

Systems and Web Development Workshop 2025 Spring

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Test 1



- Test 1 will be held next week during lab.
- People who cannot take Test 1 as scheduled for your section must have valid reasons.
 - Need to get permission form from CST office (T3-602)
- The test
 - Covers everything up to and including material covered this week
 - Is a written test 1:50 long; bring a pen or two; we will provide scratch papers
 - Is closed book; no books, notes or electronic devices allowed
 - Questions will be multiple choice, short answers and writing code fragments
 - Venue will be announce in iSpace and WeCom

JavaScript Variables, et al ("and others" in Latin)



- Variables and Arithmetic
 - https://www.w3schools.com/js/js_variables.asp
- Assignment
 - https://www.w3schools.com/js/js_assignment.asp
- Operators
 - https://www.w3schools.com/js/js operators.asp

- For Chinese mirror site, change ".com" to ".cn", e.g.
 - https://www.w3schools.cn/js/js variables.asp

JavaScript Variables, et al ("and others" in Latin)



(Mostly) very similar to C

- We will go over these quickly.
- If you forgot your C, you can study these slides carefully and run these codes:
 - W3 Schools
 - sample codes from iSpace

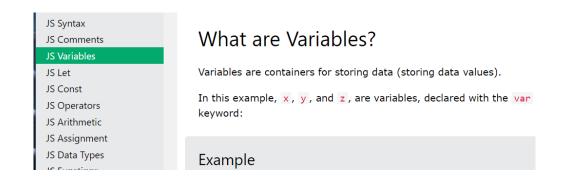


Just like C

- JavaScript variables are containers for storing data values.
 - In this example, x, y, and z, are variables:

```
<h2>JavaScript Variables</h2>
In this example, x, y, and z are variables.

<script>
    var x = 5;
    var y = 6;
    var z = x + y;
    document.getElementById("demo").innerHTML =
    "The value of z is: " + z;
    </script>
```



Try it Yourself at W3 school (above) or sample code (below)

5b1_Variables.html



Just like C

- From the example above, you can expect:
 - x stores the value 5
 - y stores the value 6
 - z stores the value 11

```
var x = 5;
var y = 6;
var z = x + y;
```

• In this example, price1, price2, and total, are variables:

```
var price1 = 5;
var price2 = 6;
var total = price1 + price2;
```



```
<!DOCTYPE html>
<html>
<body>
<h2>JavaScript Variables</h2>
<script>
var price1 = 5;
var price2 = 6;
var total = price1 + price2;
document.getElementById("demo") innerHTML =
"The total is: " + total;
</script>
</body>
</html>
```

The code is at left, and the output is below.

JavaScript Variables

The total is: 11



(Almost) just like C

- JavaScript Identifiers
 - All JavaScript variables must be identified with unique names.
 - These unique names are called identifiers.

unlike C

- The general rules
 - Names can contain letters, digits, underscores, and dollar signs.
 - Names must begin with a letter
 - Names can also begin with '\$' and '_'
 - Names are case sensitive (y and Y are different variables)
 - Reserved words (like JavaScript keywords) cannot be used as names



Assignment Operator

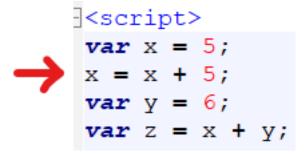
Just like C

- In JavaScript, the equal sign (=) is an "assignment" operator, not an "equal to" operator.
 - "replaced by"; x = 3 means "x is replaced by 3"
- The "equal to" operator is written like == in JavaScript.

$$x = x + 5$$

- "New x is replaced by current x + 5".
 - It calculates the value of x + 5 and puts the result into x.
 - The value of x is incremented by 5.
- Run the sample code 5b1_Variables.html (or in W3 School) with the line

```
x = x + 5
```





Data Types

 JavaScript variables can hold numbers like 100 and text values like "John Doe".

```
var pi = 3.14;
var person = "John Doe";
    Unlike C
var answer = 'Yes I am!';
```

- Text values are called text strings.
 - Strings are written inside double or single quotes.
 - Numbers are written without quotes.
- Unlike C, JavaScript uses "weak data type"
 - Don't have to explicitly specify the data type of a variable.
 - Interpreter figures out the data type from the assigned value.



Data Types

```
<!DOCTYPE html>
<html>
<body>
<h2>JavaScript Variables</h2>
Strings are written with quotes.
Numbers are written without quotes.
<script>
var pi = 3.14;
var person = "John Doe";
var answer = 'Yes I am!';
document.getElementById("demo").innerHTML =
pi + "<br>" + person + "<br>" + answer;
</script>
</body>
</html>
```

JavaScript Variables

Strings are written with quotes.

Numbers are written without quotes.

3.14 John Doe Yes I am!

https://www.w3schools.com/js/tryit.asp?filen
ame=tryjs variables types

5b2_VariablesDataTypes.html



Declaring Variables

Unlike C

• Declare (or create) a JavaScript variable with the **var** keyword.

var carName;

carName = "Volvo";

- After the declaration, the variable has no value.
 - Technically it has the value "undefined".
- Assign a value to the variable with the equal sign '='

hen

 You can also assign a value to the variable when you declare it.

```
var carName = "Volvo";
```

Arithmetic



Just like C

 Arithmetic are done with operators such as = and +.

```
var x = 5 + 2 + 3;
var x = 5 + 2 * 3;
var x = 5 * 2 / 3;
var x = 5 - 2 * 3;
var x = (5 / 2) + 3;
```

- Arithmetic operation operates on numbers or variable
 - E.g. var fullName = firstName + " " + lastName;

$$var x = 100 + 50;$$
 $var x = a + b;$



Operators

Just like C, arithmetic operators are

- See
 - https://www.w3schools.com/js/js operators.asp
 - https://www.w3schools.cn/js/js operators.asp