



Test Your Tech

A spread sheet:

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

1



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A spread sheet:

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

2



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 3rd 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)"
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Passing Values to Functions

- Declaration syntax


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function Name(parameter)
{
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  x = x * parameter; //example
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- Call syntax


```
onclick="Name(argument)"
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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 1st 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 1st 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



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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();
    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

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{
    var word = word.toLowerCase();
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}
}
```

word:
 0 1 2
 a n n

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    var restOfWord =
        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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    var wordLength = word.length - 1;
    var restOfWord =
        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
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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 global 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";
  }
}
```




isVowel function

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```

word:
 0 1 2
 P E a r




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  }
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```

word:
 0 1 2 3
 P E a r

 c:
 P




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  }
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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




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  var vowels = "aeiou";
  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



isVowel function

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