



CS 31: Introduction To Computer Science I

Howard A. Stahl

A Few Odds And Ends...

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Student s( "Sam Smith", 104604956 );  
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ptrS = &s;  
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Student array[ 5 ];
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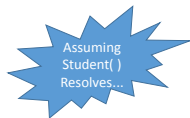


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Equivalencies

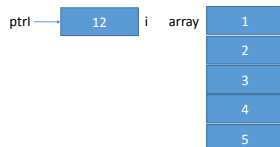
• Arrays Are Pointer Variables

```
int array[5]={1,2,3,4,5};
int i = 12;
int * ptrI = &i;
```

Equivalencies

• Arrays Are Pointer Variables

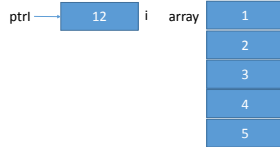
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But There Is
An Important
Difference....

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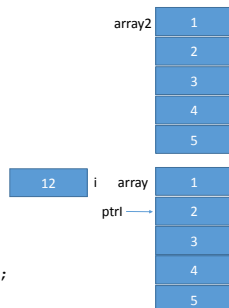
• Pointers Can Move But Arrays Can't...

```
ptrI = &array[1];
int array2[5]={7,8,9,10,11};
array = array2;
```

Equivalencies

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int i = 12;
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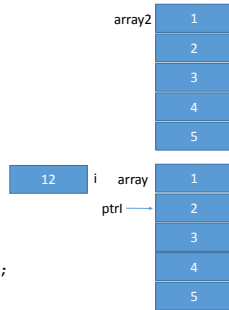
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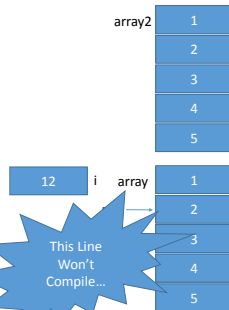
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Equivalencies

- Arrays Are Pointer Variables
- Pointers Can Move But Arrays Can't Move Because They Are Fixed Pointers
- The Arrow Cannot Move (Be Changed)
- The Box It Points To Change Be Changed However...
- `int array[5]` Is Implemented As `A: int * const array`

The Issue Of const

- `const` Always Means "Fixed"
- The Question Is "What Are We Fixing In..."

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Example #1:

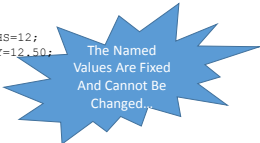
```
const int NUM_MONTHS=12;  
const double SALARY=12.50;
```

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- `const` Always Means "Fixed"
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Example #1:

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The Named
Values Are Fixed
And Cannot Be
Changed.

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The Named
Values Are Fixed
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`const` Applies To
The Datatype `int`
Or `double`...

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Example #1:

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const int NUM_MONTHS=12;  
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Example #2:

```
void foo( const int & i);
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The Parameter i's
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const Applies To
The Datatype
int &...

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Example #3:

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class Foo {
public:
    int getFoo() const;
private:
    int mFoo;
};
```

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- const Always Means "Fixed"
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Example #1:

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const int NUM_MONTHS=12;
const double SALARY=12.50;

int getFoo() const {
    return SALARY;
}
```

getFoo Is Read-
Only And Cannot
Change Any Member
Variable Values...

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void foo( const int & i);
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```
const int NUM_MONTHS = 12;
const double pi = 3.14159;

// getFoo is Read-Only And Cannot
// Change Any Member Variable Values...
```

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```
void Foo(const int &i) {
    // ...
}

// const Applies To The Method
// getFoo( ) ...
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- When Working With Pointers, What Can We Mark `const`?


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int i = 12;
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- We Could Mark The Arrow `const`
 - In Which Case `ptrI` Cannot Be Pointed Anywhere Else...
 - In Which Case `int j = 13; ptrI = &j;` Would Be Illegal

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const Applies To
The Datatype
int ...

Question 5 Hint

```
char msg[100] = "UC Los Angeles";
deleteCapitals(msg);
cout << msg << endl;
```

- Should Print: " os ngeles"

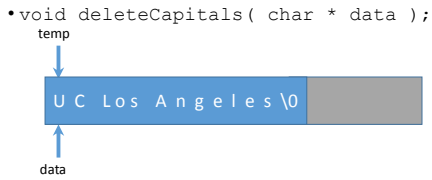
Question 5 Hint

- void deleteCapitals(char * data);

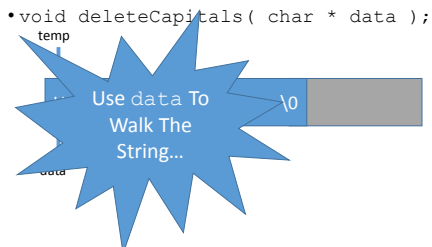
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↑
data

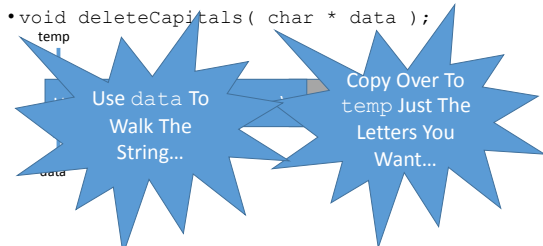
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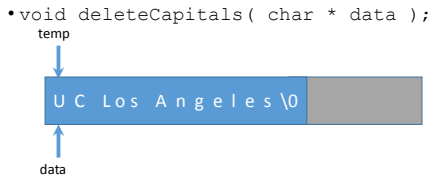
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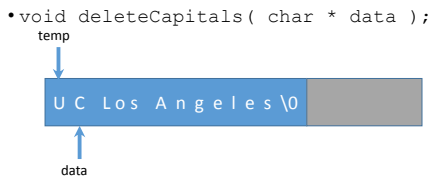
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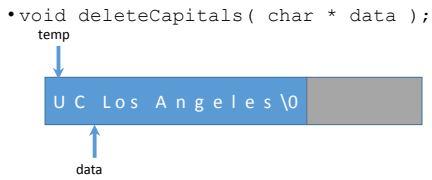
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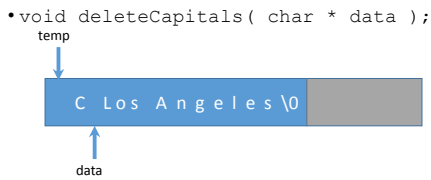
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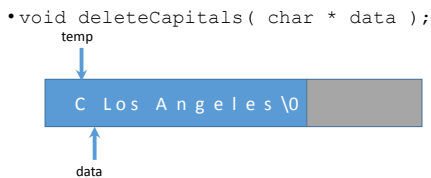
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- One Very Important Final Point!
- Be Sure To Copy Over The Ending NULL Character To Be Sure The Data You Produce Is A Valid C-String
