Browser

★ How browsers render websites ?

↳ It is a simple software that can load some files from your computer (HDD / SSD) or it can load some file from remote server.

↓

something not present imizially with you.

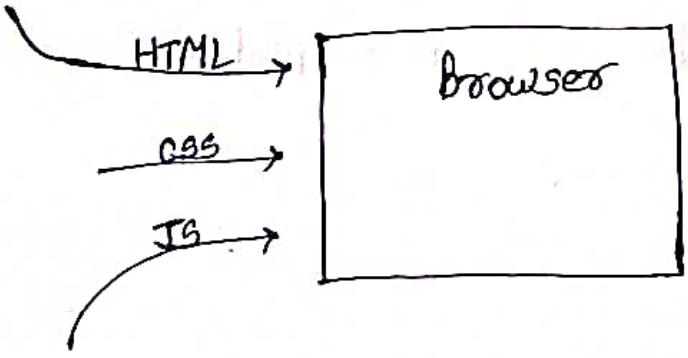
↳ Then browsers figure out how to display your content.

★ How browsers compute how to display any files ?

↳ Browsers have an engines, that decides algorithmically how to display content ??

Gecko ⟶ Browser Engine ⟶ Used in Fire Fox

★ How browser loads the file ⟶ (HTML, CSS, JS)



Tokenization ⟶ abc, def, ghi

↑ ↑

HTML file —Browser reads this html file in bytes→ Bytes are converted to characters

↓ Tokenization using a Parser

< > </>

Browsers converts the tokens into nodes. [every node is considered distict with distinct Property]

↓

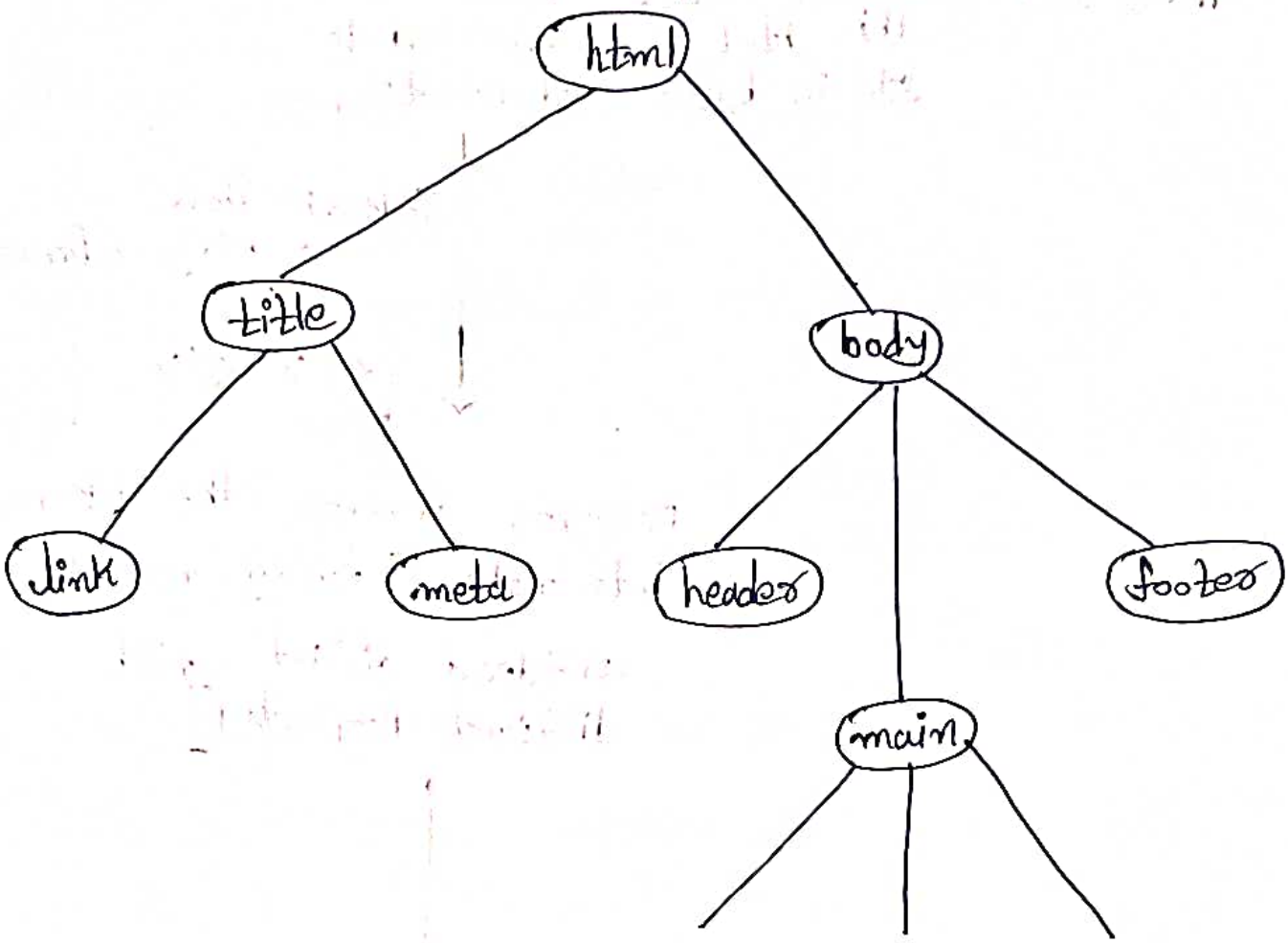
Represent these node in the ~~node~~ form of tree.

↓

DOM Tree

↓

Document object Model



↳ This is not a final result that render in your browser.

↳ How designing comes in the picture?

HTML ⟶ Hyper Text - - - -

↓

some other documents/objects link with html

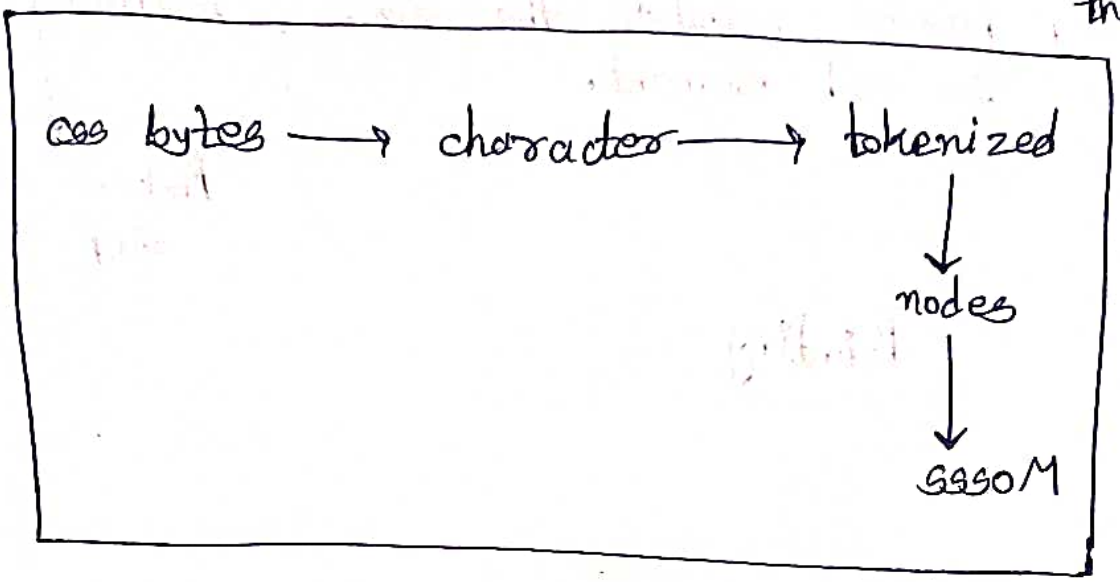
CSSOM → CSS : object Model

→ Cascading Style Sheet

↓

tree data structure

↳ cascading algo. that css follows



what styles finally applied

DOM + CSSOM ⟹ Render tree

display : none ;

↓

It present in DOM tree, but not in Render tree

Render Tree

Before we draw the Render tree on the browsers viewport, one more step is involved called layout.

In this steps browser calculate the sizes, position & other matrics for each element.

Reflow step

Painting

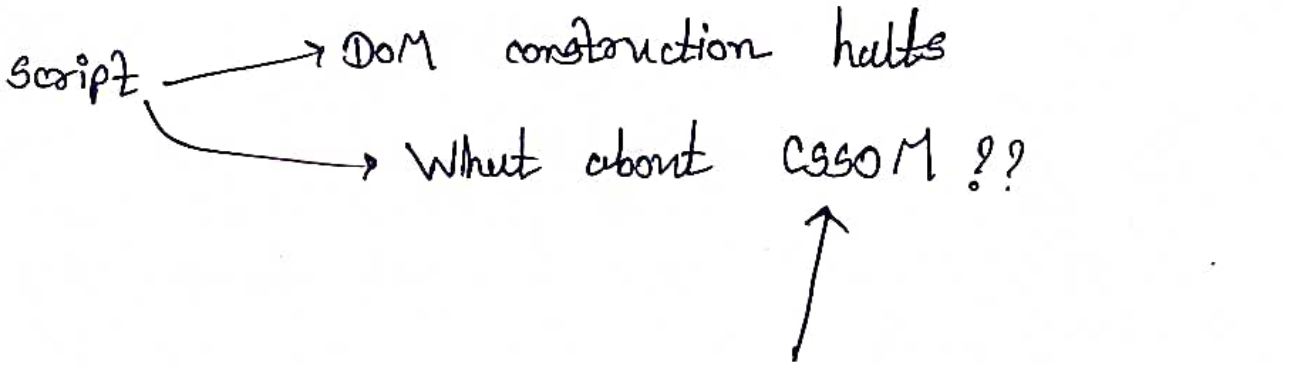
→ dom construction is paused when browsers hits a script tag.

→ Why you should write script tag in the last of body tag?

→ HTML

script

body



In most engines, JS is halted until CSSOM is constructed.