

TÀI LIỆU LẬP TRÌNH WEB

**JAVASCRIPT**



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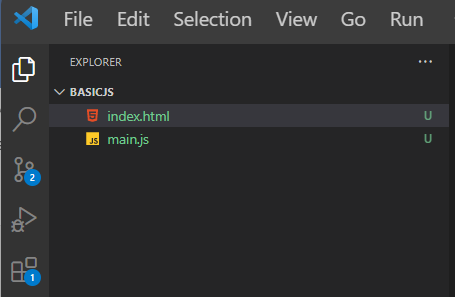
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1. **Giới Thiệu JS**

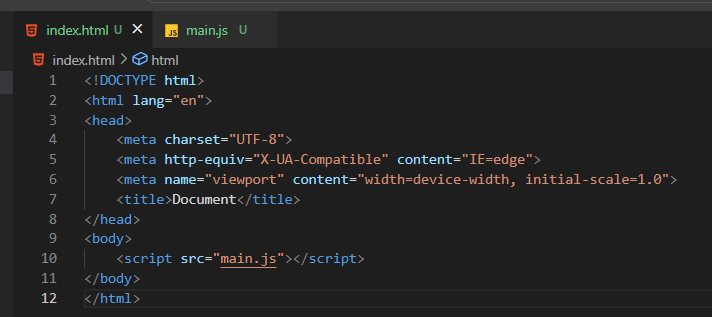
-Giúp tạo những hiệu ứng phức tạp và tạo những sự kiện, trải nghiệm người dùng tốt hơn, bên cạnh đó cũng giúp việc kết hợp giữa font end và back end dễ dàng hơn

1. **Sử dụng JS trong file HTML**

Bước 1: Tạo 1 file.js bên ngoài, có thể cùng cấp với file.html

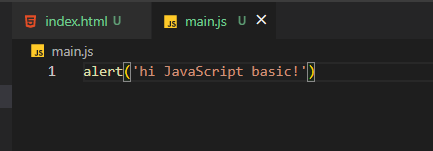


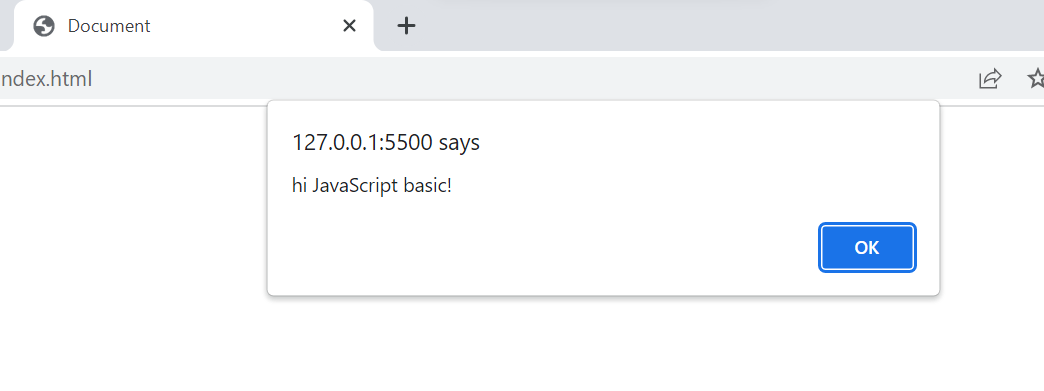
Bước 2: Trong phần body sử dụng thẻ <script></script> và link đến file.js vừa tạo



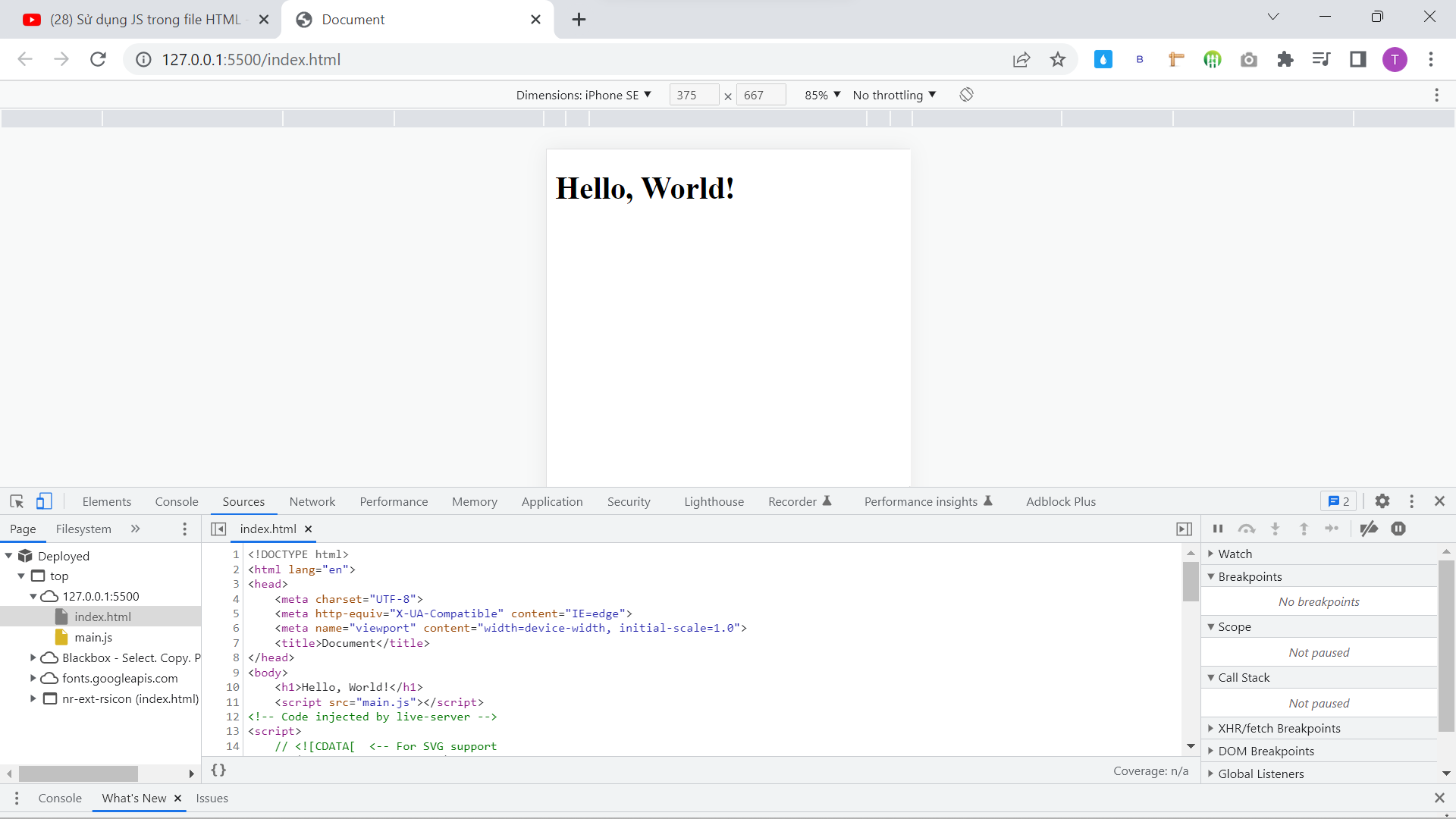
Bước 3: kiểm tra liên kết có thành công hay không

+Code vài dòng bên file.js sau đó chạy live sever check kết quả





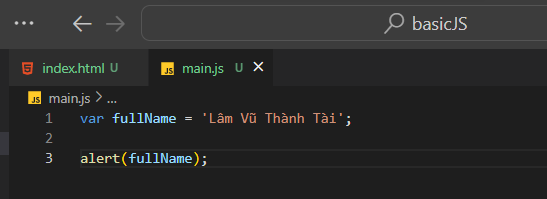
+Kiểm tra bằng Devtool



1. **Biến JS**

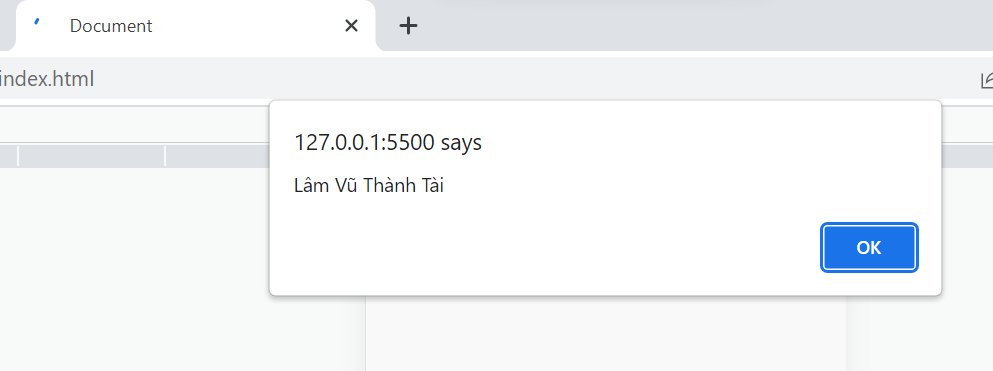
-Dùng **var** để khai báo biến:

var tênbiến = ‘Giá trị gán vào’



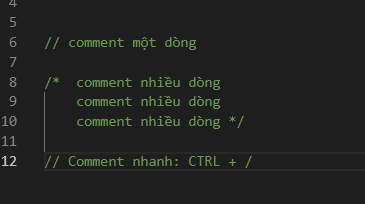
Dấu = dùng để gán giá trị cho biến

Kết quả:



1. **Comments**

-Giúp ghi chú, vô hiệu hóa hoặc giải thích code



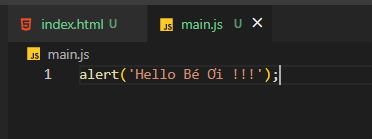
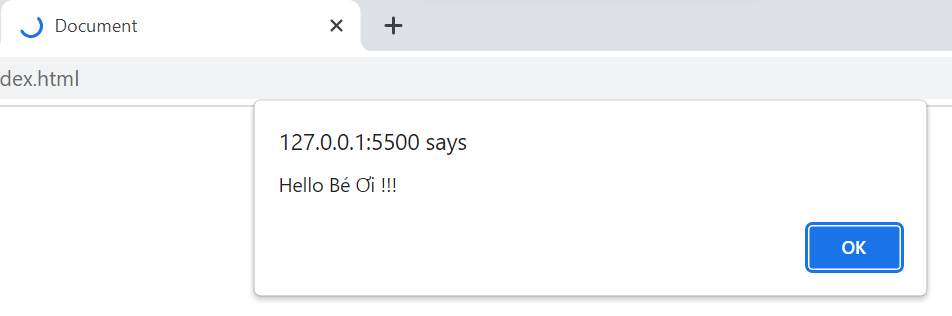
1. **Hàm Built-in**

-Là các hàm có sẵn trong JS, chỉ việc nhớ và gọi ra sài khi cần thôi !

* 1. **Alert**

-Dùng để hiển thị message (thông báo) trên web site.

-Cú pháp: alert(‘Nội dung message’);

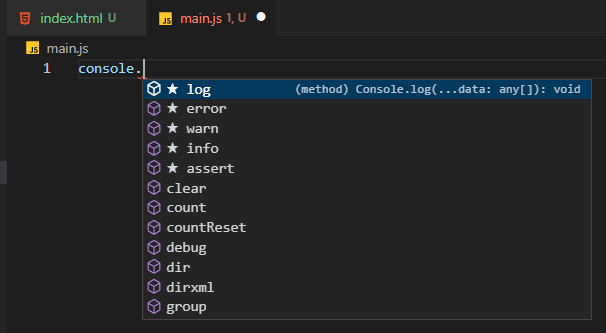
 

-Thông báo sẽ hiện cho đến khi chúng ta tắt (bấm OK).

* 1. **Console**

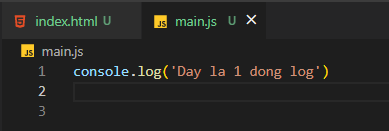
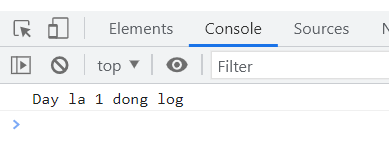
-Là một đối tượng có chứa rất nhiều các methods (phương thức).

-Cách gọi các phương thức của console ta dùng cú pháp: console + “dấu chấm”

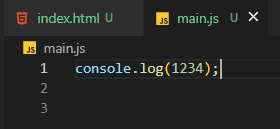
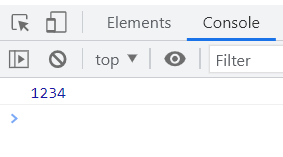


* + 1. **console.log**

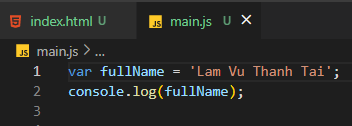
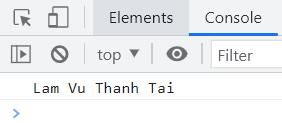
-Giúp hiển thị cảnh báo trên màn hình console (trong dev tool)

-Ngoài giá trị chuỗi ta có thể gán giá trị số

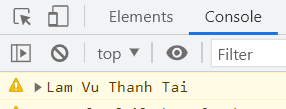
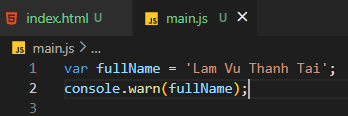
 

-Gán giá trị là biến JS

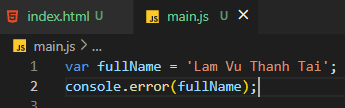
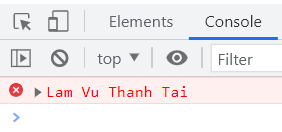
* + 1. **console.warn**

-Dùng để cảnh báo trên màng hình console

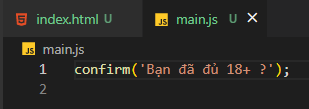
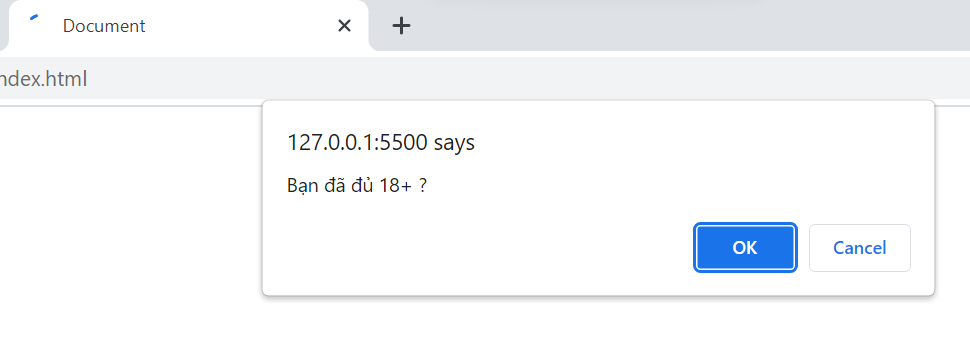


* + 1. **console.error**

-Dùng để báo lỗi trên màng hình console

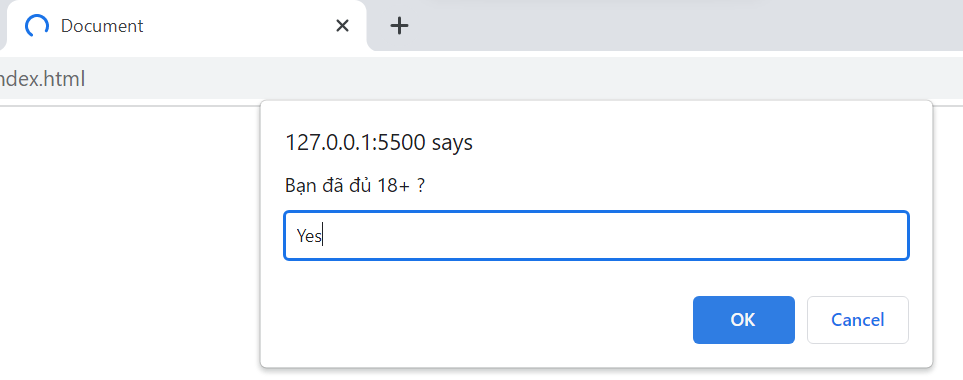
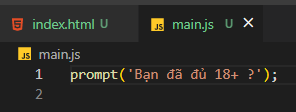
* 1. **Confirm**-Dùng để thông báo (message) và yêu cầu user xác nhận.

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-Sẽ hiện hộp thông báo đến khi người dùng xác nhận.

* 1. **Prompt**

-Kết hợp Alert và Confirm, ngoài ra yêu cầu người dùng nhập input để xác nhận.



-Hộp thoại sẽ hiện đến khi user nhập input và click xác nhận.

* 1. **Set timeout**

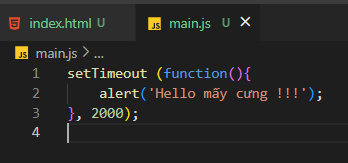
-Dùng để chạy một đoạn code trong một khoản thời gian (được tính là ms)

-Cú pháp:

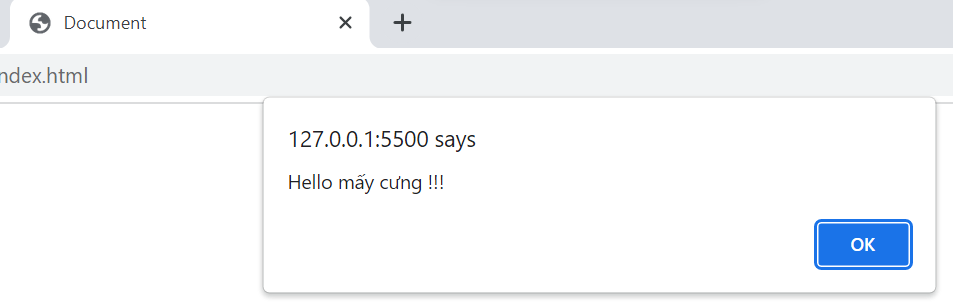
setTimeout (function(){

//Code thực thi;

}, thời gian thực hiện);



Sau 2s thì sẽ hiện lên thống báo:



* 1. **Set interval**

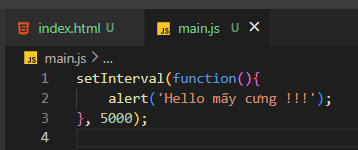
-Dùng để chạy một đoạn code trong một khoản thời gian (được tính là ms) nhưng khác với timout là nó sẽ lặp lại vô tận

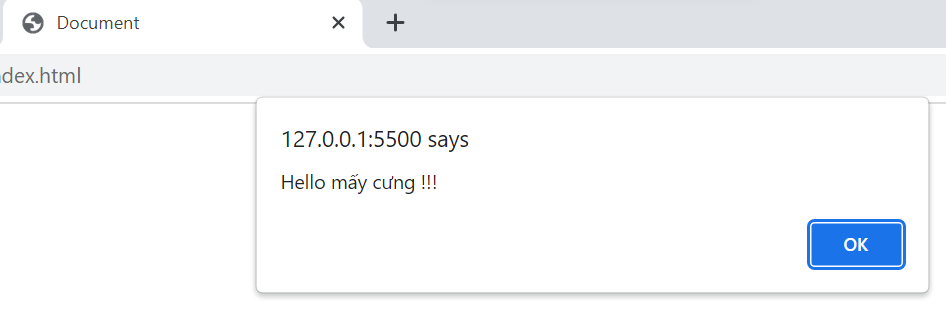
-Cú pháp:

setInterval (function(){

//Code thực thi;

}, thời gian thực hiện);

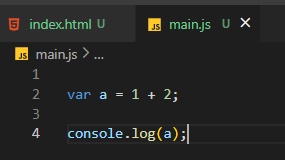
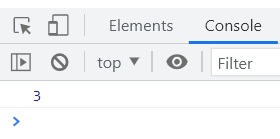
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-Dù user có tắt thông báo thì cứ mỗi 5s sẽ hiển thị lại !

1. **Operator (Toán Tử)**
   1. **Arithmetic (Số học)**

- **Các toán tử số học** (toán tử đại số) này thực hiện trên các số - dữ liệu dạng số (cụ thể hoặc là biến). Chúng cũng gần tương tự như trong toán học thôi.

** **

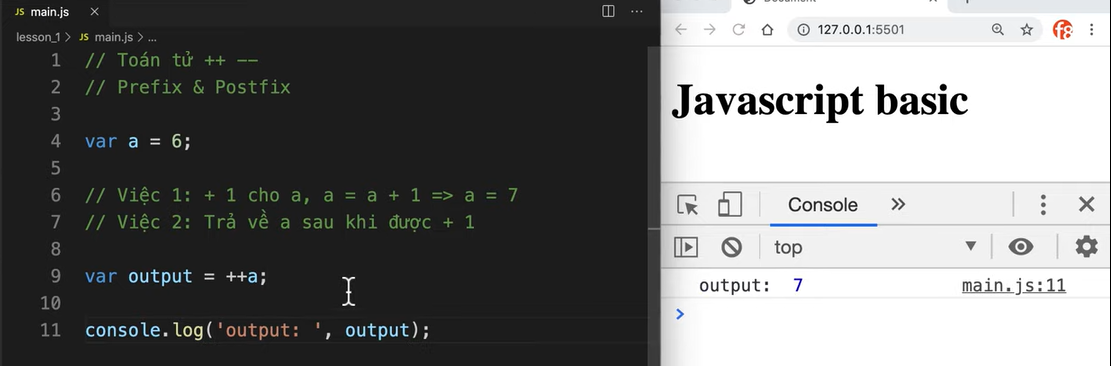
-Ngoài ra còn có các toán tử:



* + 1. **Prefix and Postfix (Tiền tố và hậu tố)**

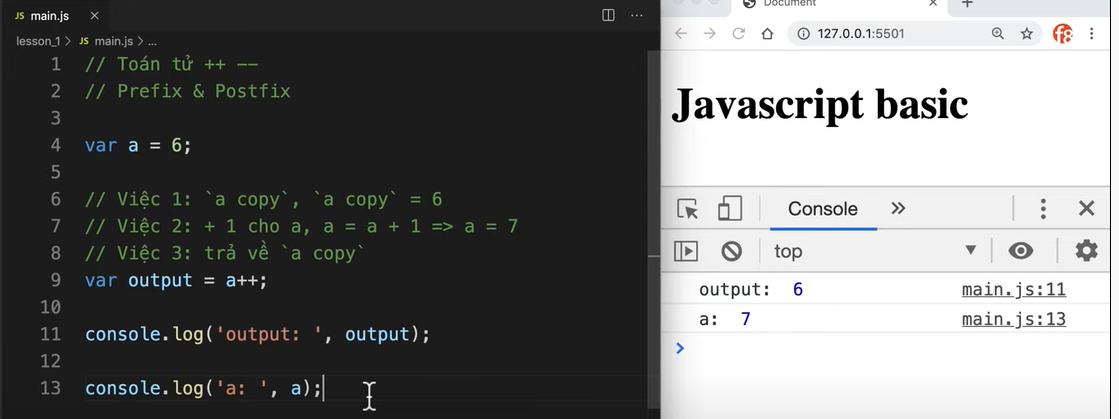
-Trong toán tử **++,** --

+Tiền tố:



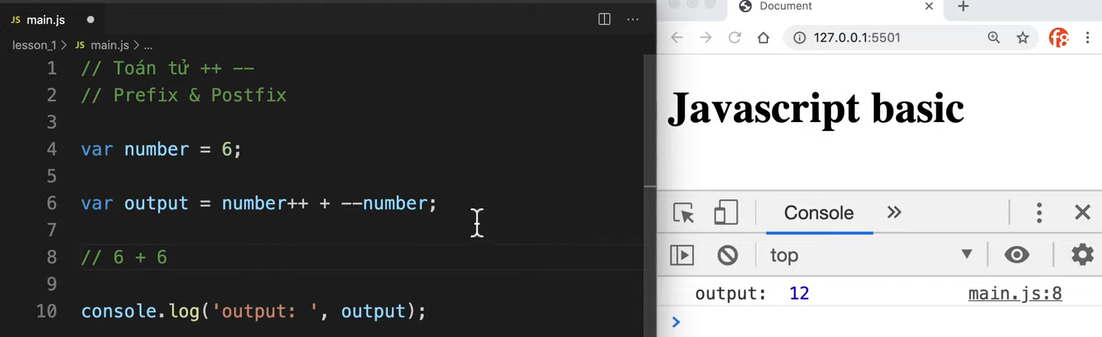
-Đối với --a; cũng giống v

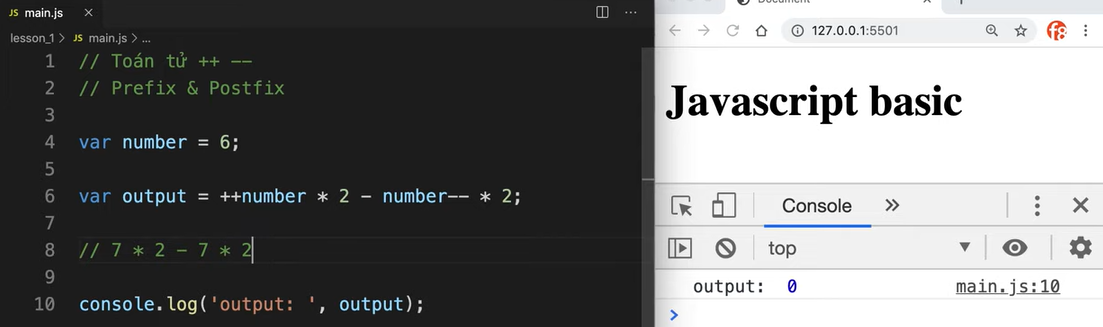
+Hậu tố:



-Đối với --a; cũng giống v

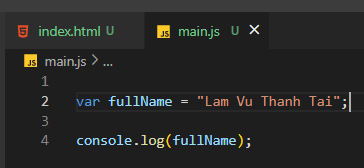
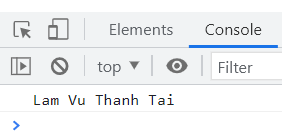
+VD:



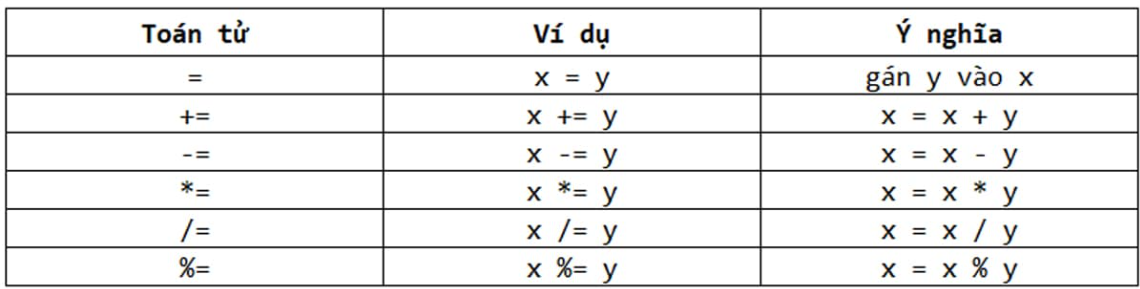


* 1. **Assignment (Gán)**

**- Toán tử gán** được dùng để **gán giá trị** ở bên phải toán tử vào biến ở bên trái toán tử.

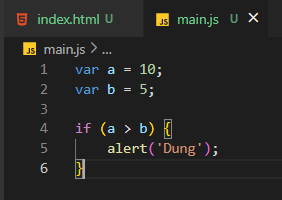
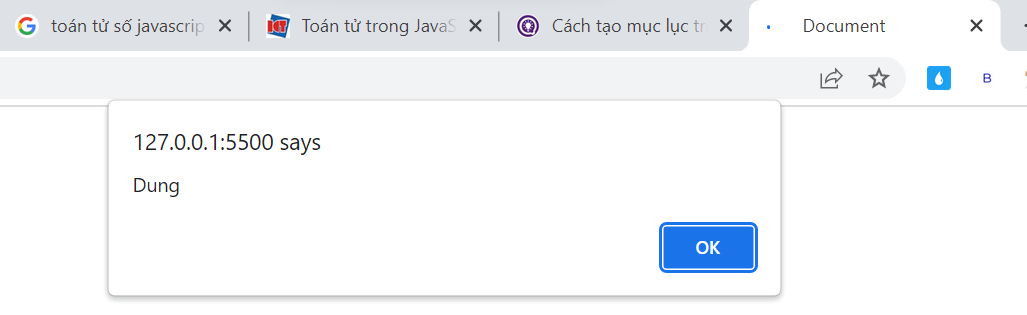
** **

-Dấu “ = ” là một trong những toán tử gán ! Ngoài ra còn:

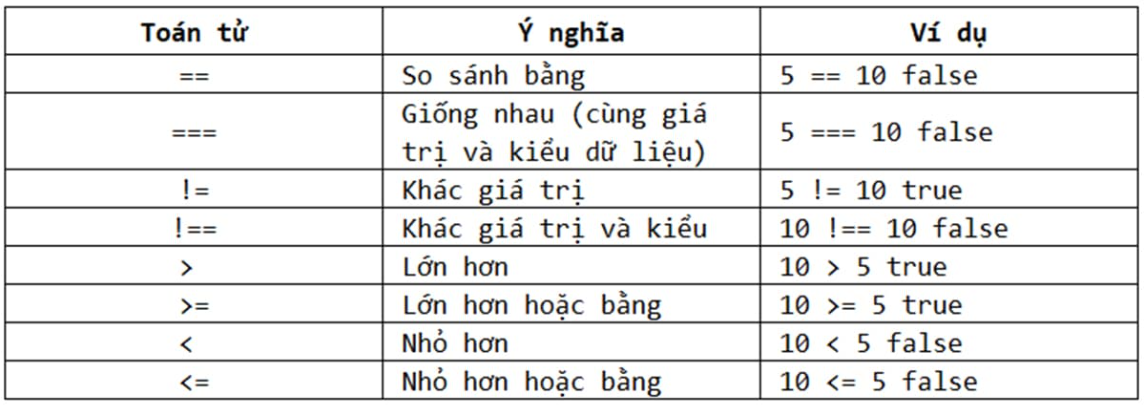


* 1. **Comparison (So sánh)**

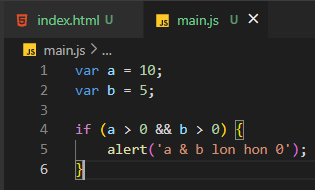
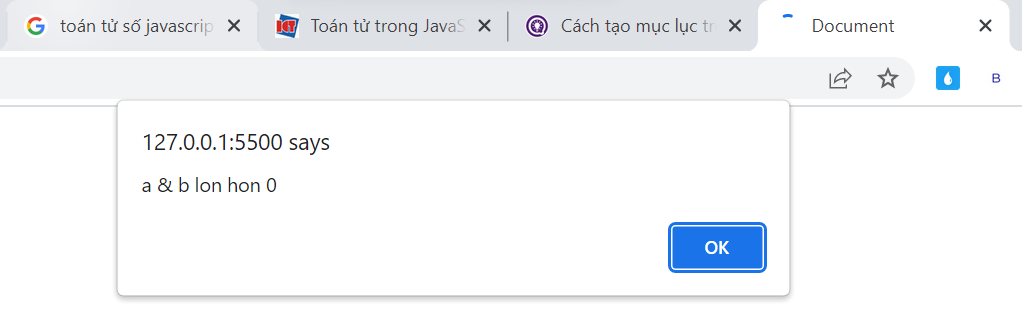
**- Toán tử so sánh trong JavaScript** sử dụng trong các biểu thức về logic để so sánh bằng, khác nhau, lớn hơn, nhỏ hơn.... Nó sẽ trả về giá trị true hoặc false.

**** ****

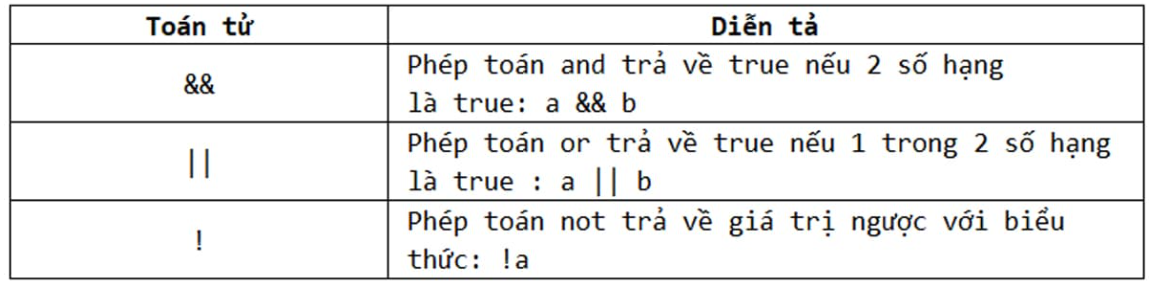
-Ngoài ra còn có các toán tử so sánh khác:

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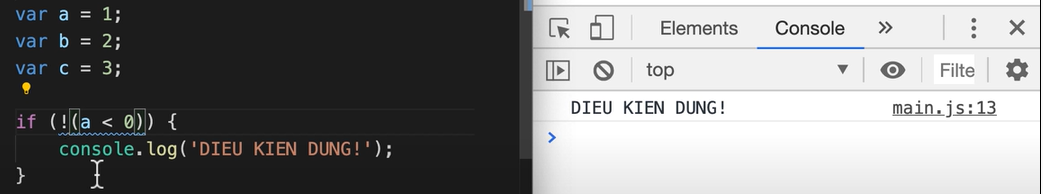
* 1. **Logic (logical)**

**** ****

**-** JavaScript cung cấp 3 loại **toán tử logic** gồm các phép toán: and, or, not.

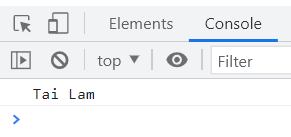
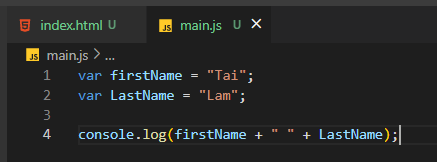
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-Toán tử not: phủ định lại giá trị ban đầu.

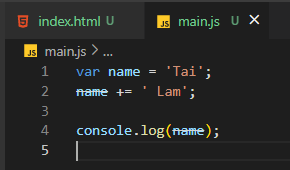
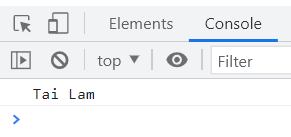
****

* 1. **String (chuỗi)**

**-**Trong JavaScript, chúng ta có thể sử dụng toán tử + để **nối hai chuỗi** lại với nhau.Nó có thể nối cả số vào chuỗi.

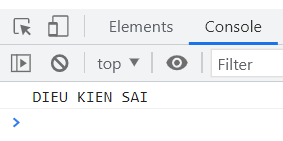
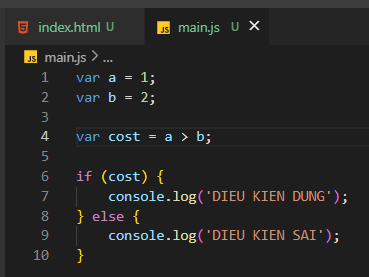
****

**-**Ngoài ra có thể kết hợp với toán tử gán.

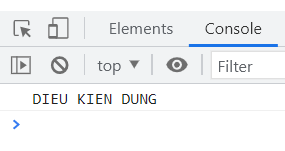
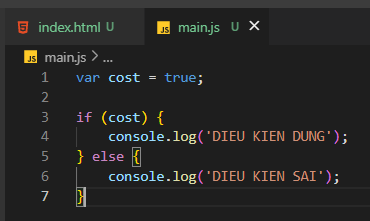
****

1. **Câu lệnh điều kiện If- else**

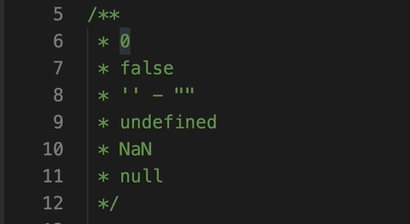
-Câu điều kiện Nếu – Thì, cấu trúc câu giống như ở các ngôn ngữ lập trình khác.

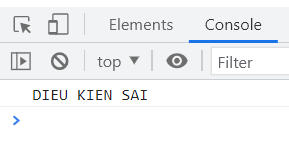
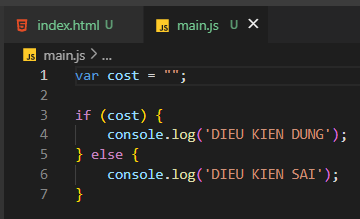
****

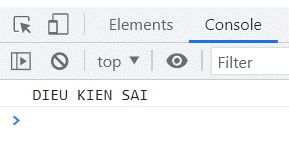
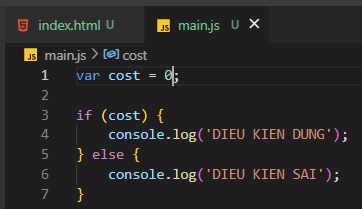
**-**Ngoài điều kiện là các toán tử ra thì còn nhận giá trị true, false.



-6 giá trị khi sử dụng JS sẽ chuyển đổi thành false.



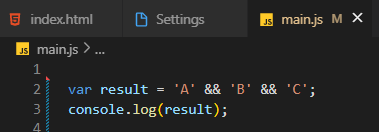
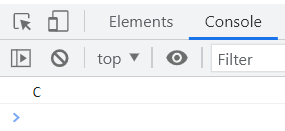


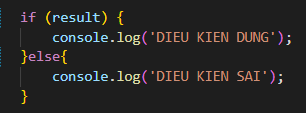
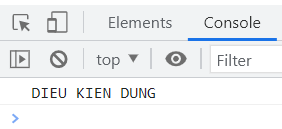


-Ngoài những giá trị này ra thì javascript sẽ convert (chuyển đổi) thành giá trị true.

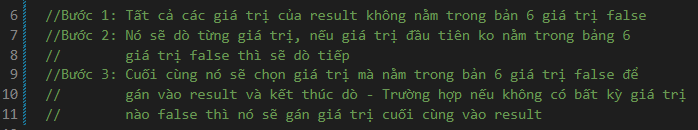
- Một số lưu ý về toán tử **And** và **OR** trong câu điều kiện if-else

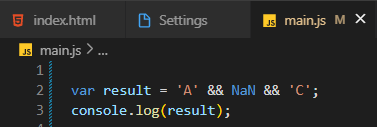
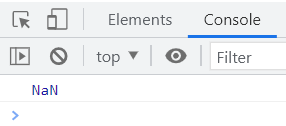
**+And**

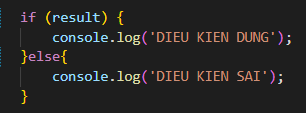
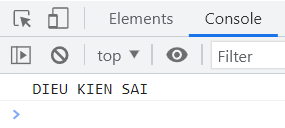
 

-Lý do in ra đáp án C là vì:



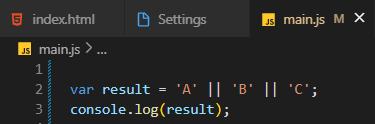
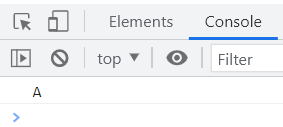
 

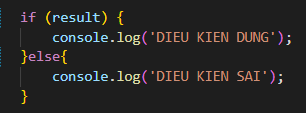
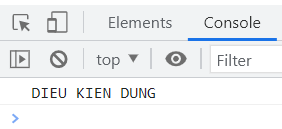
-Trường hợp có 1 giá trị nằm trong bảng 6 giá trị false thì nó sẽ gán giá trị đó cho “result” và không quan tâm vế sau.

**+OR**

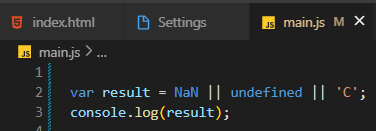
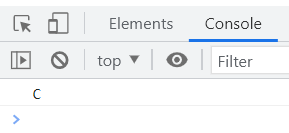
-Ngược với **And** – dò đến khi tìm giá trị false và gán vào biến

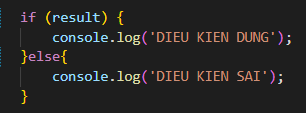
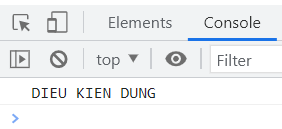
-Toán tử **OR** sẽ dò đến khi tìm được giá trị true và gán vào biến

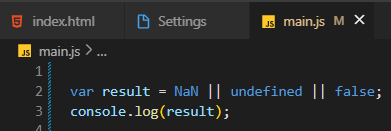
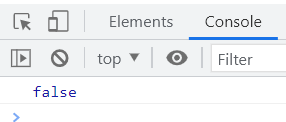
 

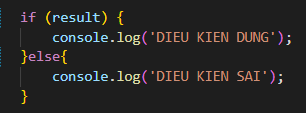
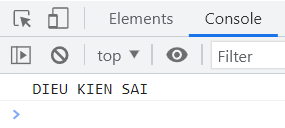
-Bởi vì A là giá trị true (không nằm trong bản 6 giá trị false) nên sẽ lấy giá trị A gán vào result và không quan tâm vế đằng sau.

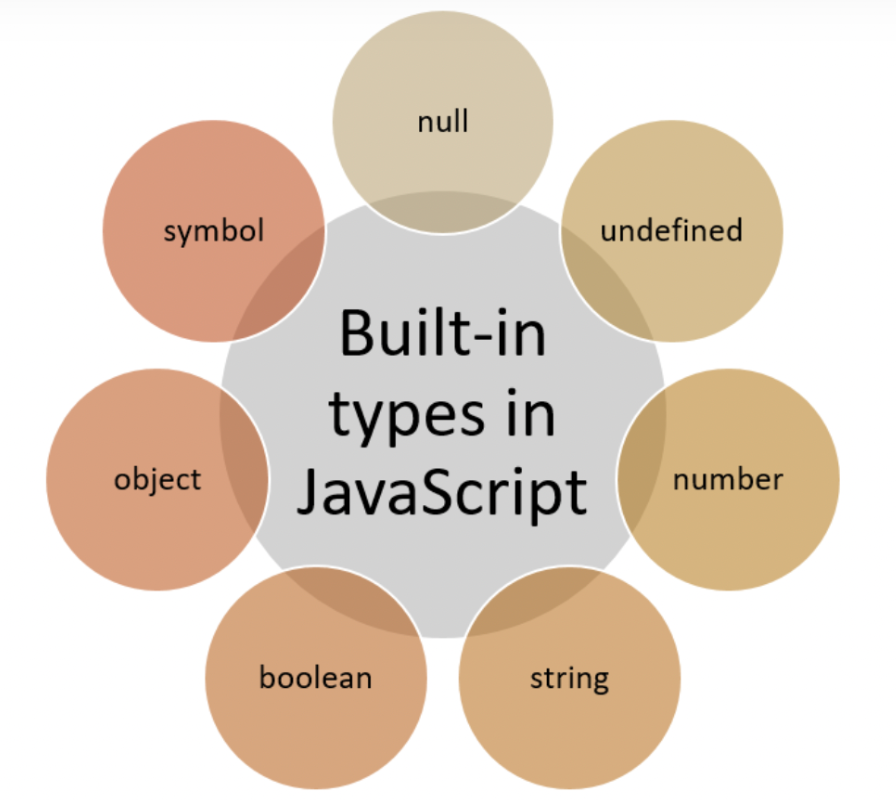
-Hai giá trị đầu là false nên sẽ được bỏ qua, đến giá trị C là giá trị true nên sẽ được gán vào result.

-Vì không có giá trị true nào nên sẽ gán false cho result

1. **Kiểu dữ liệu trong JS (Data types)**

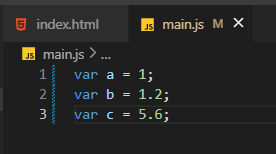
****

* 1. **Kiểu dữ liệu nguyên thủy (Primary Data)**

-Khi chúng ta gán một giá trị cho một biến thì trong RAM sẽ tạo ra một ô chứa dữ liệu của giá trị đó, nó sẽ không thể biến mất hoặc thay đổi dù chúng ta chỉnh sửa hay xóa.

* + 1. **Number**

-Gồm giá trị số nguyên, số thực.

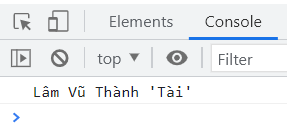
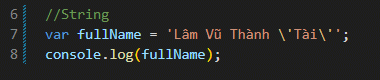
****

* + 1. **BigInt**
    2. **String**

-Là kiểu dữ liệu chứa giá trị là chuỗi, có thể điền số hoặc chữ đều đc, cách nhận biết là giá trị được bao quanh bằng dấu ngoặc đơn hoặc kép.

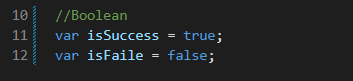
****

**-**Nếu muốn hiển thị dấu ngoặc đơn hoặc đơn hoặc kép trong một chuỗi ta sử dụng “ \ ” đặt phía trước.



* + 1. **Boolean**

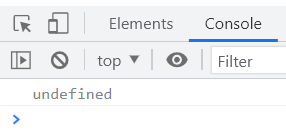
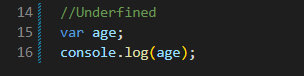
**-**Là kiểu dữ liệu chỉ biểu hiện tính “đúng” – “sai”, cách nhận biết đó là giá trị là “true” hoặc “false”.



-Thường kiểu dữ liệu Boolean người ta thường đặt biến và trước đó có chữ “is” nhằm tạo sự clean code và dễ đọc.

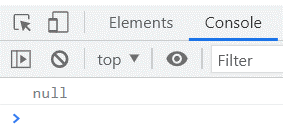
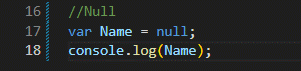
* + 1. **Undefined**

**-**Khi một biến mà không được gán bất kỳ giá trị nào, chỉ được khai báo tên biến thì ta gọi đó là undefined.



* + 1. **Null**

-Khi một biến được gán giá trị là “null” thì tức là biến đó không chứa bất kì dữ liệu gì.



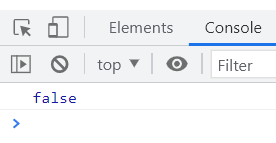
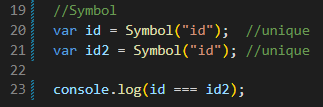
* + 1. **Symbol**

-Là kiểu dữ liệu mà dùng để mô tả một biến để biến đó là biến duy nhất

-Gán giá trị cho biến là “Symbol()”, bên trong Symbol() là phần mô tả biến đó

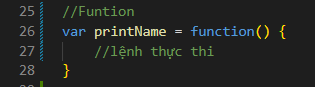


-Giá trị mô tả điền vào là duy nhất, cho dù có cùng tên biến

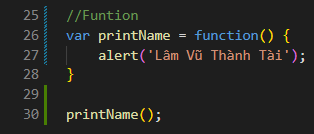
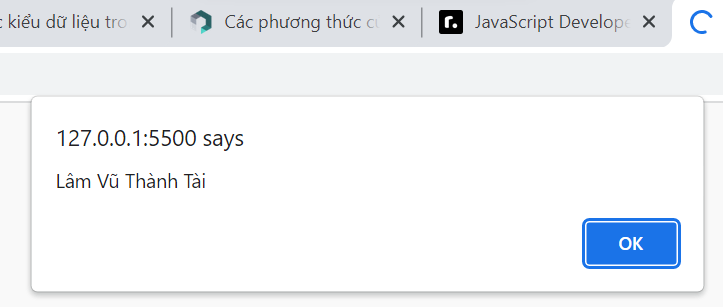


* 1. **Kiểu dữ liệu phức tạp (Complex Data)**
     1. **Function**

-Như tên gọi, là kiểu dữ liệu mà giá trị gán của biến là một hàm, bên trong hàm chứa những đoạn code thực thi một chức năng nào đó.



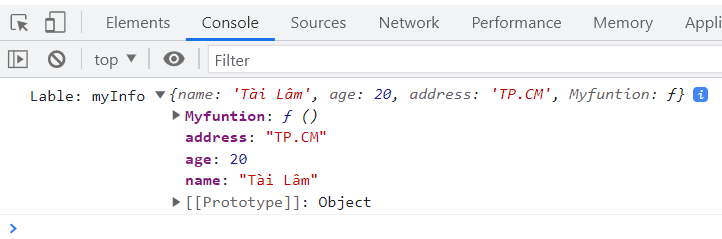
-Hàm sẽ không được chạy đến khi chúng ta gọi nó!

* + 1. **Object**

**-**Là kiểu dữ liệu mà giá trị được gán gồm “key” và “value”, trong một object thì chứa rất nhiều thứ như: giá trị (gồm nhiều kiểu dữ liệu), hàm..

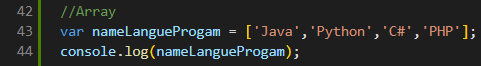
**-**Cách nhận biết đó là kiểu object là sử dụng dấu ngoặc nhọn có chấm phẩy ở cuối, ở mỗi cặp “key”-“value” cách nhau bởi dấu phẩy.

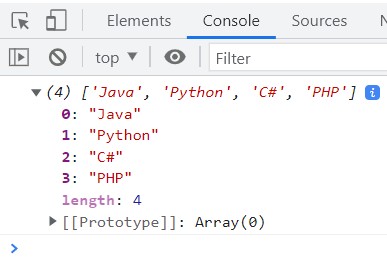
 

* + 1. **Array**

**-**Khi chúng ta cần khai báo giá trị dạng danh sách thì chúng ta sử dụng kiểu dữ liệu Array (mảng).

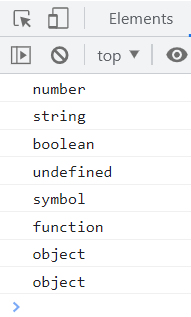
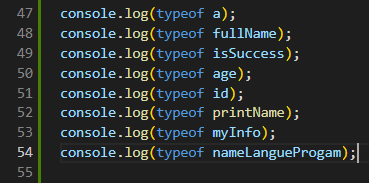
**-**Cách nhận biết kiểu Array đó dấu ngoặc vuông, bên trong ngoặc vuông có thể chứa kiểu dữ liệu số hoặc chuỗi.





* + 1. **Cách kiểm tra kiểu dữ liệu**

-Trong khi ta sử dụng hàm built-in là “console.log()” để kiểm tra thì thêm “typeof” bên trong sẽ giúp kiểm tra xem biến đó là theo kiểu dữ liệu gì

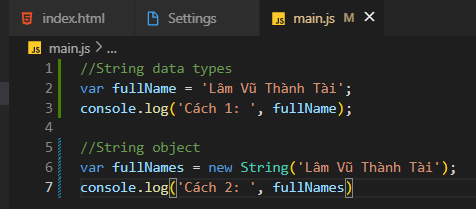


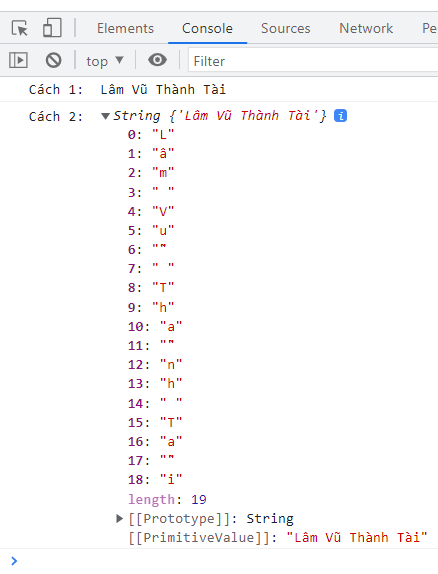
-Kiểu dữ liệu Null, Array khi hiển thị ra màn hình console thì là kiểu object (Hiện tại chưa có lời lý giải về hiện tượng này)

# **Chuỗi trong JS**

* 1. **Tạo chuỗi**

-Có 2 cách để tạo chuỗi trong JS là tạo chuỗi với kiểu dữ liệu String và tạo chuỗi bằng cách khởi tạo một đối tượng.

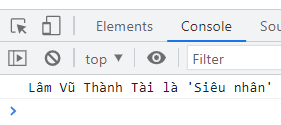




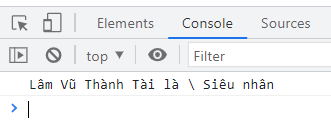
-Cách tạo chuỗi thông thường sẽ nhanh hơn là tạo đối tượng String

* 1. **Một số cách sử dụng backslash (“ \ “)**

-Để hiện dấu nháy đơn và kép

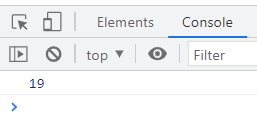
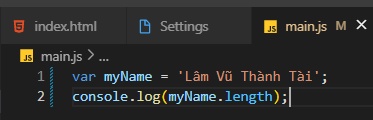
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**-**Để hiện dấu “\” trong chuỗi



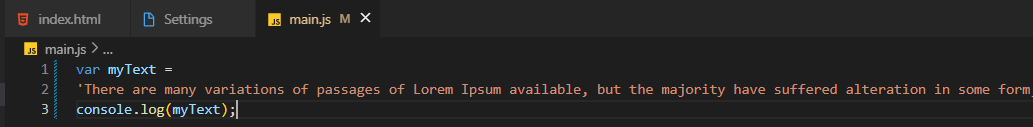
* 1. **Xem độ dài chuỗi**

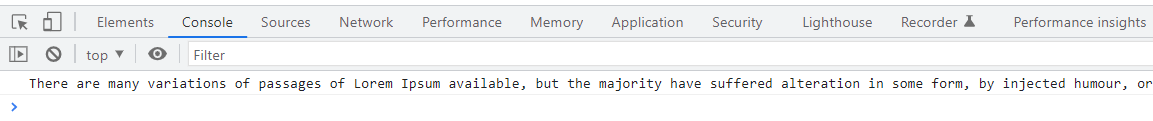
**-**Cú pháp <tên biến>.length



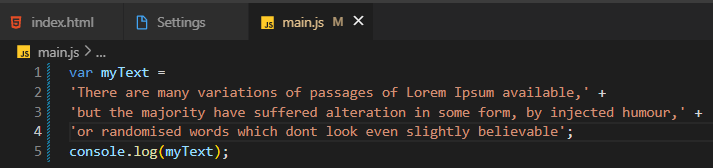
* 1. **Cách xuống dòng trong lúc viết code**

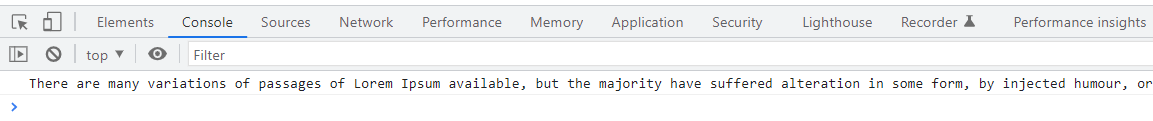
**-**Cách xuống hàng ngay sau toán tử gán





-Xuống dòng bằng cách nối các chuỗi bằng toán tử “ + “

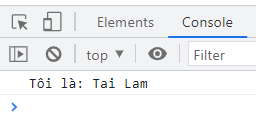
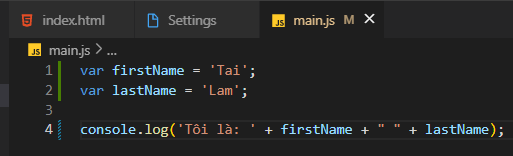




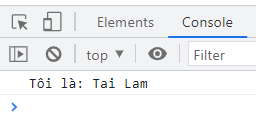
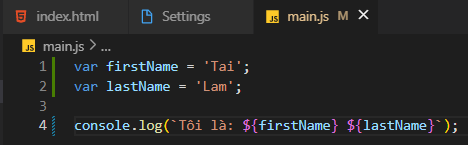
-Cả 2 cách đều mang kết quả giống nhau nhưng cách 2 sẽ khiến code trong gọn gàng và dễ nhìn hơn.

* 1. **Template string ES6**

**-**Bình thường chúng ta khai báo biến trong một chuỗi thì sẽ làm như sau.



-Cách này không có gì sai nhưng nhìn vào khá là rườm rà và không gọn.

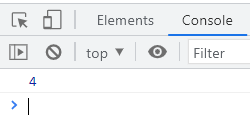
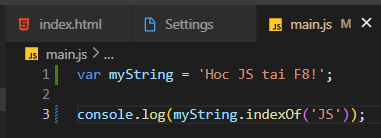


-Vì vậy template string ES6 ra đời giúp nhìn gọn hơn hẳn.

-Lưu ý giá trị đưa vào phải là string, còn ngoài ra không phải string thì nó sẽ tự convert sang string luôn ! Cú pháp là dấu `` và cách khái báo biến là ${}.

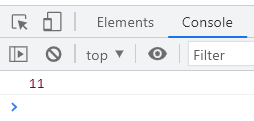
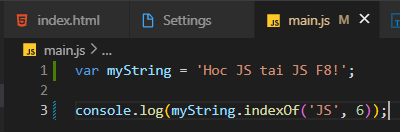
* 1. **Work with string**
     1. **Find index**

**-**Tìm vị trí của một ký tự nằm trong một chuỗi



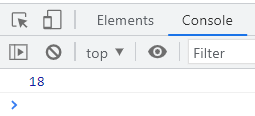
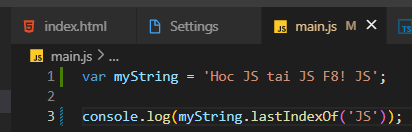
-Bắt đầu từ 0”H” 1”o” 2”c” 3” ” .

-Dùng hàm **indexOf(‘<giá trị muốn tìm>’)** một tham sốvà nhập giá trị mà mình muốn tìm ! Trường hợp này là ‘JS’ trong chuỗi myString và kết quả trả về là nằm ở vị trí số 4.



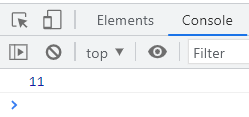
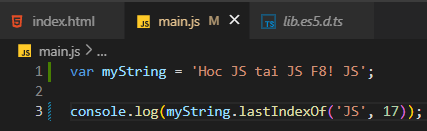
-Nếu ta có nhiều ký tự giống nhau mà buốn bỏ qua những ký tự đầu chỉ muốn biết vị trí của ký tự tiếp theo ta dùng hàm **indexOf(‘<giá trị muốn tìm>’, <vị trí>)** hai tham số và nhập vị trí lớn hơn các giá trị ban đầu.

-Trường hợp này ký tự ‘JS’ đầu tiên đang ở vị trí 4 nhưng chúng ta lại muốn biết vị trí của ký tự ‘JS’ sau vì vậy tự vị trí 4 ta đếm 5”J” 6”S” và miễn là giá trị lớn hơn hoặc bằng 6 ta sẽ tìm được vị trí của ký tự ‘JS’ tiếp theo.



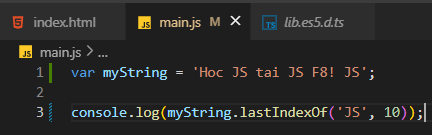
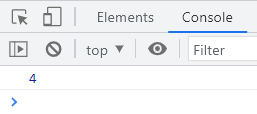
-Nếu muốn tìm vị trí của ký tự cuối cùng ta dùng hàm **lastIndexOf(‘<tên giá trị cần tìm>’)** một tham số và điền giá trị cần tìm vào

-Trường hợp này ‘JS’ ở cuối có vị trí là 18

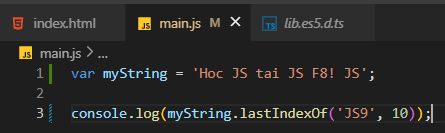
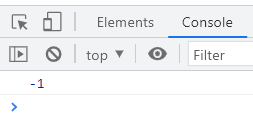


-Nếu có nhiều ký tự giống nhau thì chúng ta sử dung **lastIndexOf(‘<tên giá trị cần tìm>’, <vị trí>)** hai tham số.

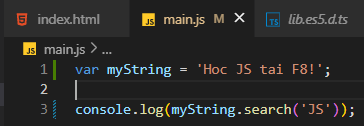
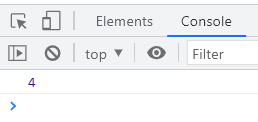
-Cách thức hoạt động là nó sẽ dựa vào vị trí mà chúng ta muốn tìm sau đó đếm ngược lại về 0 nếu ký tự nào có cùng giá trị cần tìm và gần với vị trí nhất sẽ được hiện ra.

-Trong trường hợp này chúng ta muốn tìm ký tự “JS” ở vị trí là 10, thì tại ngay vị trí số 10 nó sẽ đếm về không và phát hiện vị trí số 4 có cùng giá trị ký tự mà ta muốn tìm nên hiện ra màn hình

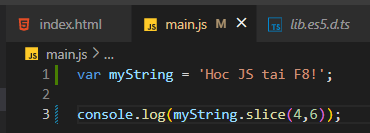
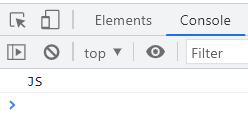
-Trường hợp ký tự mà chúng ta muốn tìm không nằm trong chuỗi thì sẽ thông báo là -1 kể cả **indexOf() và lastIndexOf().**

-Ngoài ra hàm **search()** cũng giống với **indexOf()** nhưng cách thức hoạt động lại khác nhau.

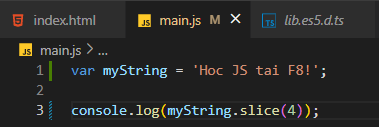
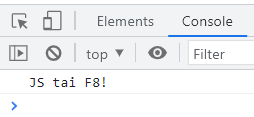
* + 1. **Cut string (Cắt chuỗi)**

**-**Cắt một phần chuỗi tại vị trí được quy định

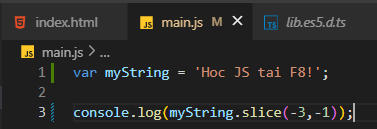
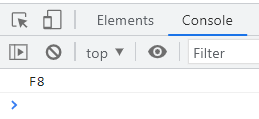
 

-Ta sử dụng hàm **slice(<vị trí đầu tiên>, <vị trí cuối cùng>)** để cắt một khoản trong chuỗi.

-Trường hợp này là cắt ở vị trí 4 và kết thúc ở vị trí 6 của chuỗi myString nên kết quả ra là “JS”.

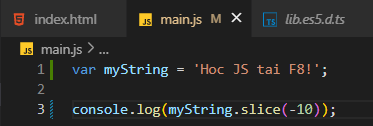
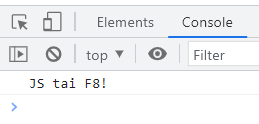
 

-Trường hợp ta sử dụng hàm **slice(<vị trí đầu tiên>)** một tham số thì sẽ cắt từ vị trí đầu tiên cho đến hết chuỗi.

-Ngoài cắt từ trái sang phải thì chúng ta còn có thể cắt từ phải sang trái bằng cách đổi vị trí đầu tiên và vị trí cuối cùng là số âm.

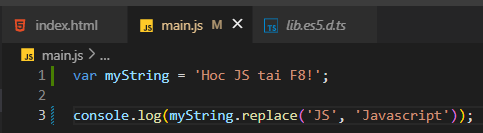
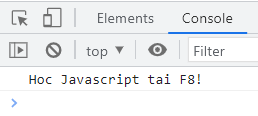
-Trong trường hợp này chúng ta muốn cắt ký tự ‘F8’ thì vị trí đầu tiên sẽ nằm sau chữ F tức là -3 (đếm từ ngoài vào 0, -1, -2, -3) và vị kí cuối cùng là nằm trước số 8 tức là -1.

-Trường hợp một tham số mà là số âm thì nó sẽ đếm từ phải sang trái và lấy vị trí cắt và phần sau của chuỗi.

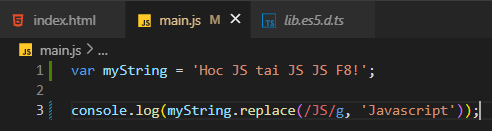
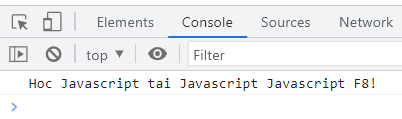
* + 1. **Replace (Ghi đè chuỗi)**

-Ghi đè ký tự mà chúng ta muốn thay đổi trong chuỗi

-Chúng ta sử dụng hàm **replace(‘<ký tự muốn ghi đè>’, ‘<ký tự thay đổi>’)** để ghi đè lên chuỗi

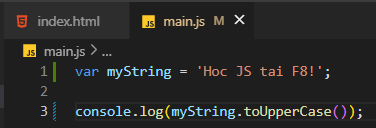
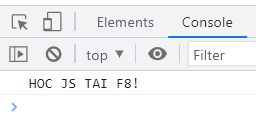
-Trong trường hợp này chúng ta đã ghi đè ký tự ‘JS’ thành ‘Javascript’.

-Trường hợp chúng ta muốn thay đổi toàn bộ ký tự có giá trị giống nhau thì sử dụng biểu thức chính quy **/<ký tự>/g.**

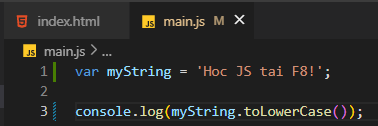
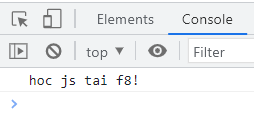
* + 1. **Convert to upper case**

-Thay đổi tất cả ký tự trong chuỗi thành chữ in hoa bằng hàm **toUpperCase().**

**** ****

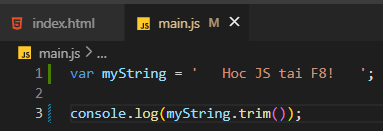
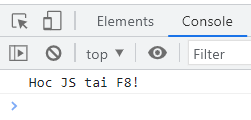
* + 1. **Convert to lower case**

**-**Thay đổi tất cả ký tự trong chuỗi thành chữ in thường bằng hàm **toLowerCase().**

**** ****

* + 1. **Trim (xóa khoản cách 2 bên chuỗi)**

**-**Loại bỏ khoản trắng, khoản cách hai bên trong input người dùng

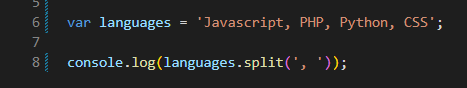
 

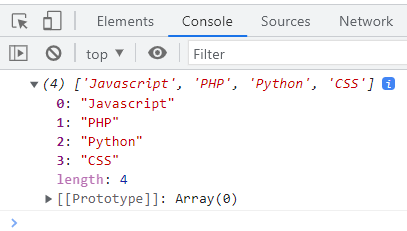
-Chúng ta cố tình ghi khoản cách hai bên của chuỗi, nhưng khi dùng hàm **trim()** nó sẽ loại bỏ toàn bộ khoản cách 2 bên đầu.

-Rất hữu ích cho sau này khi người dùng vô ý gõ khoản cách đầu dòng khi nhập password

* + 1. **Split (string to array)**

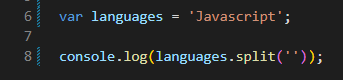
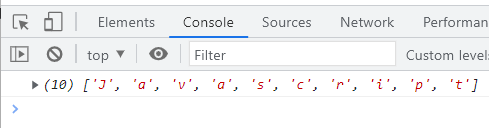
-Chuyển đổi một chuỗi thành một mảng (Array) dựa vào điểm chung





-Chúng ta sử dụng hàm **split(‘<điểm chung>’)** để chuyển chuỗi thành mảng (Array)

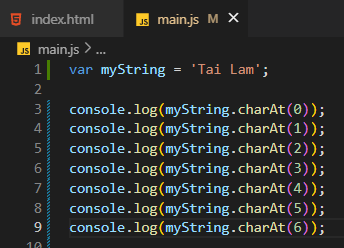
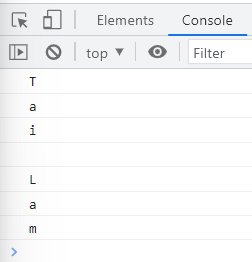
-Lưu ý là phải tìm điểm chung phù hợp để các phần tử trong chuỗi tách đều nhau ra và mảng của chúng ta nhìn gọn đẹp tránh lỗi sau này

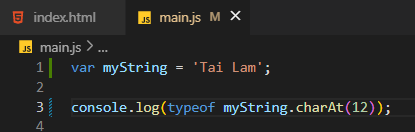
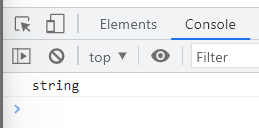
-Trường hợp chúng ta muốn mảng là những ký tự đơn thì điểm chung sẽ để trống.

* + 1. **Get a character by index**

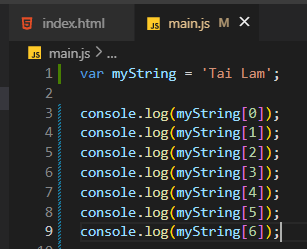
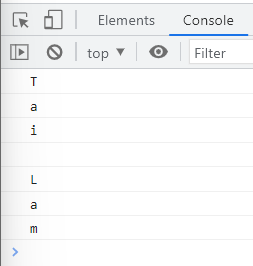
**-**Tìm ký tự tại vị trí index được chỉ định

-Ta sử dụng hàm **charAt(<vị trí ký tự muốn lấy>)** để lấy ký tự tại vị trí mà chúng ta muốn.

-Trường hợp vị trí index mà quá lớn thì sẽ trã về một chuỗi rỗng.

-Ngoài hàm **charAt()** ta cỏ thể sử dụng dấu **[]** để tìm vị trí ký tự.