



# Test Your Tech

A spreadsheet:

- A. Only happens on laundry day.
- B. Is covered with food during holiday meals.
- C. Helps answer "what-if" questions.



## Test Your Tech

A spreadsheet:

- A. Only happens on laundry day.
- B. Is covered with food during holiday meals.
- C. Helps answer "what-if" questions.



# Announcements

- Quiz 7
  - \* Fluency chapters 13 (first half only), 14, and 15, and chapters 2 and 3 in QuickStart
    - Chapter 15 is new in the 3<sup>rd</sup> ed. of *Fluency*



# JavaScript

Going deeper into Project 2B



# Functions

- Declaration syntax

```
function Name(parameter)
{
    //statement body
    x = x * parameter; //example
}
```

- Call syntax

```
onclick="Name(argument)"
```



# Passing Values to Functions

- Declaration syntax

```
function Name(parameter)
{
    //statement body
    x = x * parameter; //example
}
```

- Call syntax

```
onclick="Name(argument)"
```



# Passing Values to Functions

- Declaration syntax

```
function Name(parameter)
{
    //statement body
    x = x * parameter; //example
}
```

- Call syntax

```
onclick="Name(argument)"
```





# Passing Values to Functions

- Declaration syntax

```
function Name(parameter)  
{  
    //statement body  
    x = x * parameter; //example  
}
```

- Call syntax

```
onclick="Name(argument)"
```







# Passing Values to Functions

- Declaration syntax

```
function Name(parameter)  
{  
    //statement body  
    x = x * parameter; //example  
}
```

- Call syntax

```
onclick="Name(argument)"
```



# Passing Values to Functions

- Declaration syntax

```
function Name(parameter)  
{  
    //statement body  
    x = x * parameter; //example  
}
```

- Call syntax

```
onclick="Name(argument)"
```



## Example

- Capitalize function

- \* Strategy:

1. Change whole string to lower case
2. Grab the 1<sup>st</sup> letter of the word
  1. Save it
  2. Make it upper case
3. Grab the rest of the word and save it
4. Add the 1<sup>st</sup> letter and the rest of the word back together and save that



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();

}
```

User  
entered:

A N N

A n n

a n n



# Example

```
function capitalize(word)
{
    var word = word.toLowerCase();

}
```

User  
entered:

A N N

A n n

a n n

Change to:

a n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:

a n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:

a n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:

0 1 2

a n n





## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:



0 1 2

a n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:



0 1 2

a n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);

}
```

word:

0 1 2

a n n

firstLetter:

a



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();

}
```

word:

0 1 2

a n n

firstLetter:

a



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();

}
```

word:

0 1 2

a n n

firstLetter:

A



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();
    var wordLength = word.length - 1;

}
```

**word:**

**0 1 2**

a n n

**firstLetter:**

A



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();
    var wordLength = word.length - 1;

}
```

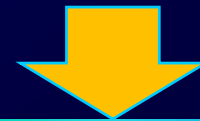
word:

0 1 2

a n n

firstLetter:

A



**Word** is treated as an array with 3 elements

- length = 3
- last index = 2,  
or **length - 1**



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();
    var wordLength = word.length - 1;
    var restOfWord =
        word.substr(1, wordLength);

}
```

**word:**

**0 1 2**

a n n

**firstLetter:**

A





## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
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    var wordLength = word.length - 1;
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        word.substr(1, wordLength);

}
```

word:



0 1 2

a n n

firstLetter:

A



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
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        word.substr(1, wordLength);

}
```

word:

0 1 2

a n n

firstLetter:

A



## Example

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    var word = word.toLowerCase();
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        word.substr(1, wordLength);

}
```

word:

0 1 2

a n n

firstLetter:

A

restOfWord:

n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();
    var wordLength = word.length - 1;
    var restOfWord =
        word.substr(1, wordLength);
    var cappedWord =
        firstLetter + restOfWord;
}
```

**word:**

**0 1 2**

a n n

**firstLetter:**

A

**restOfWord:**

n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
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        word.substr(1, wordLength);
    var cappedWord =
        firstLetter + restOfWord;
}
```

**word:**

a n n

**firstLetter:**

A

**restOfWord:**

n n

**cappedWord:**

A n n



## Example

```
function capitalize(word)
{
    var word = word.toLowerCase();
    var firstLetter = word.charAt(0);
    firstLetter = firstLetter.toUpperCase();
    var wordLength = word.length - 1;
    var restOfWord = word.substr(1, wordLength);
    var cappedWord = firstLetter + restOfWord;
    return cappedWord;
}
```



## Example

- That's all well and good
  - \* But how and where do you call it?



## Example

- Call the function where you need to run it:
  - \* Event handlers
    - In the input field or button or image tag:  
`onclick="tellStory()";`





## Example

### Capitalize function

- Before:

```
story += '<p>Once upon a time, there lived a  
<span class="replace">' + person + '</span>  
named ' + Name + '</p>';
```



## Example

### Calling the function

- Before:

```
story += <p>Once upon a time, there lived a  
  <span class="replace">' + person + '</span>  
  named ' + Name + '</p>;
```

- After:

```
story += <p>Once upon a time, there lived a  
  <span class="replace">' + person + '</span>  
  named ' + capitalize(Name) + '</p>;
```



## Example

### Calling the function

- Before:

```
story += <p>Once upon a time, there lived a  
  <span class="replace">' + person + '</span>  
  named ' + Name + '</p>;
```

- After:

```
story += <p>Once upon a time, there lived a  
  <span class="replace">' + person + '</span>  
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```



# Declaring Multiple Functions

```
<script type="JavaScript">  
    function tellStory() {  
        //statements  
    }  
</script>
```



# Declaring Multiple Functions

```
<script type="JavaScript" >  
    function tellStory()    {  
        //statements  
    }  
    function capitalize(word) {  
        //statements  
    }  
</script>
```



# Declaring Multiple Functions

```
<script type="JavaScript" >  
    function tellStory()    {  
        //statements  
    }  
    function capitalize(word) {  
        //statements  
    }  
    function isVowel(word)  {  
        //statements  
    }  
</script>
```



# Declaring Multiple Functions

```
<script type="JavaScript">  
    var variables; //declare any gobal variables  
    //also bring user data over from form  
    function tellStory()    {  
        //statements  
    }  
    function capitalize(word) {  
        //statements  
    }  
    function isVowel(word)  {  
        //statements  
    }  
</script>
```



## isVowel function

```
function isVowel(word) {  
    // basic strategy: make character lower case,  
    // then see if it's in a string that contains all  
    // of the vowels  
    var vowels = "aeiou";  
    var c = word.charAt(0);  
    if (vowels.indexOf(c.toLowerCase()) == -1 ) {  
        // indexOf returns -1 if char. not found in string  
        return "a";  
    } else {  
        return "an";  
    }  
}
```





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}
```

word:

0 1 2

P E a r



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        return "a";  
    } else {  
        return "an";  
    }  
}
```

word:

0	1	2	3
P	E	a	r

C:

P



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word:

0 1 2

P E a r

C:

P



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word:

0 1 2

P E a r

c:

p



# isVowel function

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    var c = word.charAt(0);  
    if (vowels.indexOf(c.toLowerCase()) == -1 ) {  
        // indexOf returns -1 if char is not found in string  
        return "a" + ' ' + word;  
    } else {  
        return "an" + ' ' + word;  
    }  
}
```

word:

0 1 2

P E a r

c:

p



- `story = story +`
- `story += isVowel(fruit);`