React.js and Node.js

Pre-requisites:

HTML

CSS

JavaScript

Software’s Required

1. Editor - Visual Studio Code : <https://code.visualstudio.com/download>
2. Node.js - Runtime environment for Javascript to run at the backend: <https://nodejs.org/en/>
3. Browser - Runtime environment for Javascript to run at the frontend
4. Internet - Open internet to download node-modules

Things to know before going to React.js & Node.js

* HTML
  + div, p, h1,..h6, table, form, img and so on.
* CSS
  + id, class, properties & values
* Javascript
  + Fundamentals
  + Functions & Variables
  + New Features of Javascript (EcmaScript latest features)
    - classes, let, const, super, extends
    - Arrow functions, template string literals
    - Rest & Spread operators
    - Default arguments
    - PadStart & PadEnd
    - Exponential operators
    - Generators

Refresher on JavaScript

There are mainly 3 ways you can print the output in the Javascript

* document
* alert
* console

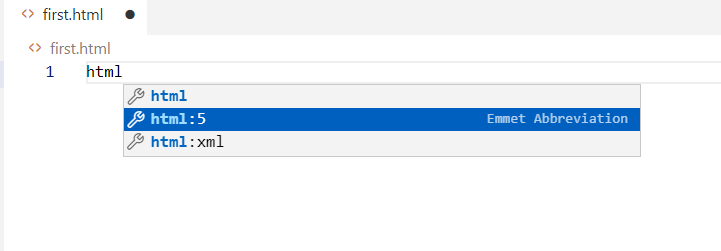
document: It is an inbuilt Javascript object that helps you to access the browser DOM (Document Object Model), it helps to access various functions like write(), getElementById(), getElementsByTagName() and so on.

alert: It is mainly to show the pop-up box, for any kind of warning or some messages

console: It is mainly to debug the javascript if you want to see any output you use log(), or if Javascript has any errors those are logged in the console.

first.html

You can use html in the beginning to see the html default template in the VScode which is auto-created



Then you see as





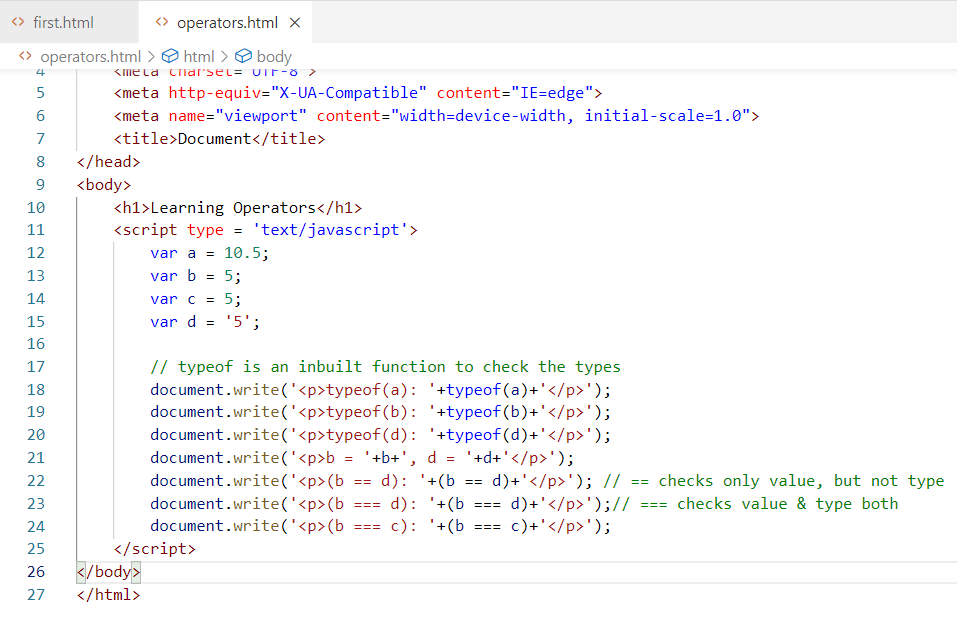
Output:



Fundamentals of JavaScript

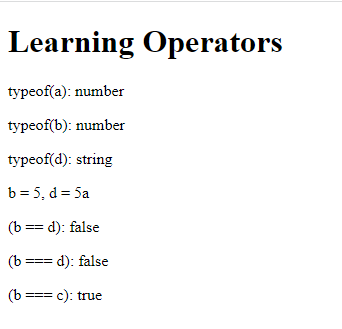
* operators: ++, --, \*, /, +, -, =, <, >, <=, >=, ==, ===, !=
* arrays
* loops: for, while, do-while
* conditions: if, if - else, if else if, else, swtich
* functions
* objects
* events

operators.html



Here typeof checks the data type, in Javascript we have datatypes like number, string, boolean, object, Date,

Output:



Activity:

1. Try out other operators like <=, >=, !=, ++, -- to understand how they work

Arrays: It is a collection of data, in Javascript you can have arrays with various types in a single collection, it used by []

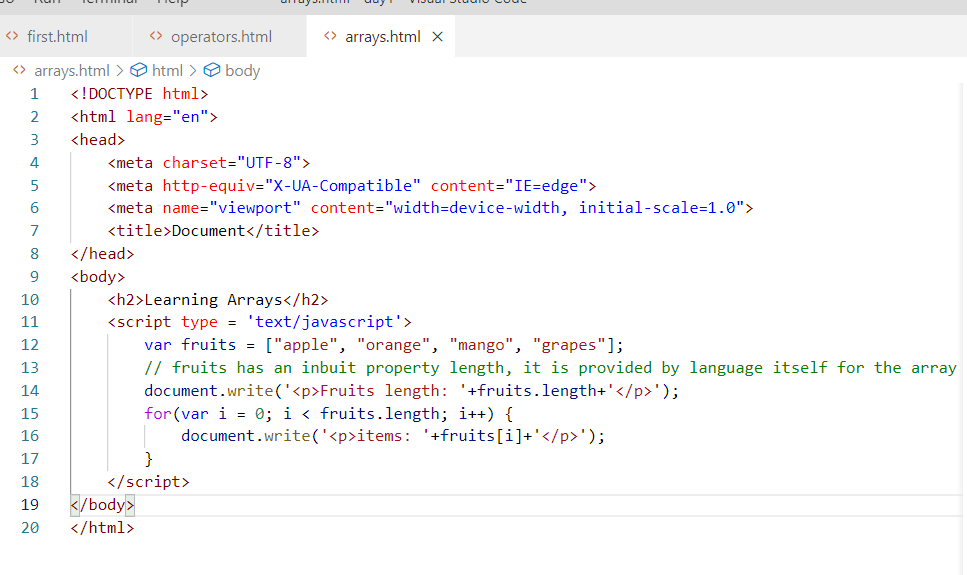
items = [2, 1, 6, 7]; // valid

items = [“hello”, “test”, “demo”]; // valid

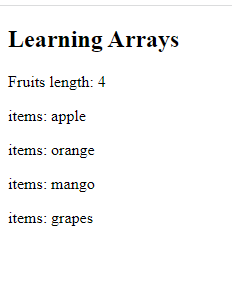
items = [2, “test”, “demo”, true, 5.15]; // valid

You can always use loops to iterate the array

arrays.html



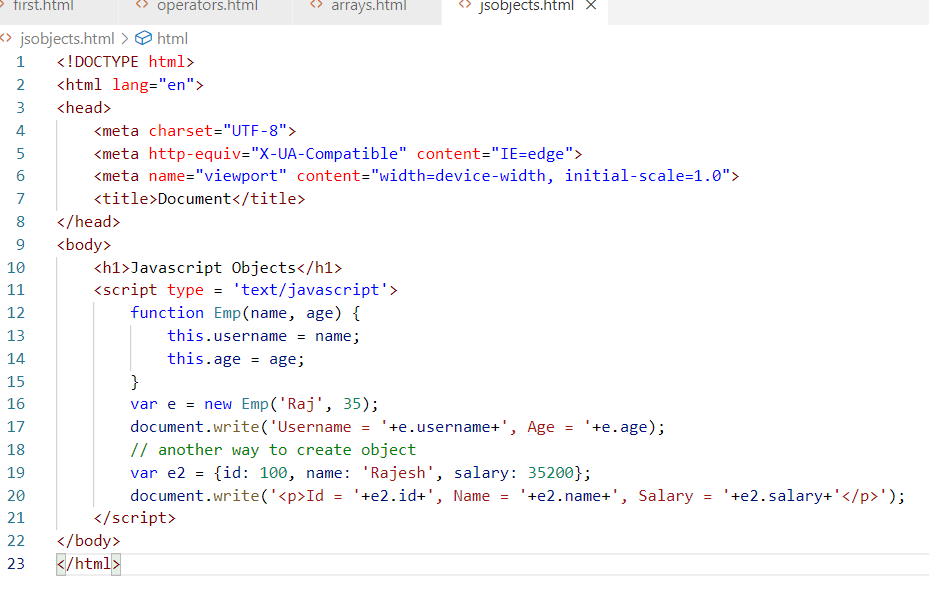
Output:



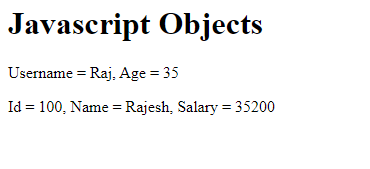
Creating Objects in Javascript

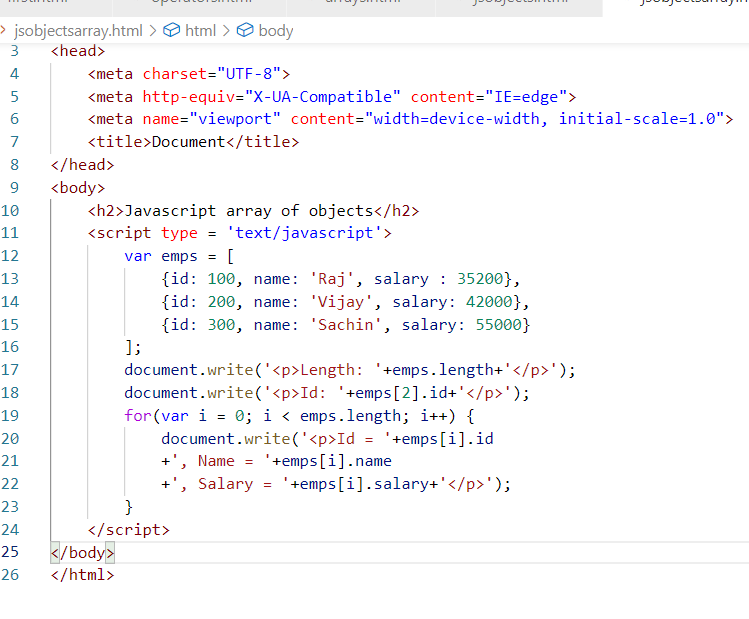
There are two ways you can create object in Javascript

1. Creating an object with {} having properties & values
2. Creating a constructor function that initializes the object

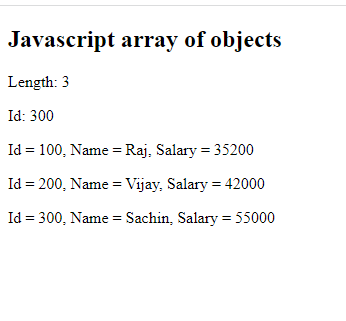


Output:





Output:



How to handle events:

Events are the things which are generated when user does some action on the HTML elements like click, mouseover, submit, change and so on.

In Javascript we can handle this event using the event attributes and their corresponding handler called function to handle.



Output:



There are many ways to get the element

1. event.target
2. document.getElementById()

Activities:

1. Try out all the above examples
2. With your own examples try different operators like <, >, <=, >=, !=
3. Try while & do while loops in Javascript and check out how it works
4. Display the array of employees in a table having rows & columns, use <table> tag to create tables and use the array having employee objects as below

 var emps = [

            {id: 100, name: 'Raj', salary : 35200},

            {id: 200, name: 'Vijay', salary: 42000},

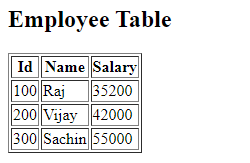
            {id: 300, name: 'Sachin', salary: 55000}

        ];

Solution:



Output:



ECMAScript (European Computer Manufacturing Association):

It is a standard that specifies set of features so that their specifications can implement, ECMAScript specifications are

* Javascript
* Typescript
* JQuery
* Node.js
* Browser
* JSX

ECMA Script is also called as ES it has released lot of new features from V6 onwards till now, V6 was released in 2015, all these new features are understood by browser, node.js and even Javascript.

New Features of ECMAScript

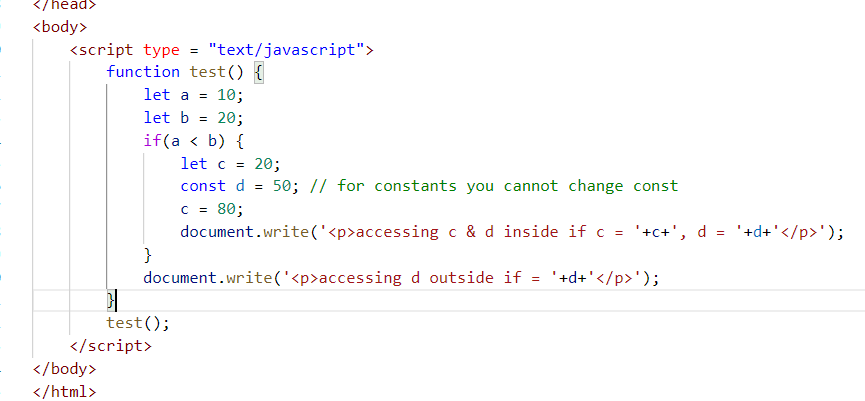
These simplifies writing Javascript code

1. let, const, class, extends, super, constructor
2. Template Strings
3. Rest, Spread & Default Parameters
4. Arrow Functions
5. Destructuring
6. padStart & padEnd
7. Exponential Operator
8. Optional Chain
9. Object entries & values
10. static keyword

let & const

These are the two keywords you can use to declare variables in Javascript apart from var, let & const creates scopes for the variables.

var is always global, means you create variables with var it will be considered as global variable it is not part of any block of code, sometime you want to protect your variables within a block of code then through var its not possible, but possible through let & const



const variables can’t be modified

Output:

