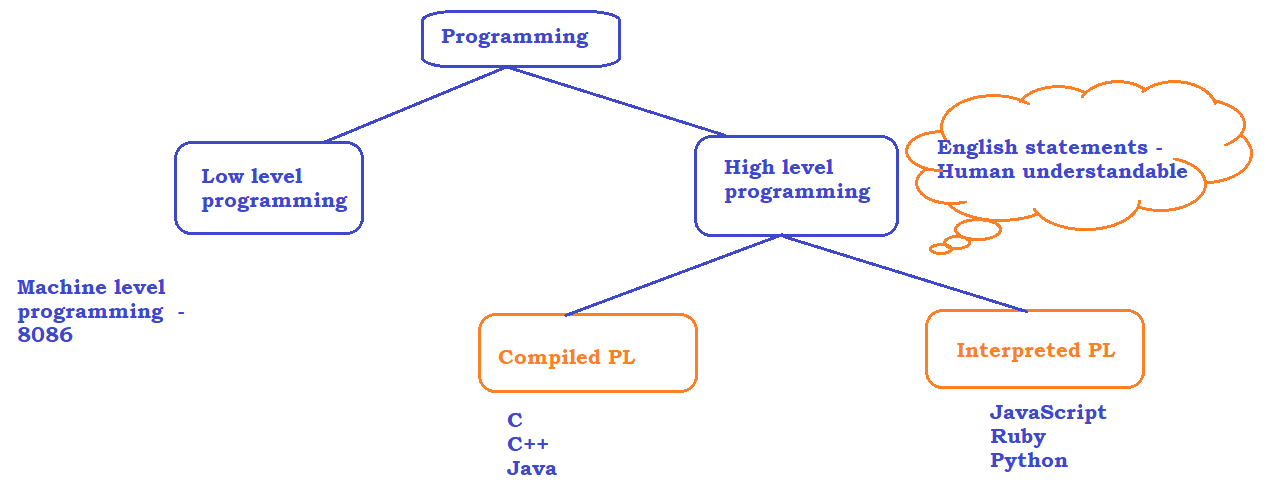
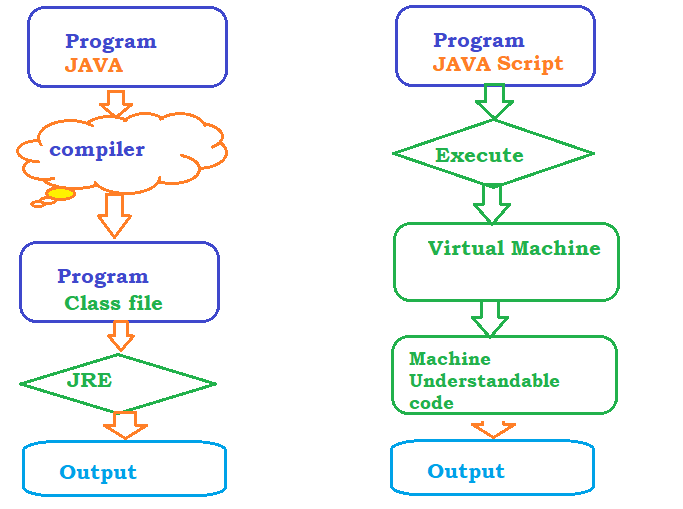
JavaScript

# PROGRAMMING :



HIGH LEVEL DIFFERENCE

****

# What is JAVA Script ???

=======================

Javascript is a **High-level** and **Interpreted** programming language.

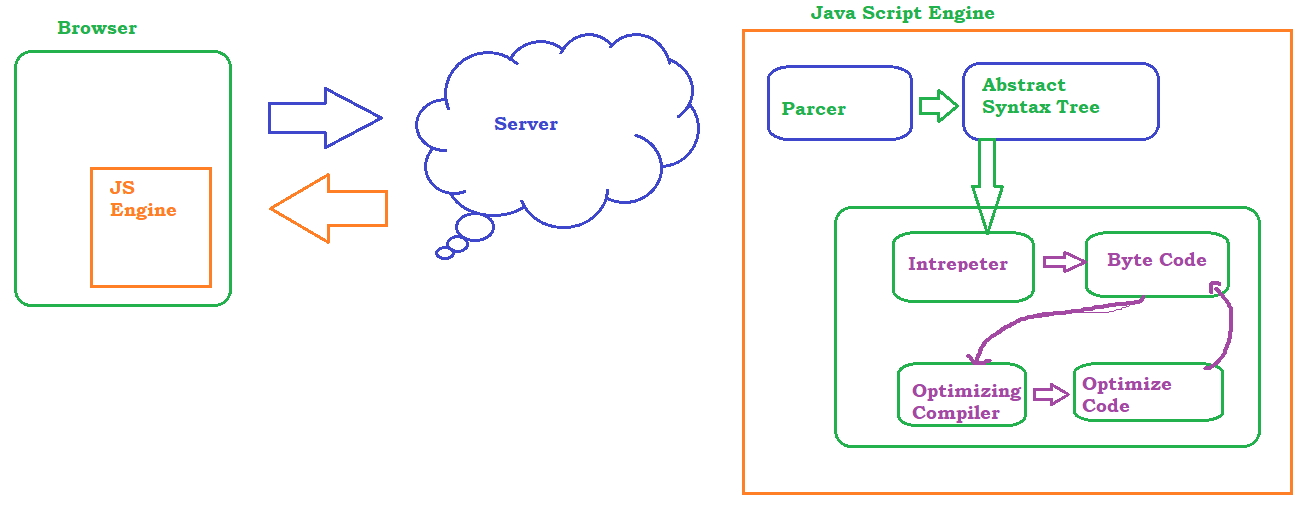
**High-level :** It’s a Human Readable English Statements

**Interpreted :** Its ready to run code as soon as we complete coding.

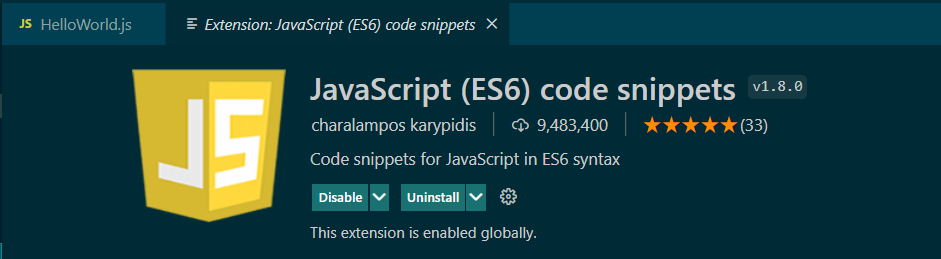
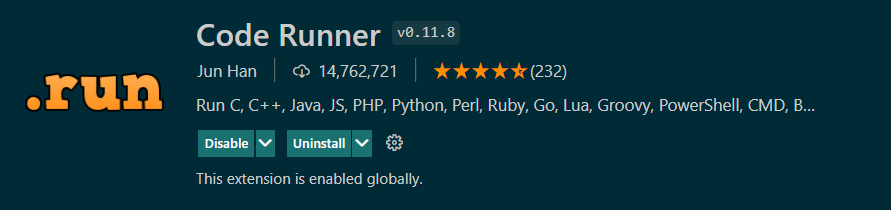
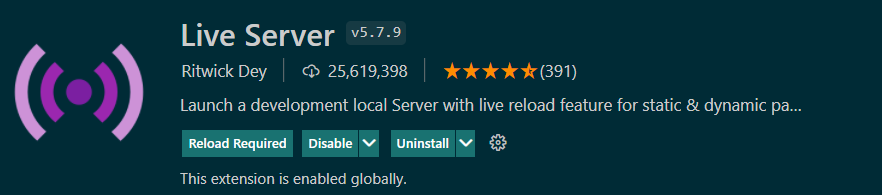
# History:

* JavaScript is introduced in 1995-96 as a Programming language for Web, it was mainly used for validating the content on the Web
* Brendan Eich from Netscape Communications ( Mozilla foundation )
* Now, JS can be used as a programming for Web as well as non browser environments such as Node.js Adobe etc
* Node JS, Ajax internally uses Java Script to write Server side programming
* Today, JS is widely used in non browser apps as well, to create UI, mobile, Desktop applications

# How Java Script Run :



# IDE : Visual Studio Code

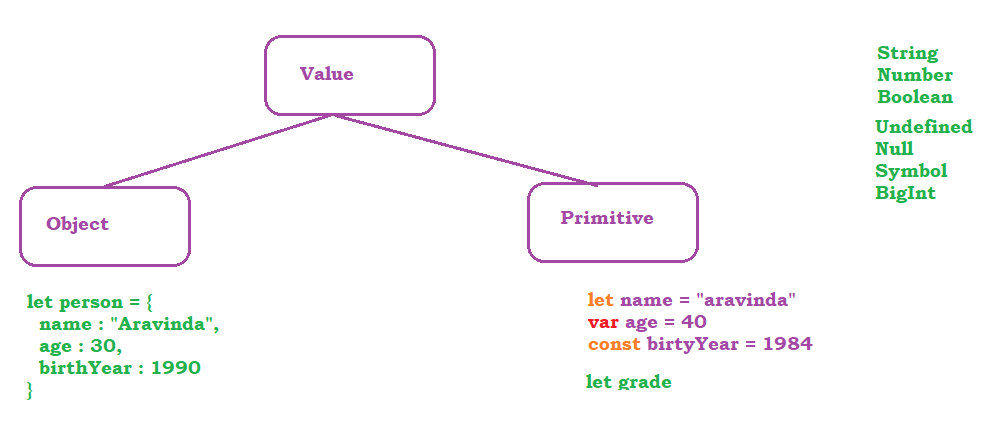
* Download the software from <https://code.visualstudio.com/>
* Double click on the installer and follow the instructions to install the software
* Click on file -> Open folder =>Select the Work Space
* File -> Preference -> Color and Theme to change the color of editor
* Use Extensions to install the plugin
* 
* 
* 

Install NodeJS Software on the machine if you want to execute JavaScript on non-Browser environment

* Download the software from <https://nodejs.org/en/download/>
* Follow the instructions to install the SW
* Open Command prompt and verify the installation by
  + node –v
  + npm –v

Variables :

JS has dynamic typing, based on the value stored in a variable it will assign the data type.



Operators in Java Script

# Arithmetic Operators

* Addition -> +
* Subtraction -> -
* Multiplication -> \*
* Division -> /
* Module -> %
* Exponential -> \*\*
* Increment -> ++
* Decrement -> --

# Assignment Operators

* Assign = x=y
* Add and assign += x+=y x = x + y
* Sub and assign -= x-=y x = x – y
* Multiply and assign \*= x\*=y x = x \* y
* Divide and assign /= x/=y x = x / y
* Module and assign %= x%=y x = x % y
* Expone and assign \*\*= x\*\*=y x = x \*\* y

# Comparison Operators

* Check equal value ==
* Check equal value and type ===
* Check Not equal value !=
* Check Not equal value and type !==
* Greater than >
* Greater than and equal >=
* Less than <
* Less than and equal <=
* Ternary Operator ?:

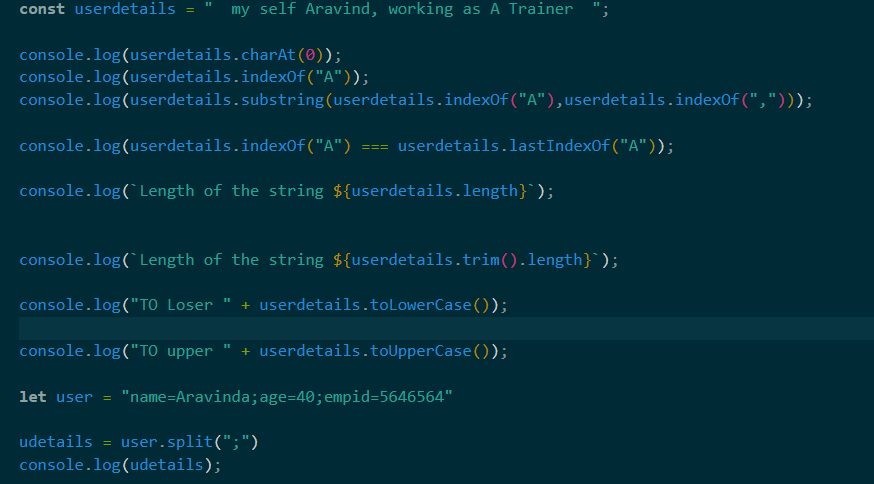
# Logical Operators

* Logical AND && x ==2 && y ==2
* Logical OR || x ==2 || y ==3
* Logical NOT ! !(x==2)

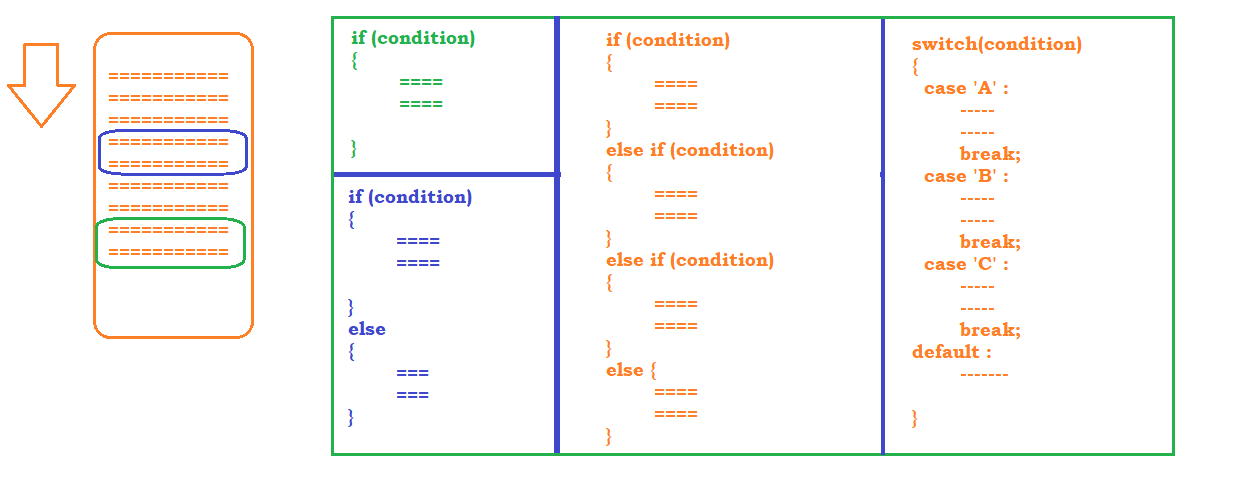
# Type of Operators

* typeOf()
* instanceOf()

Strings

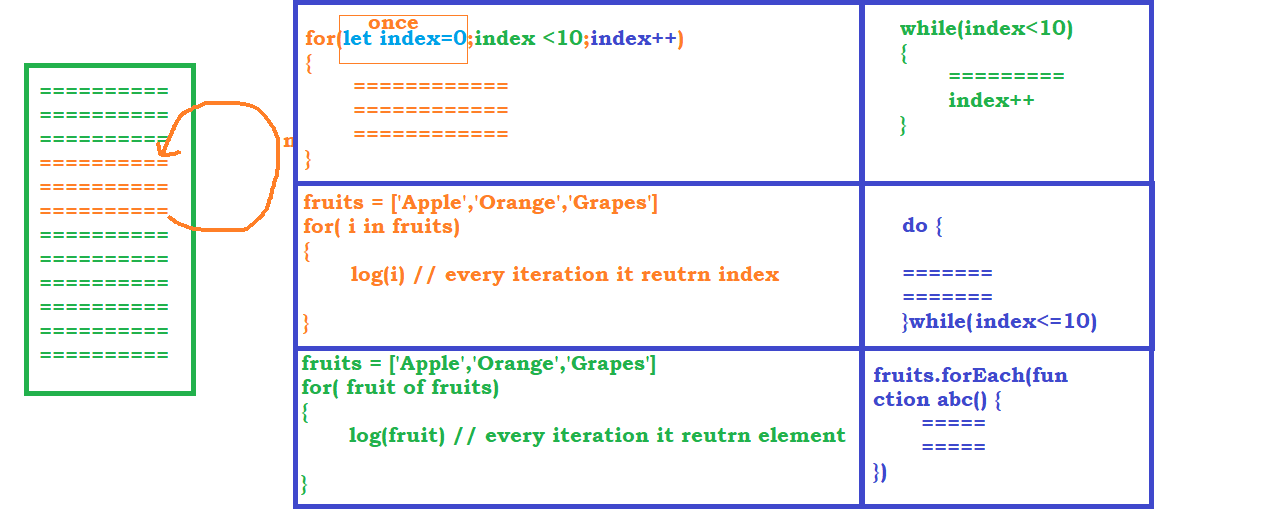


Conditional Statements

* if
* if.. else
* if..elseif..else
* switch
* 

Looping Statements

* for
* for-each
* while
* do-while
* for in
* for of

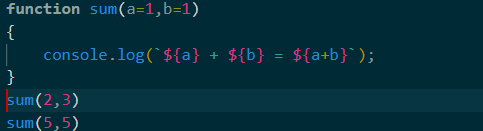


Arrays

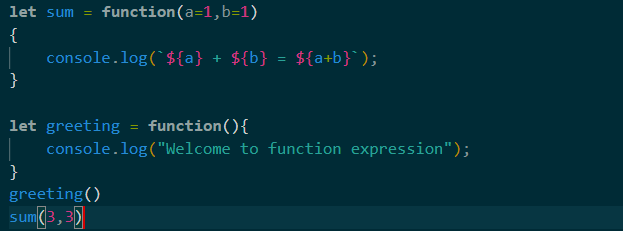
* **push** – insert element at the end
* **pop** – delete element at the end
* **shift** – delete element from the beginning
* **unshift** – insert the element at the beginning
* **delete** – remove the element but retain the index
* **slice** - will not alter the original array
* **splice** – will alter the original array
* **concat** – To join one or more array
* **join** – to get string from an array

Functions

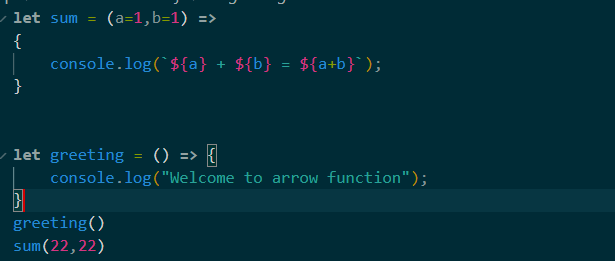
* Function with function definition



* Function with function Expression OR anonymous function



* Arrow functions



Collections

* Map - Key and Value pair
* Set – To store unique Values

OOP in Java Script

* Class
  + class expression
  + class declaration
* Objects
* Abstraction
* Encapsulation
* Polymorphism
* Inheritance

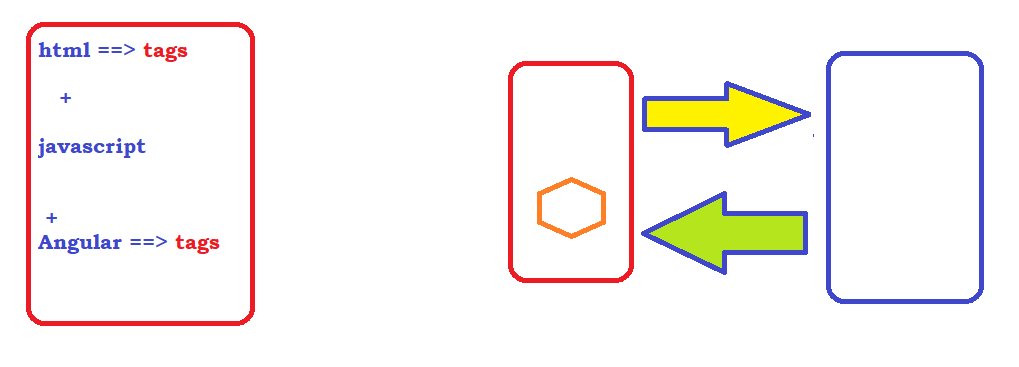
Protractor :

# Protractor is a Automation tool for Angular / AngularJS and non angular applications

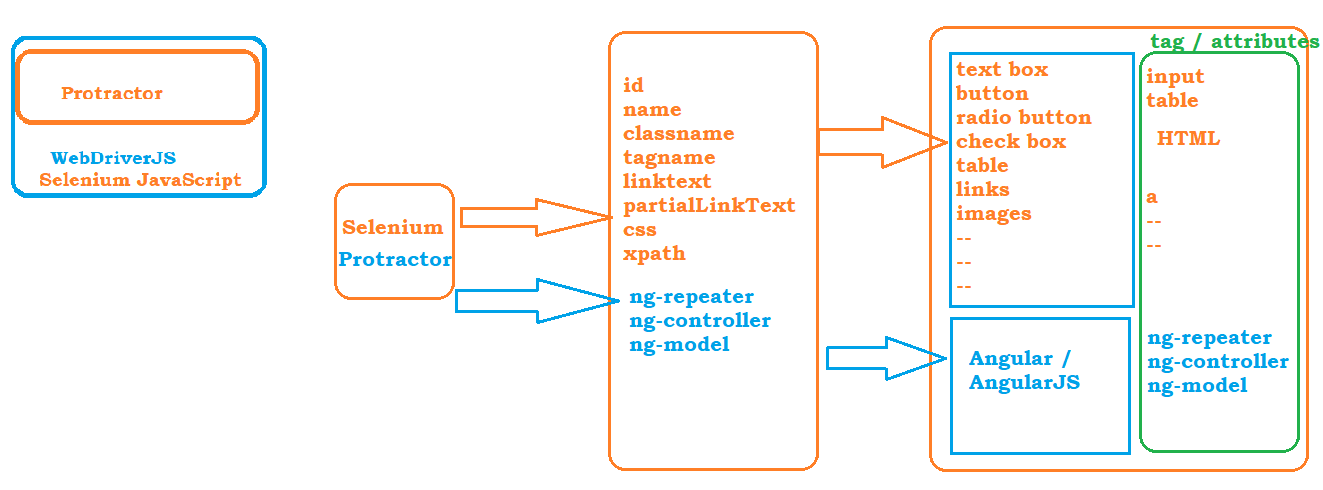
# Angular / AngularJS :

Angular or Angular JS is a Open source front end Web Application Development Framework, which is introduced and maintained by Google

we have some special tags available in HTML DOM, when the application is developed using Angular

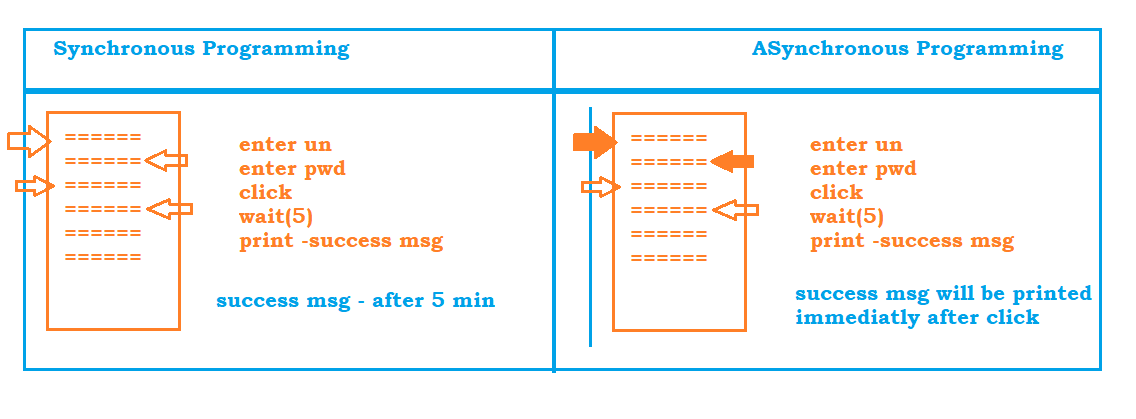


Protractor is a **NodeJS** application so Node.js is mandatory to use protractor



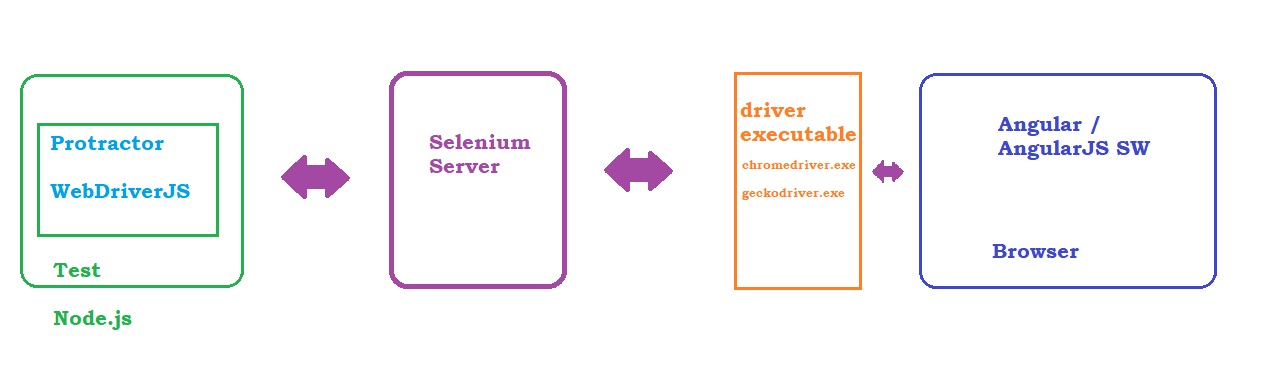
Advantages of Protractor :

* Easy to identify the elements which are having angular specific properties
* Code is simple because Sync issues are handled internally by protractor functions
* Auto Synchronization between Protractor and Angular applications that helps to minimize the explicit waits



To force wait for 5 mins in asynchronous programming we have to ***resolve the promise***

# Execution in Protractor



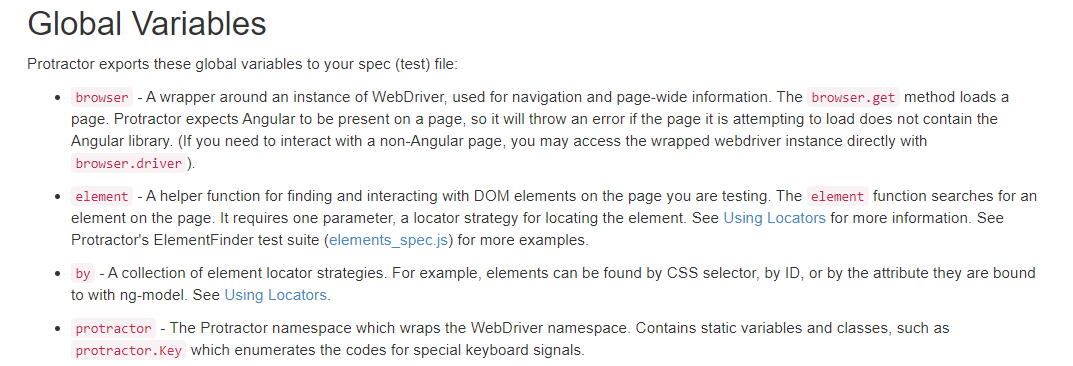
## Official WebSite :

* <https://www.protractortest.org/#/>
* SET UP : <https://www.protractortest.org/#/tutorial>
* Reference to API : <https://www.protractortest.org/#/api>
* Browser Support : <https://www.protractortest.org/#/browser-support>
* Global Variables : <https://www.protractortest.org/#/api-overview>

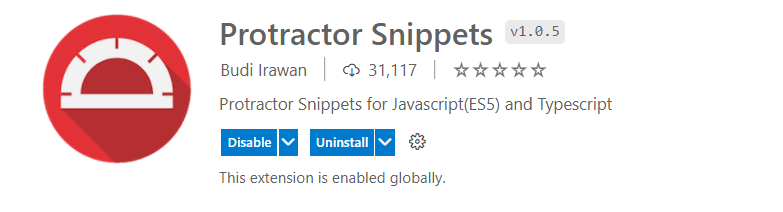
## Installation and configuration of Protractor

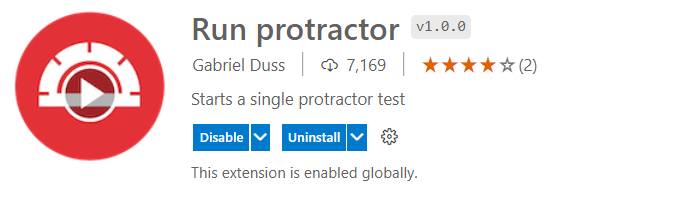
1. Download and install Node JS software on your machine
   1. <https://nodejs.org/en/download/>
   2. node –v
   3. npm –v
2. Install Protractor
   1. npm install -g protractor
   2. protractor --version
3. webdriver-manager update
   1. this will download the required driver executables
4. Driver executable location
   1. C:\Users\<<USERDIRECTORY>>\AppData\Roaming\npm\node\_modules\protractor\node\_modules\webdriver-manager\selenium
5. Protractor Software location
   1. C:\Users\<<USERDIRECTORY>>\AppData\Roaming\npm\node\_modules\protractor\bin
6. Sample Code
   1. C:\Users\Aravind\AppData\Roaming\npm\node\_modules\protractor\example

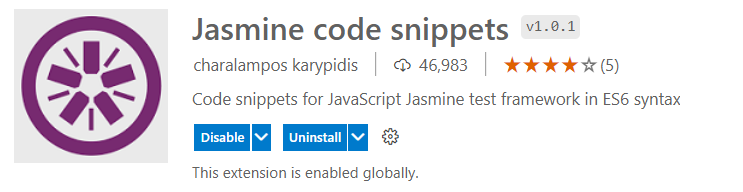
# Global Variables of Protractor



Plugin :







# Asynchronous nature of JS

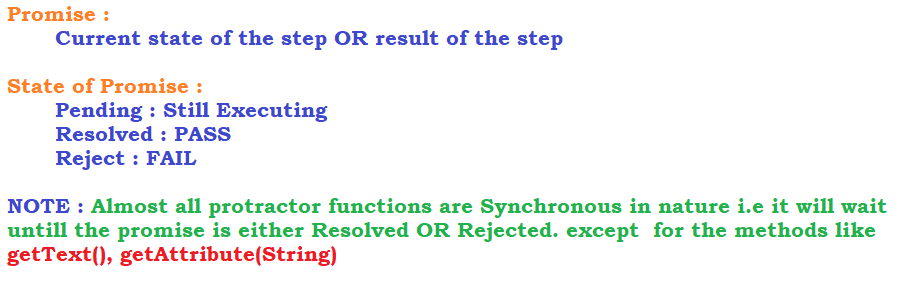
Execution will not wait until one line completes its execution. When a line of code is waiting for some resources JS will go to next line and execute it

To handle asynchronous of JS ***we have to use call back function***

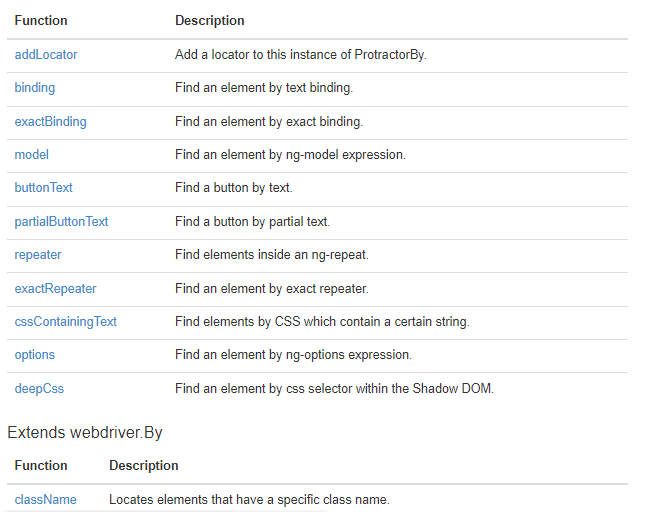
NOTE : Almost all protractor functions are Synchronous in nature ( control will not go to next line for execution until current line complete the execution ) except those functions where we read data from application i.e., getText, getAttribute etc.

for the above functions we have to resolve the promise to make it synchronous

# Promise …???

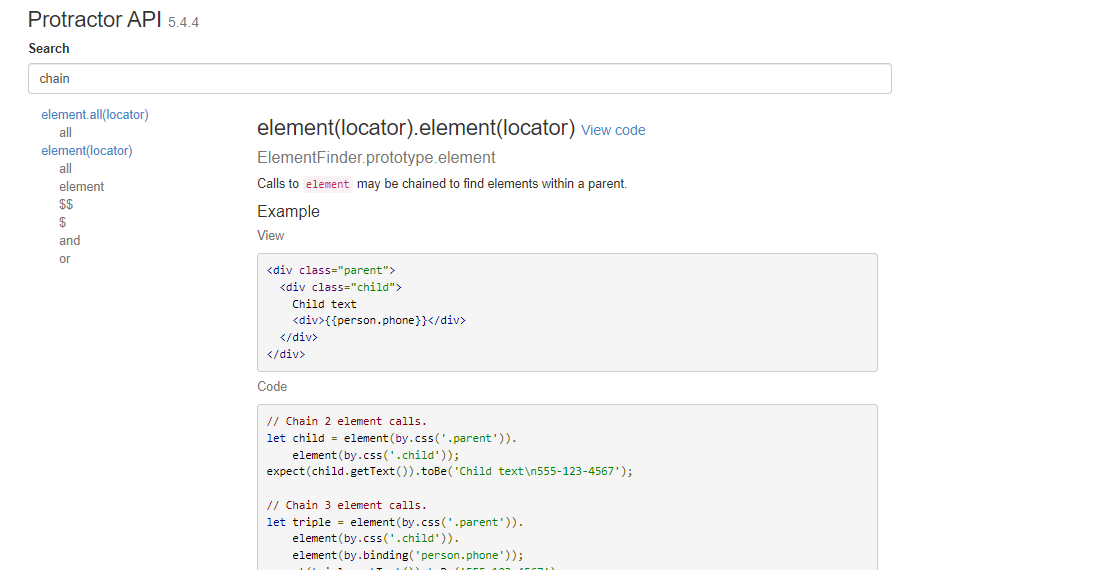


# Finding Elements in Protractor:

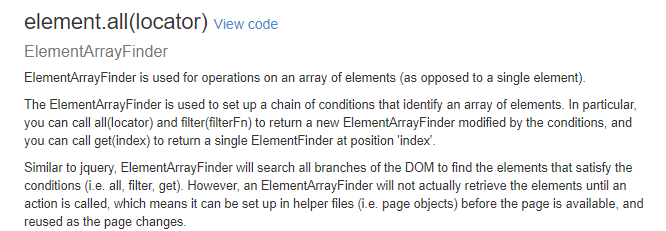


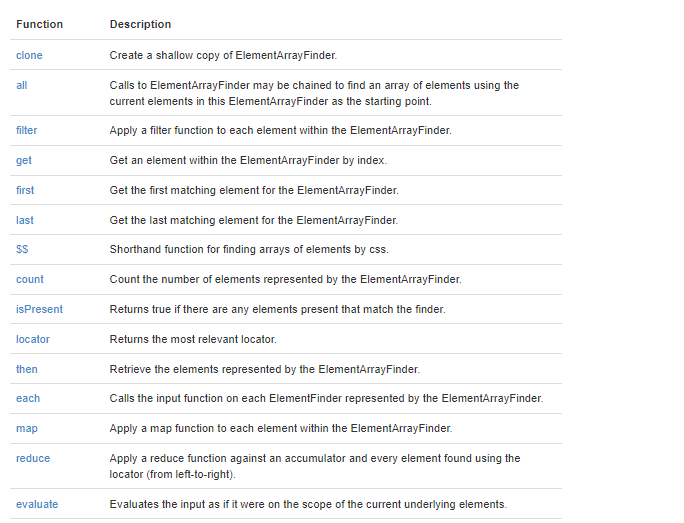
# Chain Locators:

Element inside another element – Finding element inside another element



# Handling multiple elements :





# Validations in protractor :

Validations can be performed using inbuilt Jasmine Framework functions.

[**https://jasmine.github.io/tutorials/your\_first\_suite**](https://jasmine.github.io/tutorials/your_first_suite)

Capture Screen Shots in Protractor

1. Go to <https://www.npmjs.com/>
2. Search for *protractor-jasmine2-screenshot-reporter*
3. <https://www.npmjs.com/package/protractor-jasmine2-screenshot-reporter>
4. Follow the instructions to install the software
   1. npm i protractor-jasmine2-screenshot-reporter
   2. Verify the required plugin is installed
5. Update the conf.js file as per the documentation
6. Execute the test and verify screenshots are captured

Allure Reports

1. Go to <https://www.npmjs.com/>
2. Search for jasmine allure reporter
3. <https://www.npmjs.com/package/jasmine-allure-reporter>
4. Install the plugin –
   1. npm i jasmine-allure-reporter
   2. Verify the required plugin is installed

5. Update the conf.js file as per the documentation

6. Execute the test and verify xml files are generated, to get the output in HTML Format

7. download allure commandline plugin

npm i allure-commandline

8. <https://www.npmjs.com/package/allure-commandline>

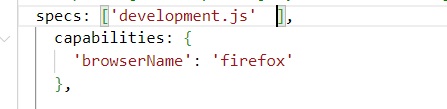
9. Execute allure server “location of xml files”

HTML Reports using Protractor

1. Go to <https://www.npmjs.com/>
2. Search for protractor-html-reporter-2
3. <https://www.npmjs.com/package/protractor-html-reporter-2>
4. Install the plugin - npm i protractor-html-reporter-2
5. Update the conf.js as per instructions
   1. onPrepare()
   2. onComplete()
6. Execute the test

Execute tests on different browser

Add browser variable to conf.js



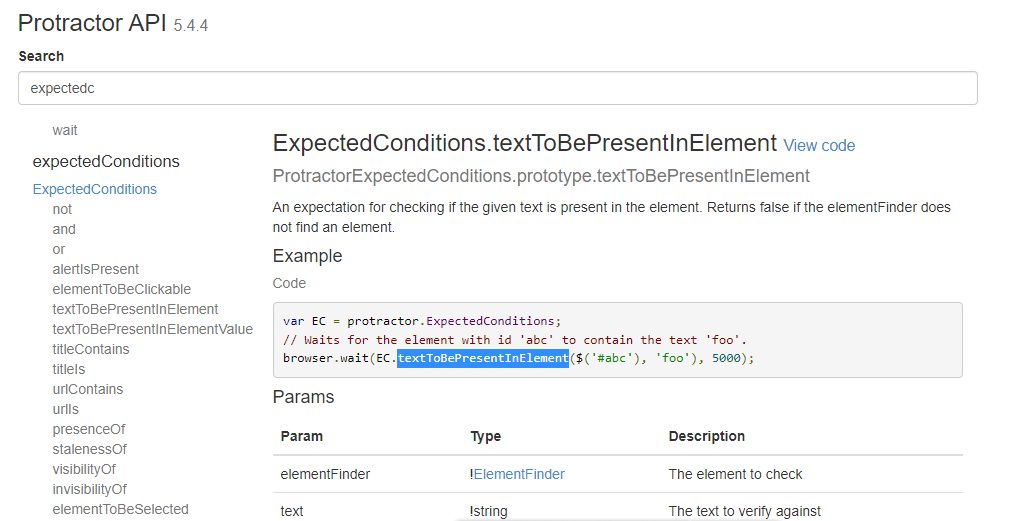
Automate non Angular applications

First step to automate non-angular applications is by disabling waitForAngularEnabled to false

browser.waitForAngularEnabled(false)

Sync issues in non-Angular apps

<https://www.protractortest.org/#/api?view=ProtractorExpectedConditions.prototype.textToBePresentInElement>



Actions

 browser.actions().mouseMove(element(by.xpath("//span[text()='Men']"))).perform();

          browser.sleep(5000)

<https://www.protractortest.org/#/api?view=webdriver.WebDriver.prototype.actions>

Browser Operations

browser.driver.manage().window().maximize();