
JS

JAVASCRIPT

YOU CAN THINK OF A WEB PAGE AS CONSISTING OF THREE LAYERS:

STRUCTURE, PRESENTATION, AND BEHAVIOR.

HTML IS THE STRUCTURE LAYER.

CSS IS THE PRESENTATION LAYER.

JAVASCRIPT IS THE BEHAVIOR LAYER.

JAVASCRIPT IS A PROGRAMMING LANGUAGE FOR CREATING INTERACTIVITY AND FUNCTIONALITY IN WEB BROWSERS.

JAVASCRIPT

HISTORY

JAVASCRIPT WAS WAS INVENTED BY BRENDAN EICH AND INTRODUCED BY NETSCAPE IN 1995.

AT THAT TIME, THE JAVA LANGUAGE WAS ASCENDANT AND THE NAME “JAVASCRIPT” WAS AN ATTEMPT TO RIDE THIS POPULARITY.

EVENTUALLY, BROWSERS OTHER THAN NETSCAPE BEGAN TO SUPPORT JAVASCRIPT FUNCTIONALITY, CALLING IT “ECMASCRIPT.”

TODAY, JAVASCRIPT IS NOT ONLY A LINGUA FRANCA OF THE WEB BUT A BASIS FOR MANY OTHER COMPUTATIONAL MEDIA PROJECTS.

JAVASCRIPT

APPLICATION

AS WITH CSS, JAVASCRIPT TARGETS HTML ELEMENTS TO DO SOMETHING WITH THEM.

THERE ARE THREE WAYS YOU CAN APPLY JAVASCRIPT TO HTML:

- **INLINE JAVASCRIPT**
- **EMBEDDED JAVASCRIPT**
- **EXTERNAL JAVASCRIPT**

EXTERNAL AND EMBEDDED JAVASCRIPT ARE PREFERABLE FOR THEIR SEPARATION OF CONTENT AND BEHAVIOR.

JAVASCRIPT

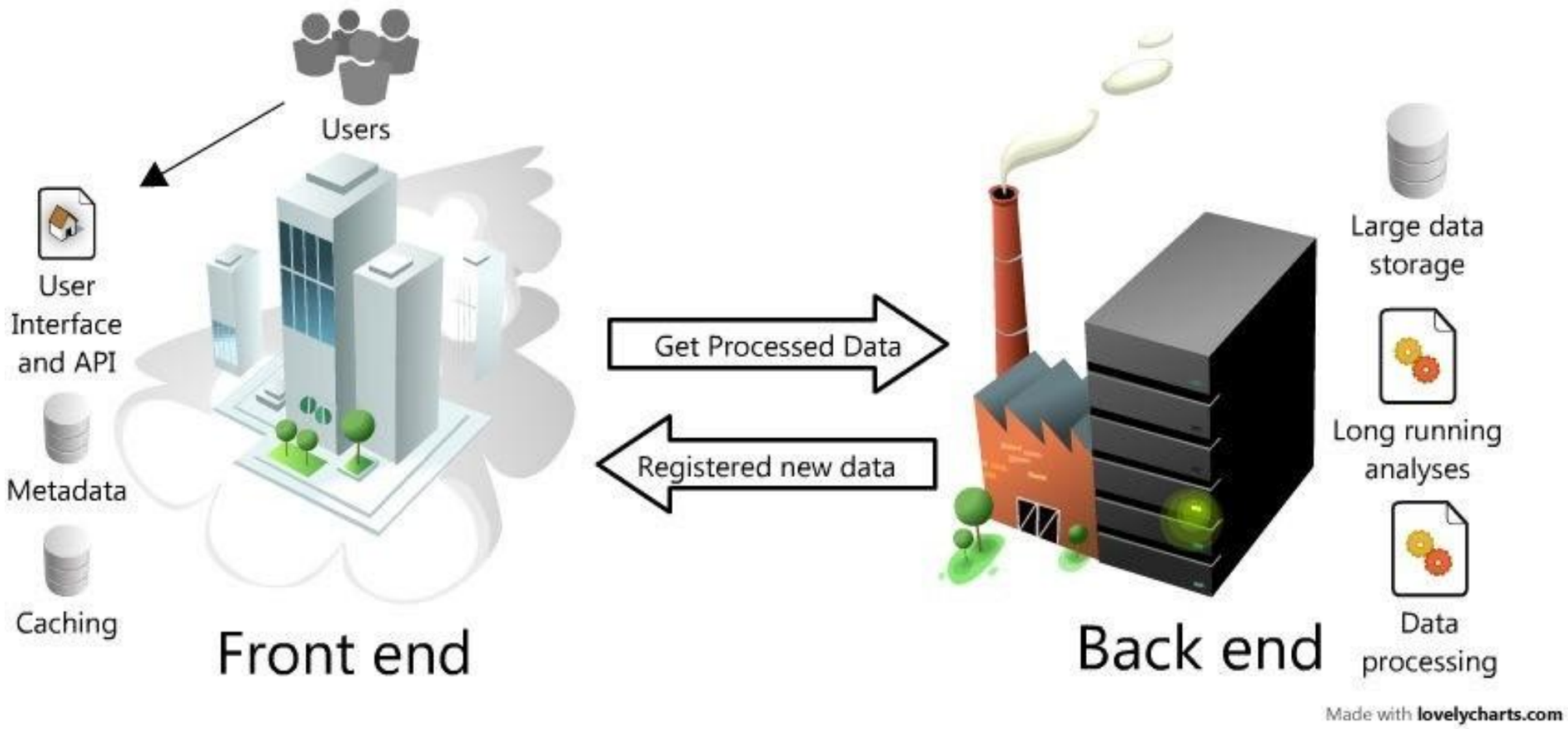
FRONT END LANGUAGE

LIKE HTML AND CSS, JAVASCRIPT IS USUALLY RENDERED IN THE WEB BROWSER.

BECAUSE IT'S RENDERED IN THE BROWSER RATHER THAN ON A SERVER, JAVASCRIPT IS CONSIDERED A "FRONT-END" LANGUAGE.

A BROWSER'S "JAVASCRIPT ENGINE" INTERPRETS AND EXECUTES JAVASCRIPT CODE IN THE BROWSER.

THERE ARE DIFFERENT JAVASCRIPT ENGINES FOR DIFFERENT BROWSERS.


Users
User Interface and API
Metadata
Caching
Front end
Get Processed Data
Registered new data
Large data storage
Long running analyses
Data processing
Back end
Made with lovelycharts.com

JAVASCRIPT

CAPABILITY

COMPUTATIONALLY SPEAKING, THERE ISN'T MUCH JAVASCRIPT CAN'T DO

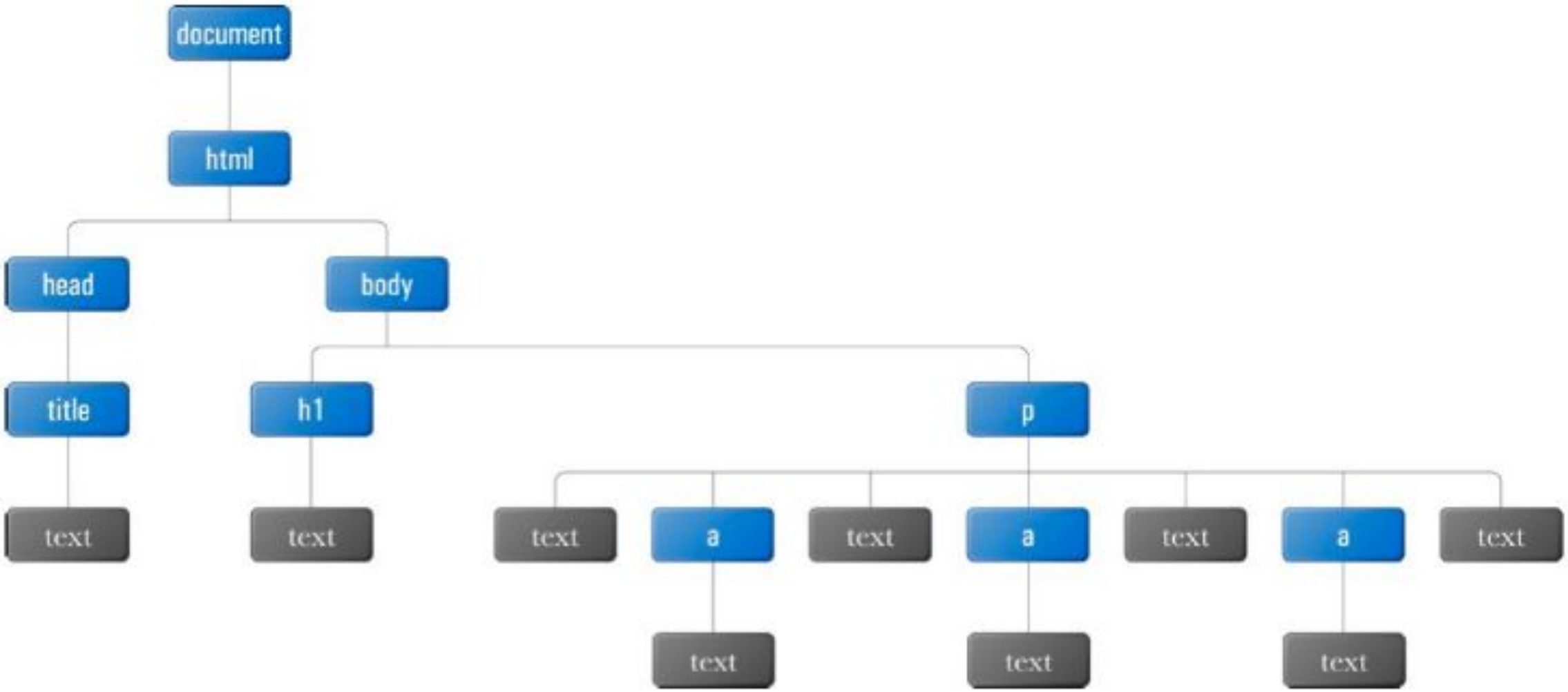
IT'S A ROBUST PROGRAMMING LANGUAGE.

CORE FUNCTIONALITY INCLUDES MODIFYING HTML AND CSS, COMMUNICATING WITH THE SERVER, AND STORING DATA.

WE WILL USE JAVASCRIPT TO MODIFY PAGE CONTENT AND STYLE.

AS WITH ANY TECHNOLOGY, IT'S GOOD TO CONSIDER WHEN TO USE IT AND WHEN IT'S UNNECESSARY.

DOCUMENT OBJECT MODEL



DOCUMENT OBJECT MODEL

WHEN A BROWSER LOADS A WEB PAGE, IT CREATES A MODEL OF THAT PAGE.

THIS IS CALLED A “DOM TREE” AND IT IS STORED IN THE BROWSER’S MEMORY.

EVERY ELEMENT, ATTRIBUTE, AND PIECE OF TEXT IN THE HTML IS REPRESENTED BY ITS OWN “DOM NODE.”

THERE ARE FOUR MAIN TYPES OF NODES:

- THE DOCUMENT NODE, WHICH REPRESENTS THE ENTIRE PAGE
- ELEMENT NODES, WHICH REPRESENT INDIVIDUAL HTML TAGS
- ATTRIBUTE NODES, WHICH REPRESENT ATTRIBUTES OF HTML TAGS, SUCH AS A CLASS
- TEXT NODES, WHICH REPRESENTS THE TEXT WITHIN AN ELEMENT, SUCH AS THE CONTENT OF A `<p>` TAG

WE TALK ABOUT THE RELATIONSHIP BETWEEN ELEMENT NODES AS “PARENTS,” “CHILDREN,” AND “SIBLINGS.”

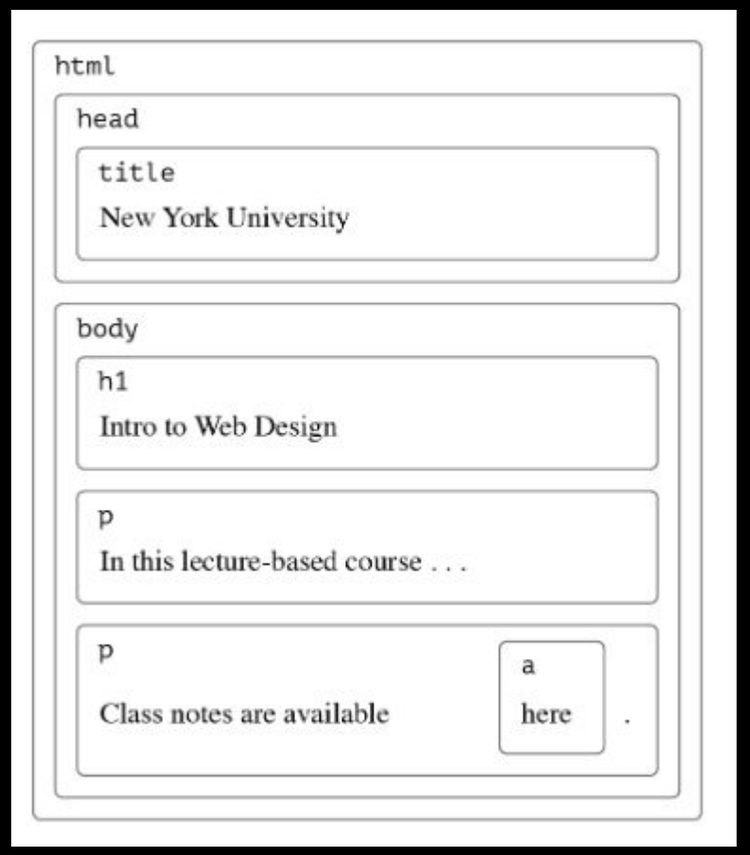
DOCUMENT OBJECT MODEL

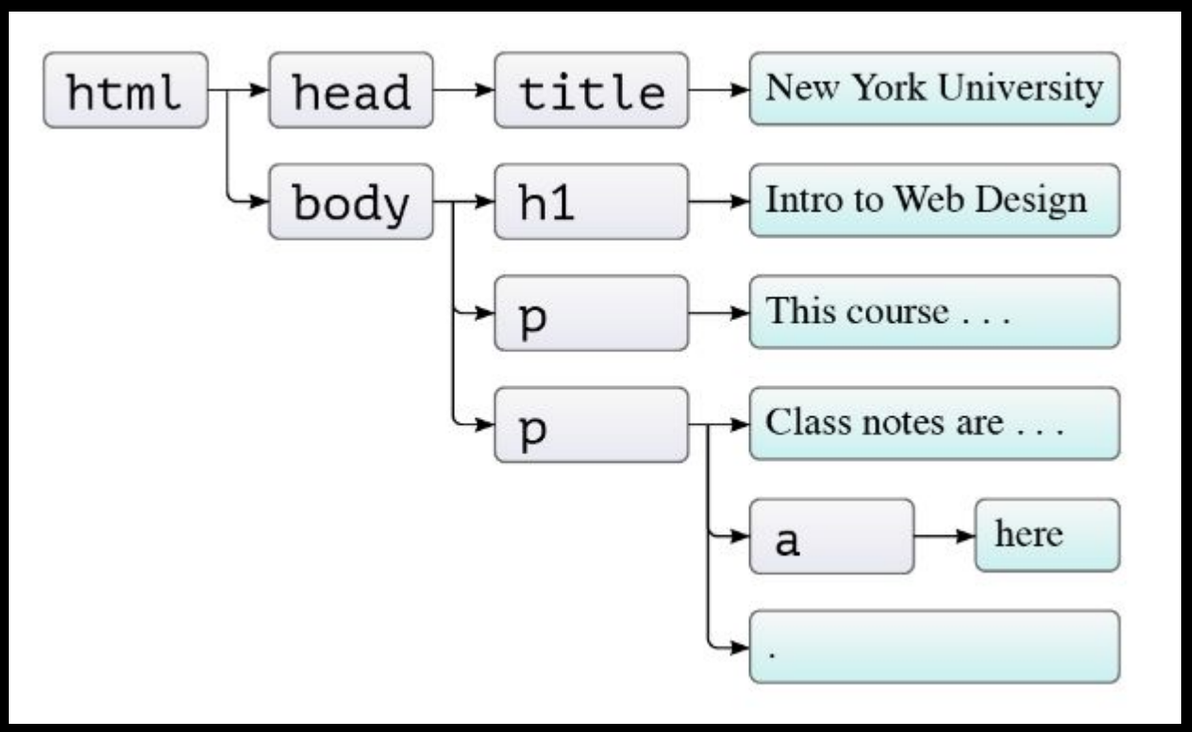
```
<html>
  <head>
    <title>New York University</title>
  </head>

  <body>
    <h1>Intro to Web Design</h1>

    <p>In this course you will learn how to build websites.</p>

    <p>Class notes are available
    <a href="notes.html">here</a>.<p>
  </body>
</html>
```





DOCUMENT OBJECT MODEL

DOM QUERIES

JAVASCRIPT METHODS THAT FIND ELEMENTS IN THE DOM TREE ARE CALLED "DOM QUERIES."

DOM QUERIES MAY RETURN ONE ELEMENT, OR THEY MAY RETURN A "NODE LIST."

WHICH DOM QUERY YOU USE DEPENDS ON WHAT YOU WANT TO DO.

METHODS THAT RETURN A SINGLE ELEMENT NODE:

- `getElementById()`
- `querySelector()`

METHODS THAT RETURNS ONE OR MORE ELEMENTS AS A NODE LIST:

- `getElementsByClassName()`
- `getElementsByTagName()`
- `querySelectorAll()`