# JavaScript: Variables

## The Complete Web Developer in 2018

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Zero to Mastery
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## Javascript Variables

var
let
const

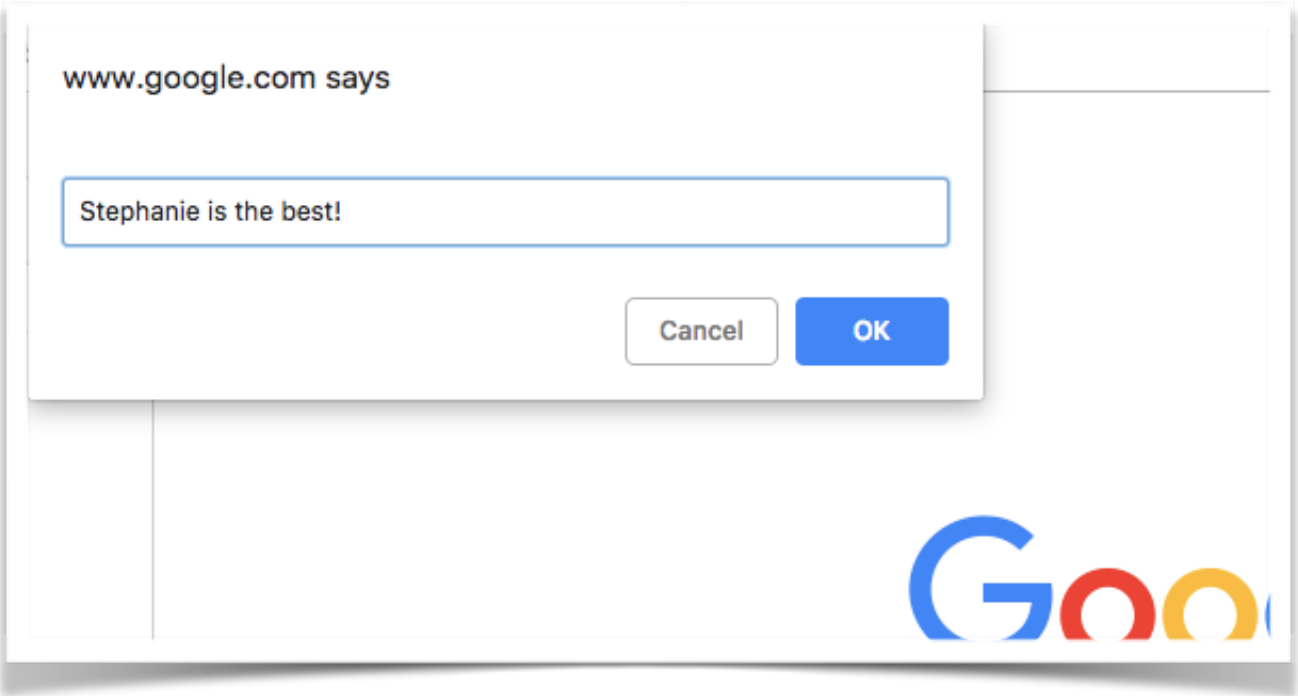
```
> var george = "Pretzels make me thirsty" + " mofo!"
<- undefined
> george
<- "Pretzels make me thirsty mofo!"
```

Variables must start with letter, $, _ (not number or symbol)

firstName <<< camel case

## User Input

```
> prompt()
```



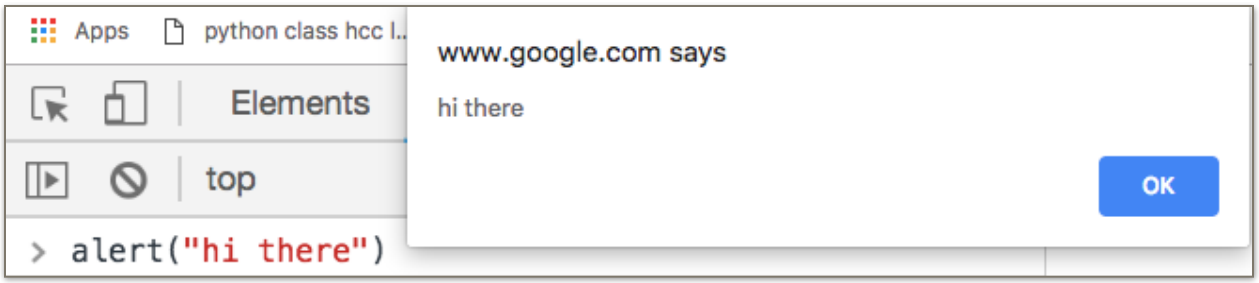

```
> prompt()
<- "Stephanie is the best!"
```

Use var and prompt( ) together to store user input
prompt( ) saves input as string by default
Shift + Enter to add line of code
Number( ) converts string to number

```
> Number()
```

```
> var first = prompt("enter first number");
  var second = prompt("enter second number");
<· undefined
> first
<· "80"
> second
<· "99"
> Number(first)
<· 80
> var sum = Number(first) + Number(second);
<· undefined
> sum
<· 179
```

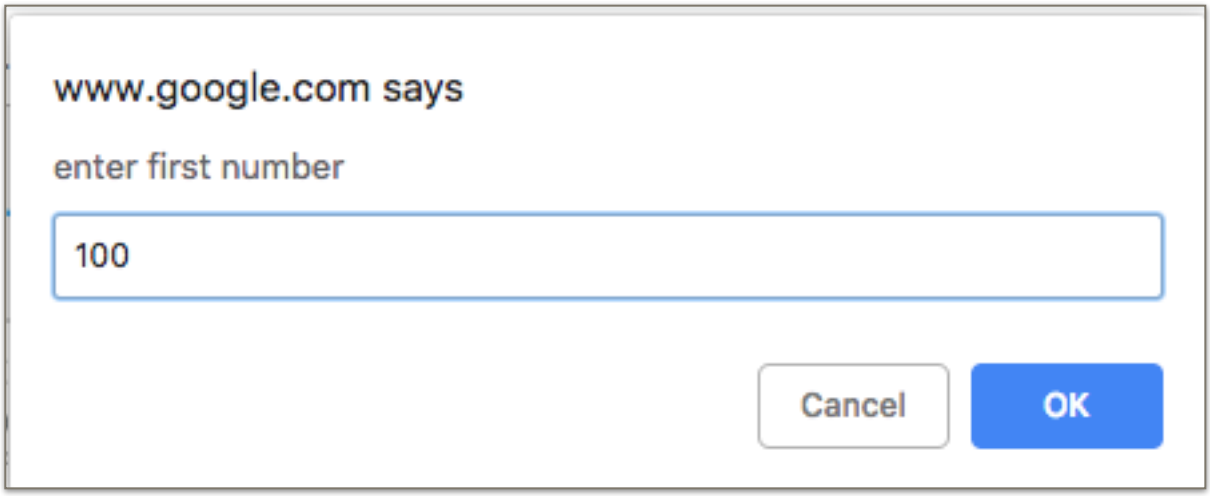
```
> alert()
```

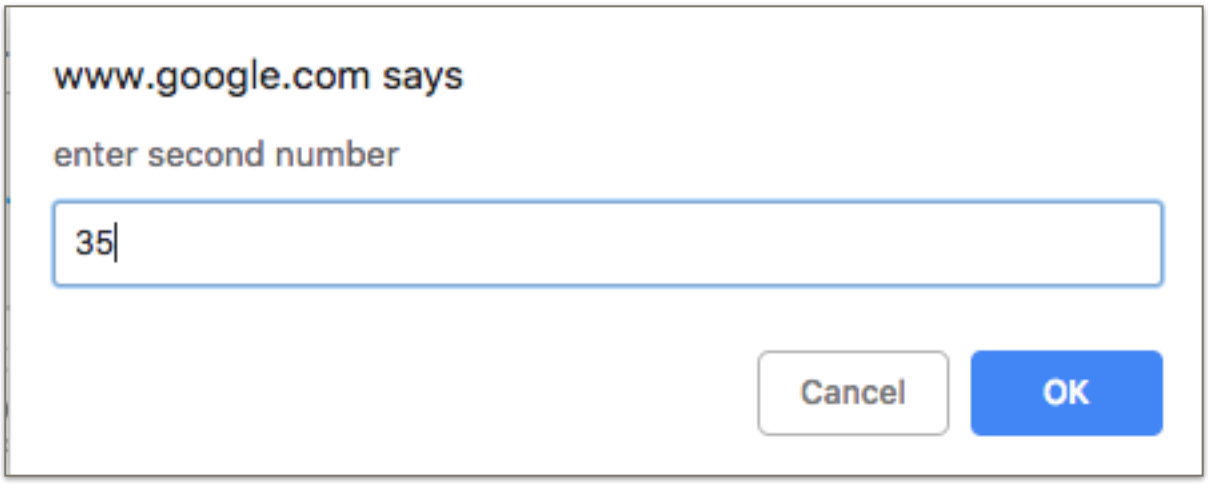



>>> alert( ) is an expression (returns value)
so we need to use semicolon

Make a simple calculator….

```
> var first = prompt("enter first number");
  var second = prompt("enter second number");
  var sum = Number(first) + Number(second);
  alert("The sum is: " + sum);
```




Variables can hold anything:
booleans, strings, numbers, undefined…

```
> var booleanVar = true
<· undefined
> booleanVar
<· true
```

undefined used when nothing is assigned to a variable
(undefined is the 4th javascript type)

```
> var newVar;
<· undefined
> newVar
<· undefined
```

Before you use a **variable** in a **JavaScript** program, you must **declare** it. **Variables** are **declared** with the **var** keyword as follows. Storing a value in a **variable** is called **variable** initialization. You can do **variable** initialization at the time of **variable** creation or at a later point in time when you need that **variable**.


## Declare variable

```
> var newVariable
<· undefined
```

## Initialize variable - store value in variable

```
> newVariable = 777
<· 777
```

## Declare + Initialize in one step

```
> var newVariable2 = 444
<· undefined
> newVariable2
<· 444
```

Error because variable firstName not declared yet
- Would NOT get error if var was declared but not initialized, even though value would be “undefined”)

```
> if (firstName === "Bob" && lastName === "Smith") {
      alert("Hi Bob Smith");
  }
```

```
▼Uncaught ReferenceError: firstName is not defined        VM4133:1
    at <anonymous>:1:1
 (anonymous) @ VM4133:1
```

Exercise 2
// Evaluate what answers you would get if you ran this in the
// Javascript Console in Google Chrome. Answer the questions then
// check them by copying them and running it in the console yourself
// line by line

// add variable "firstName" and "lastName" // so that they equal your name

// create a variable that holds the answer // of "firstName" + " " + “lastName"

```
> var firstName = prompt("enter first name");
  var lastName = prompt('enter last name');
  var fullName = firstName + " " + lastName;
  fullName;
<· "doug bays"
```

// Evaluate this question. What is a + b?
var a = 34;
var b = 21;
a = 2;
a + b // what is the answer here?

// What is c equal to?
var c;

```
> var a = 34;
  var b = 21;
  a = 2;
  a+b
<· 23
> var c
<· undefined
```

Exercise 3
// Make a Calculator! using prompt(), and variables, make a program that does the following:
// 1. Prompts the user for first number.
// 2. Stores that first number
// 3. Prompts the user for the second number.
// 4. stores that number and responds with the SUM by using an alert.

// BONUS: Make a program that can subtract, multiply, and also divide!

```
> var firstNumber = prompt("Enter first number");
  var secondNumber = prompt("Enter second number");
  alert(
  "First number: " + firstNumber +
  "\nSecond number: " + secondNumber +
  "\nThe sum is: " +
  (Number(firstNumber) + Number(secondNumber)) +
  "\nThe difference is: " +
  (Number(firstNumber) - Number(secondNumber)) +
  "\nMultiply them: " +
  (Number(firstNumber) * Number(secondNumber)) +
  "\nDivide them: " +
  (Number(firstNumber) / Number(secondNumber)));
```

# Advanced JavaScript Variables

## *let + const* *(ES5/ES6 only)*

"**const**" for variables that will not change (constants)
"**let**" for variables that change (variables)

"const" is good for teamwork, preventing accidental reuse/ reassignment of a variable

When using "const" for objects, we CAN change the properties of the object, you just can't reassign the entire object variable…

```
> const obj = {
      player: "bobby",
      experience: 100,
      wizardLevel: false
  }
```

```
> obj
◂ ▸{player: "bobby", experience: 100, wizardLevel: false}
```

Cannot reassign…

```
> obj = {
      game: "monopoly"
  }
```

```
✖ ▸Uncaught TypeError: Assignment to constant variable.        VM229:1
      at <anonymous>:1:5
```

But we **CAN** change the properties for const object…

```
> obj.player = "stephanie";
  obj.experience = 80;
  obj.wizardLevel = true; // allowed to change properties of objects
```

```
> obj
◂ ▸{player: "stephanie", experience: 80, wizardLevel: true}
```