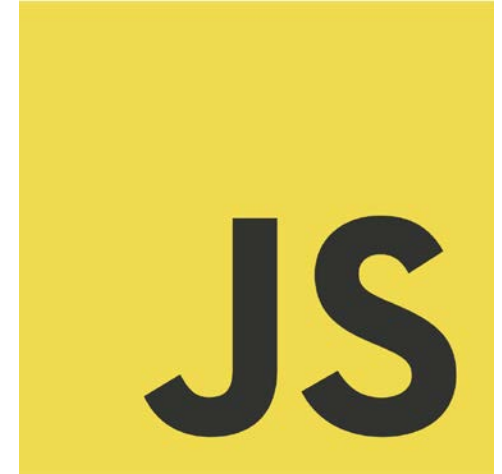


INTRO TO JavaScript



GIRLSCRIPT EDUCATION OUTREACH PROGRAM

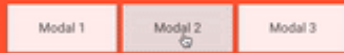
TOPICS TO COVER:

1. What is JS?
2. What can we do with JS?
3. Future scope
4. Browser Console
5. Writing “Hello World” in JS
6. Data Types
7. JS in webpages
8. NodeJS Installation

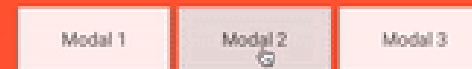
1. What is JS ?

- ✓ JavaScript is a *dynamically typed* programming language.
- ✓ *JavaScript* was initially created to “make web pages alive”
- ✓ JavaScript can run on browsers.
- ✓ Full integration with HTML/CSS.
- ✓ Today, JavaScript can execute not only in the browser, but also on the server, or actually on any device that has a special program called the JavaScript engine.





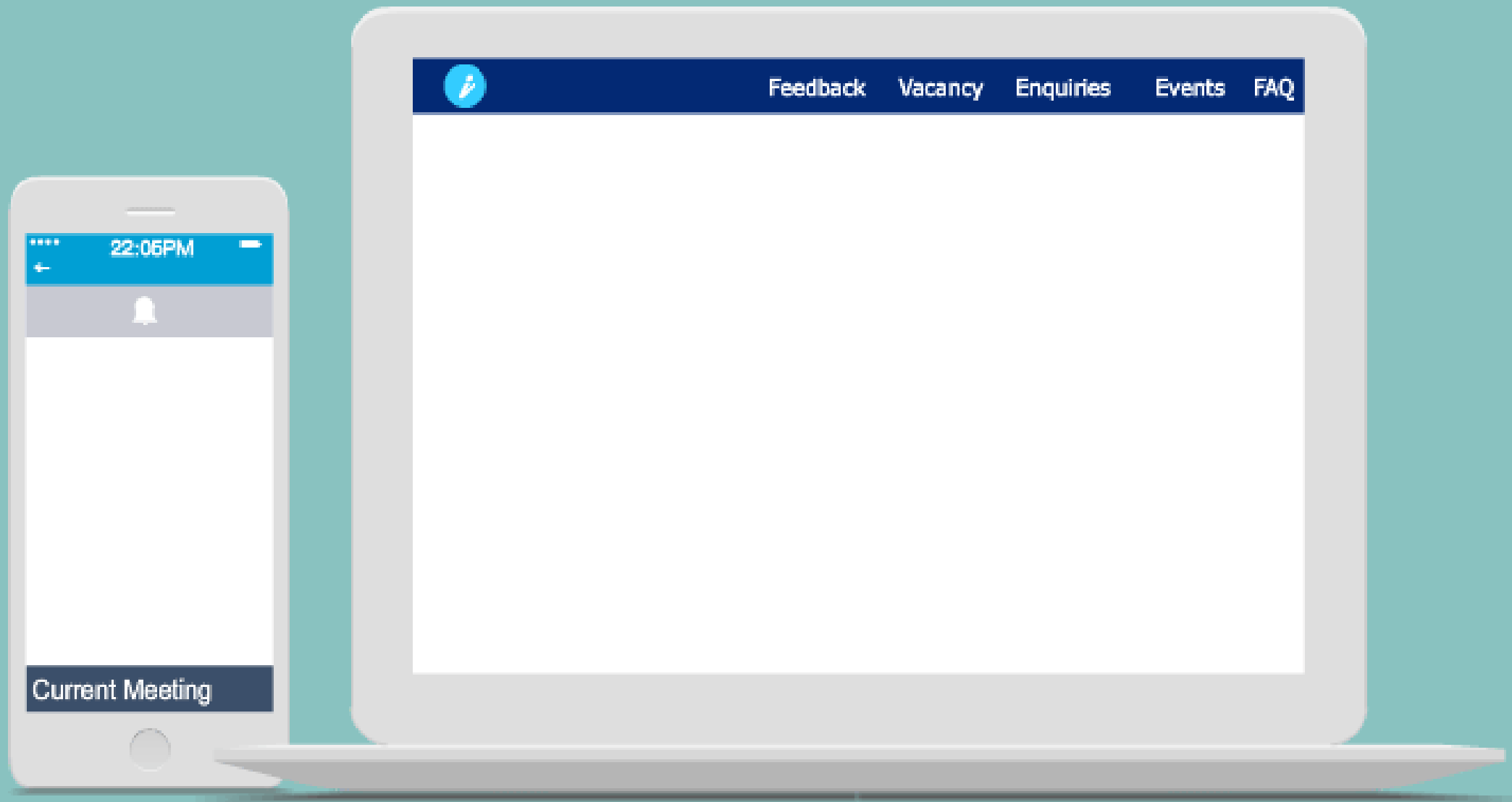
Click a button to activate a modal.



Click a button to activate a modal.

2. What can we do with JS ?

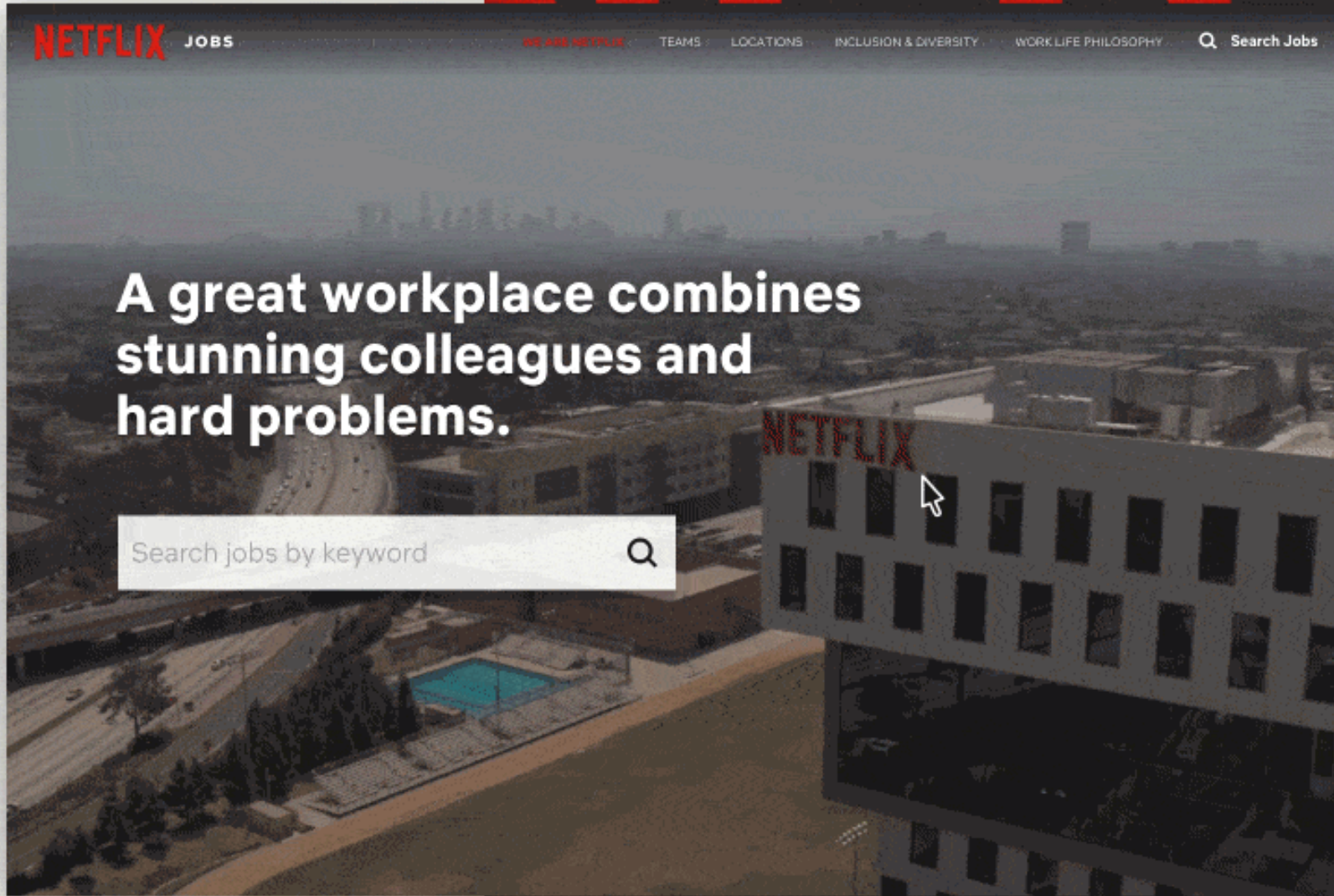
- ✓ Along with HTML and CSS, JavaScript forms the basis of **front-end web development**.
- ✓ Create interactive elements for web pages, enhancing the user experience.
- ✓ Things like: menus, animations, video players, interactive maps, and even simple in-browser games.
- ✓ JavaScript can also run on servers via **NodeJS** , hence being a great option for **back-end development** as well.



kreyon

Interactive Web Elements

[*Image source*](#)



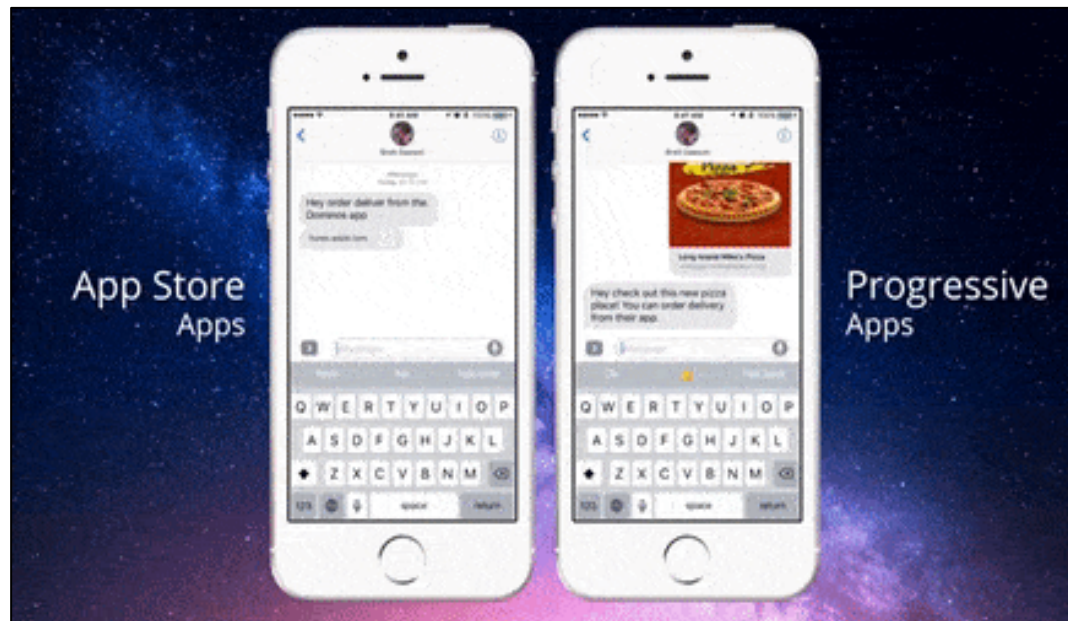
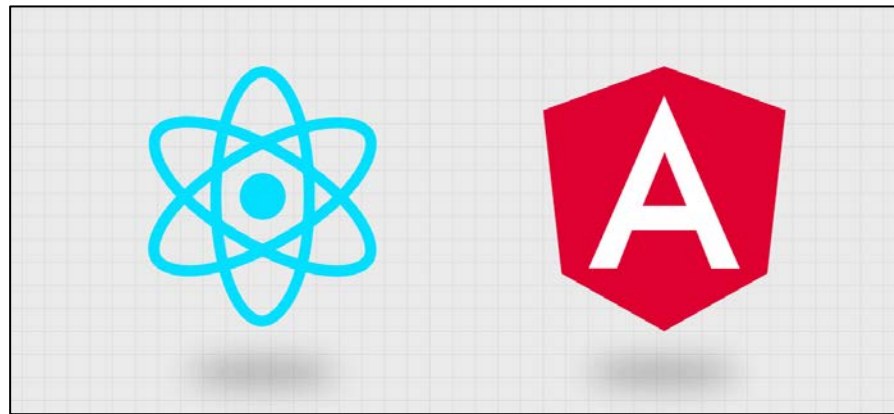
Dynamic Websites & Webapps

https://uijar.com/uploads/post/image/62/netflix_jobs-2-min.gif

3. Future Scope

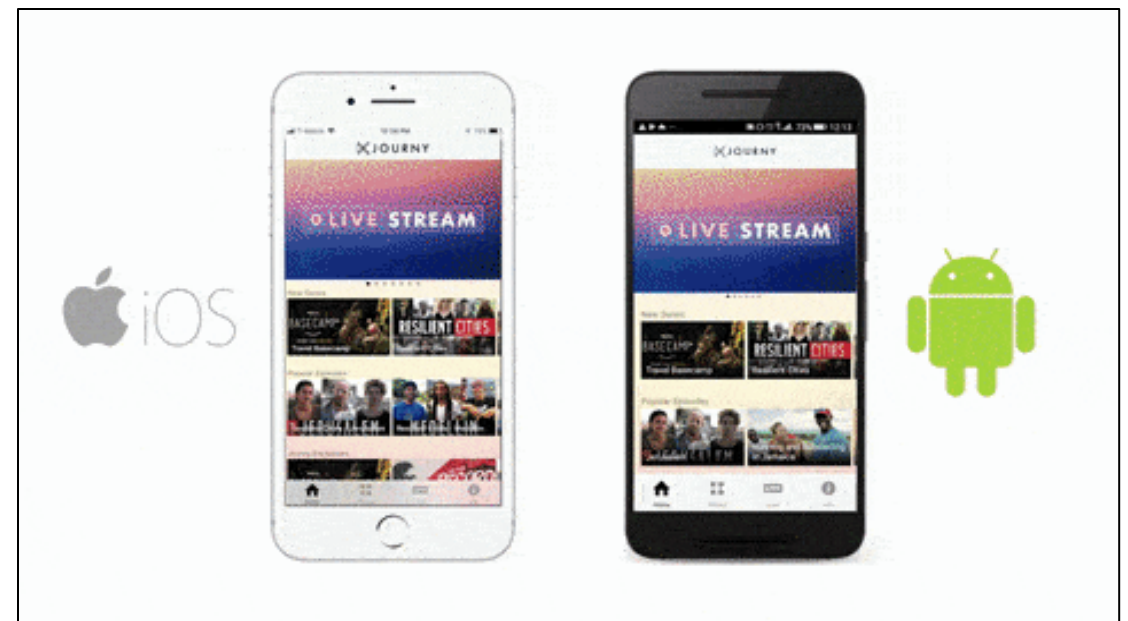
- Empowers Over 95% of The Web
- *Readily available packages and libraries.*
- *Excellent Choice of Frameworks :
AngularJS, Ember.js, Meteor.js, ReactJS, and VueJS*
- Job profiles:
Front End Web Developer , Web Developer , UI/UX Designer , Full Stack Developer





Progressive Web Apps (PWA)

[Image source](#)



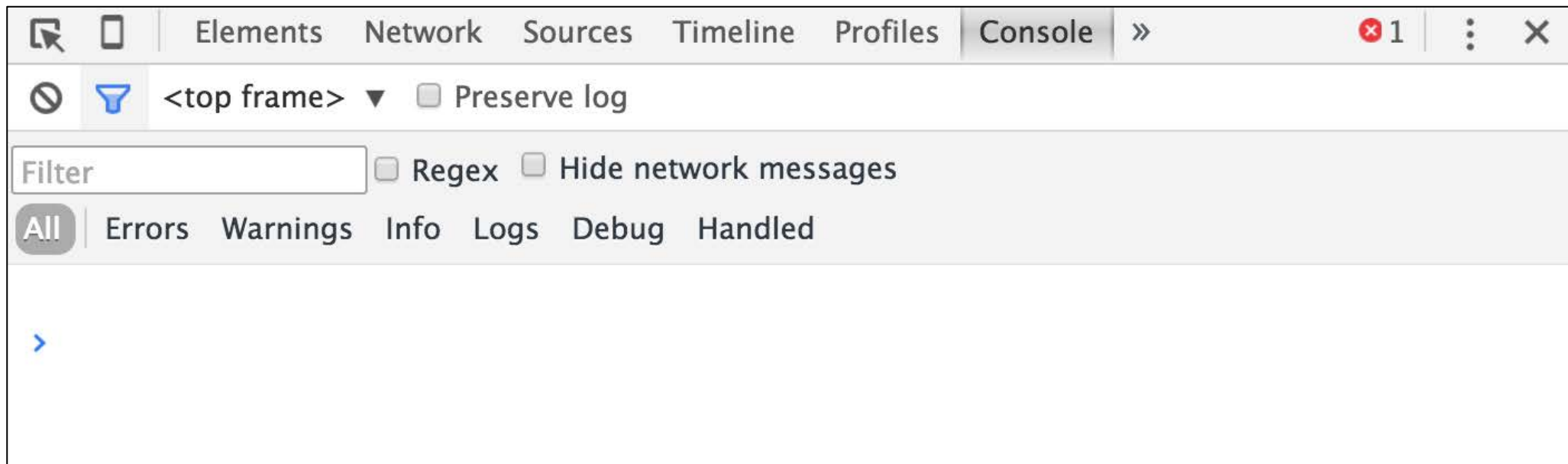
Cross Platform Apps (with ReactNative)

[Image source](#)



<https://insights.stackoverflow.com/survey/2019#technology>

4. Developer Console



- Web browsers have ***Developer console*** meant for us developers to see console errors and run our own JavaScript.
- The exact look of developer tools depends on the browser being used. The look & feel of them is quite similar.

5. Writing “Hello World” in JS

- Press **F12** or, If you're on Mac, then **Cmd+Opt+J**
- The developer tools will open on the Console tab by default.
- Use `console.log()` function to print something on console.
- In our example:
`console.log("Hello World ! ")`

6. Data Types in JS

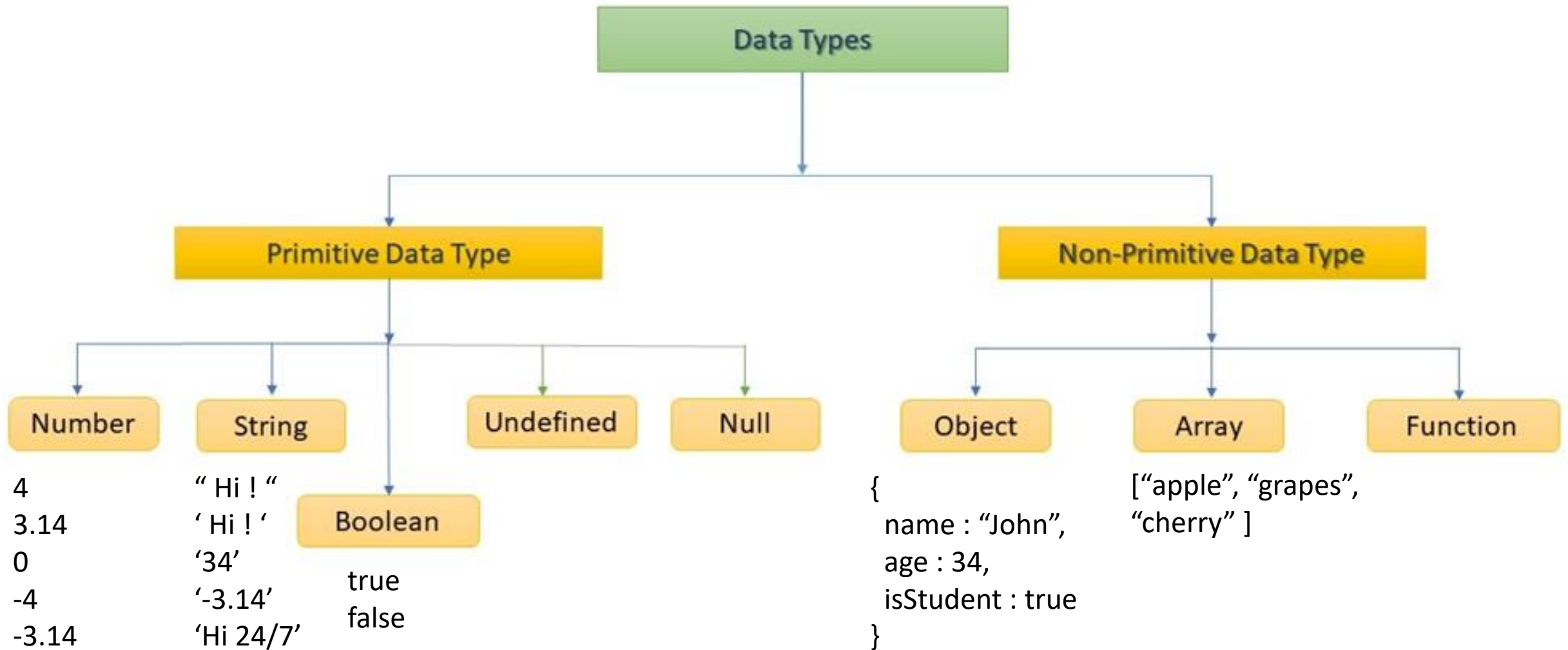
- **Variable** : stores a data value

```
var message = 'Hello';
```



- variable ***declaration*** and ***assignment***:

```
var message;  
message = 'Hello';  
// These two lines of code is equivalent to the code example on top.
```



So . . what is dynamic typing?

Static vs Dynamic Typing

Java

Static typing:

<code>String name;</code>	Variables have types
<code>name = "John";</code>	Values have types
<code>name = 34;</code>	Variables cannot change type

JavaScript

Dynamic typing:

<code>var name;</code>	Variables have no types
<code>name = "John";</code>	Values have types
<code>name = 34;</code>	Variables change type dynamically

@jonnwilder

A variable in JavaScript can contain any data. A variable can at one moment be a string and at another be a number

Programming languages that allow such variable declaration without explicitly mentioned data type are called “dynamically typed”.

<http://techtales.co/2017/09/05/dynamic-typing-vs-static-typing-mean/>

7. JS in webpage

- JavaScript was made to be **integrated with HTML/CSS**, to make webpages interactive.
- `<script>` tag is used to put our JS code in a HTML web page.
- Two ways of running JS in webpage:
 1. Internal JS
(writing JS code within HTML file)
 1. External JS
(writing JS code in separate JS file , then linking with HTML file)

INTERNAL JS

EXTERNAL JS

script.js

```
alert( 'Hello, world!' );
```

MySite.html

```
<!DOCTYPE HTML>
<html>

<body>

  Internal JS in HTML webpage

  <script>
    alert( 'Hello, world!' );
  </script>

</body>

</html>
```

MySite.html

```
<!DOCTYPE HTML>
<html>

<body>

  External JS in HTML webpage

  <script
src="/path/to/script.js">
  </script>

</body>

</html>
```

8. NodeJS Installation



- **What is Node.JS ?**

“ Node.js is a JavaScript runtime environment that executes JavaScript code outside of a web browser. “

- **Why Node.JS ?**

- Being able to run JS outside browsers, directly on servers, allows developers to use JS as a server-side programming language.
- It's used for traditional web sites and back-end API services

Installation

Ubuntu (Linux) :

1. Open your terminal.
2. To **install node.js** use the following command:

```
sudo apt install nodejs
```

Windows:

1. Goto <https://nodejs.org/en/download/> . Select “Windows Installer”.
2. Run setup.

Once **installed**, verify it by checking the **installed** version using the following command:


```
node -v or node --version
```

Executing JS via Node.js

Ubuntu (Linux) :

1. Open your terminal.
2. To **run code from a .js file** use the following command:
`node /path/to/script.js`
3. To **type JS directly in the terminal for execution** type:
`node`

To exit node mode, press **ctrl+c** or type **.exit**

A terminal window titled 'fish /home/saur' with a close button. The prompt is '~ node'. The user enters '> var a=5;', followed by 'undefined'. Then '> var b = 1;', followed by 'undefined'. Then '> console.log(a+b);', followed by '6'. Then '> .exit', followed by '~'.

```
~ node
> var a=5;
undefined
> var b = 1;
undefined
> console.log(a+b);
6
> .exit
~
```