Arrays of Pointers

The following code declares an array of pointers to char:

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

- 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";
```

- The letter 'r' in the string could be addressed with `*(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
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
```

<table>
<thead>
<tr>
<th>argc</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>argv</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
</tbody>
</table>

```c
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