leftover;
    char digit;

    if(val < 0) {
        val = -val;
        putchar('-');
    }

    leftover = val / base;
    remainder = val % base;

    if(leftover > 0)
        printn(leftover, base);

    digit = "0123456789ABCDEF"[remainder];
    putchar(digit);
}
/* END printn */
```