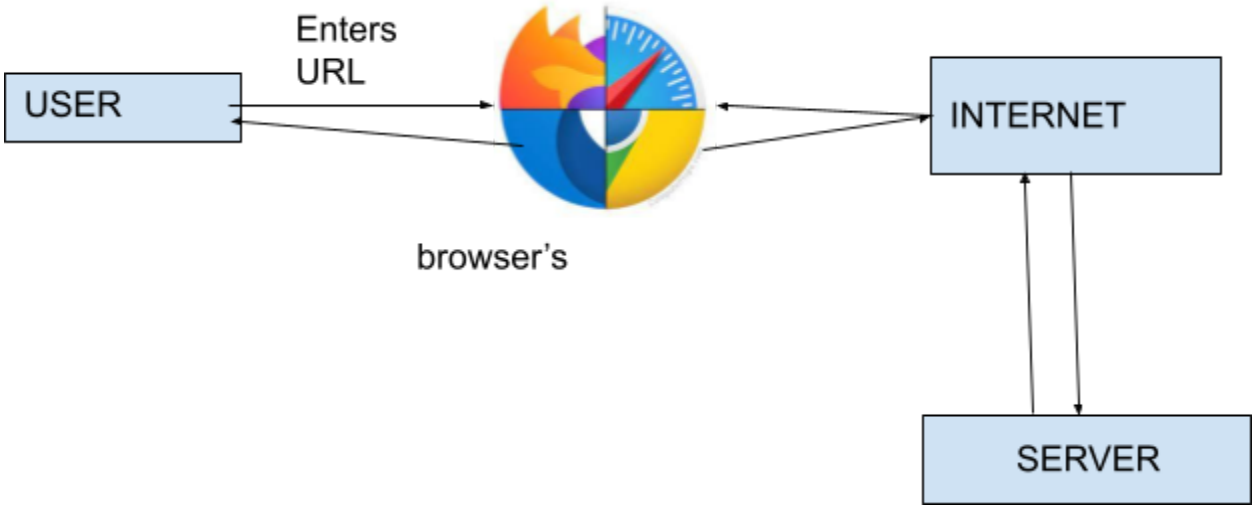
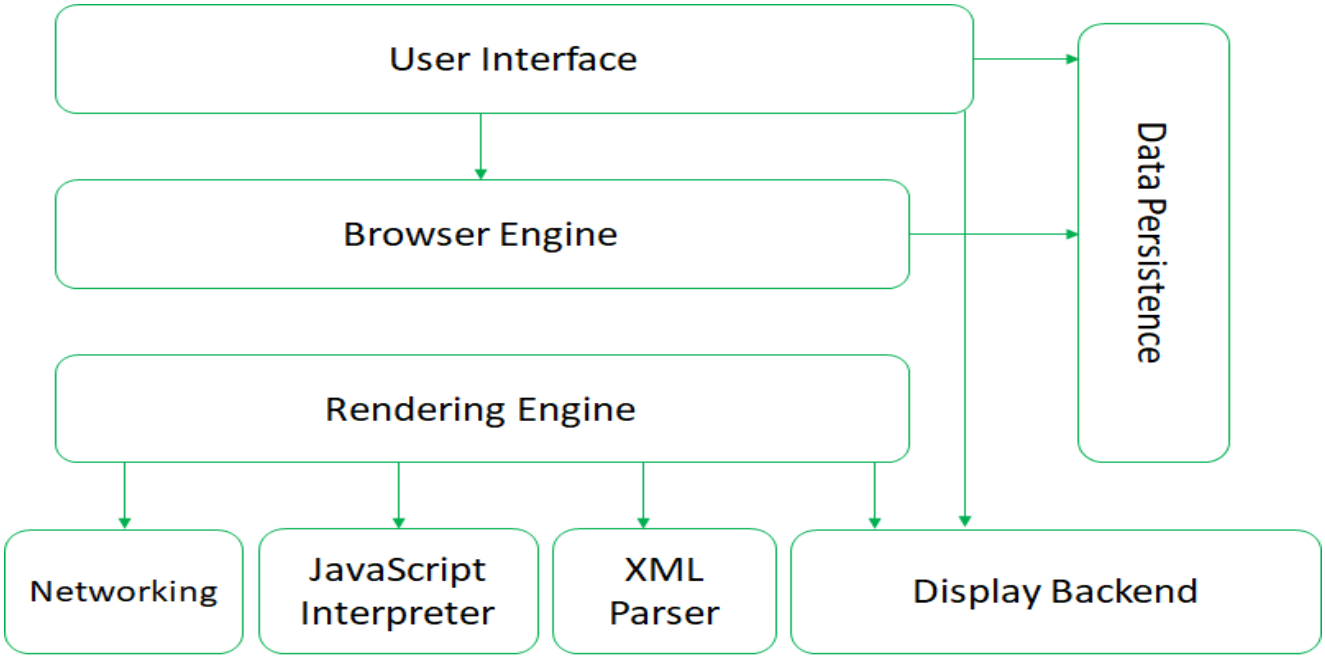
a.What is the main functionality of the browser?

User can enter



User enters URL on web browser , browsers job is the serve that url request , it send the request to the server via internet and get back the response ,which is displayed throught the browser to the user.

b.High Level Components of a browser.



User -Interface : - Its the interaction between User and the webbrowser.user can just simply input and browser sends request to the server via internet in which multiple processes are involved .user cant see this process and can only see the UI which is presented to him.

Browser engine:- A browser engine is a core software component of every major web browser. The primary job of a browser engine is to transform HTML documents and other resources of a web page into an interactive visual representation on a user's device. The engine combines all relevant CSS rules to calculate precise graphical coordinates for the visual representation it will show on the screen. To complete the process, the engine makes the necessary system calls. The browser engine is to take the HTML, CSS and other code of a web page - the text you

can see in the page source or open in a text editor, setting out layouts, page content, and styling - and convert it into what you actually see on screen.

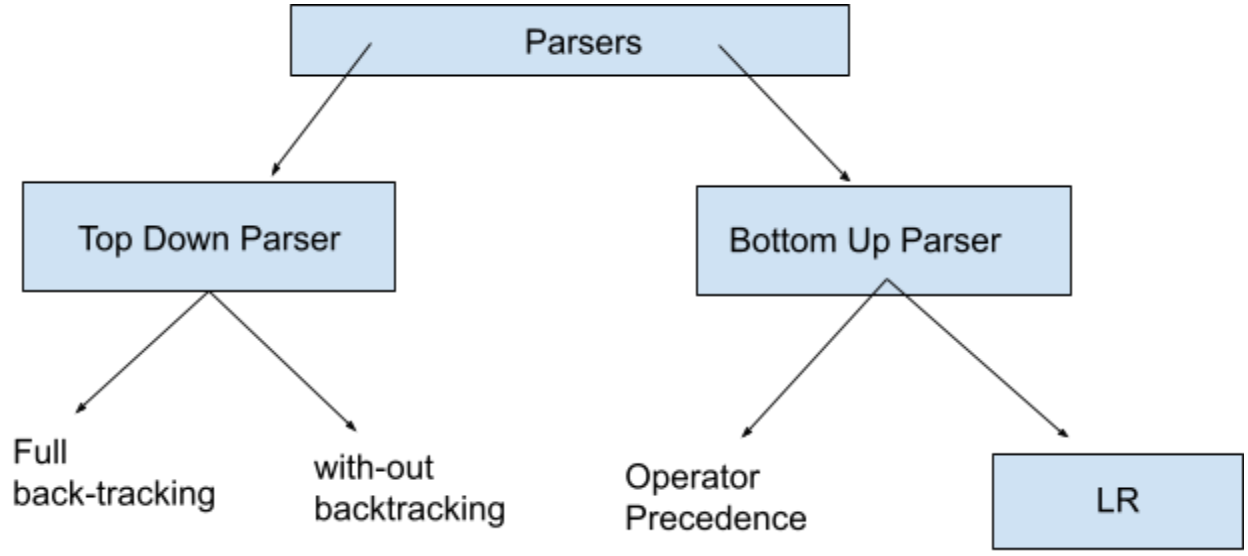
Rendering engine:- A rendering engine is software that draws text and images on the screen. The engine draws structured text from a HTML document , and formats it properly based on the given style declarations . Examples of layout engines: Blink,Gecko EdgeHTML.

c.Rendering engine and its use.

Rendering Engine:-

Rendering engine renders the response data which comes from the server via internet.Its job is to render the response into HTML,CSS, Javascript etc and display it on the browsers space which user can see.

d.Parsers (HTML, CSS, etc)



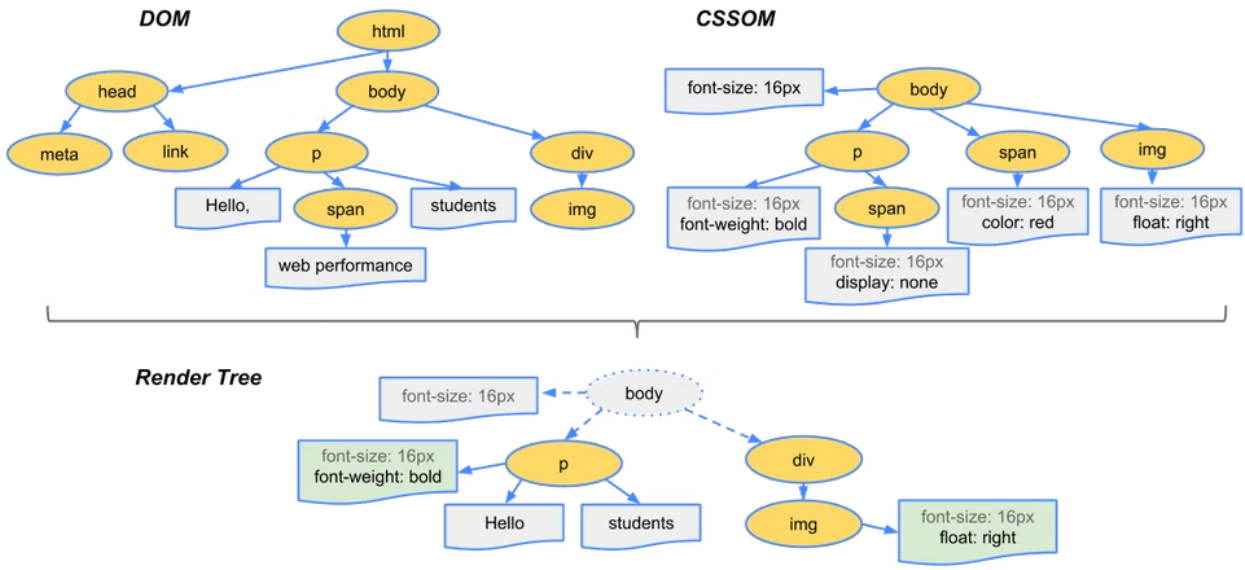
Parsers :- process of derieving string from the given context free grammar(response code or string of tokens).browser has multiple phases first phase it converts the response into lexical grammar, which is then input to parser, which checks whether the code is grammatically correct or not.

Top down parser:-
Before parsing a tree is created in this type of parsing the approach is from the root node(top)till leaf node(bottom)

Bottom up parser:-
In the type of parsin the approach is exactly opposite of top-down.which is from leaf node to root node.

e.
Script Processors
The script processor uses the script cache to avoid recompiling the script for each incoming document. To improve performance, script cache is properly sized before using a script processor in production

f. Tree construction
In this process browser combines DOM(Document Object model) and CSSOM (CSS object model) into render tree.



g.Order of script processing

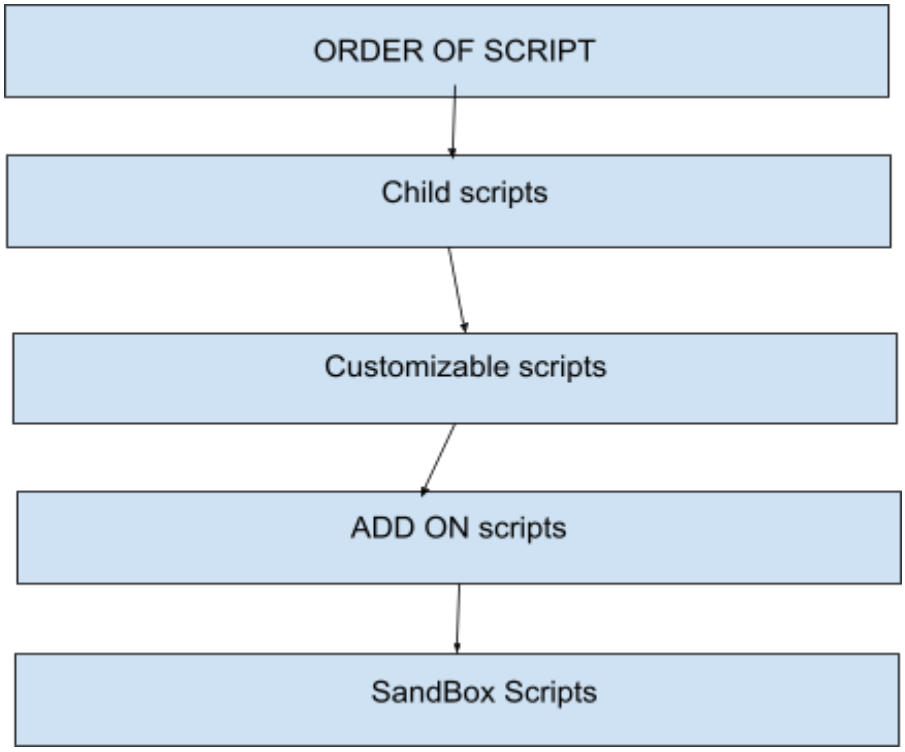
The time at which the script is generated depends on object attributes. The order in which scripts are processed in an object depends on which Process pages the scripts are on.

Execution stage:- In this stage the following tasks are done:- activated, generated, processed (that is, executed on the target computer) and finally completed.

Time of processing:-

The time at which the script is generated depends on the Generate Task at attribute that you define on the object Attributes page. You have two options, Generate Task at Activation time or at the beginning of the generation stage at Runtime.The script is generated much later in the generation stage.

Order of processing:-



h.Layout and Painting.

These are the final stages of Rendering first layout happens then painting and then they are combined which forms a composite.

layout:- Layout computes the exact position and size of each object.
Painting:- Painting computes the color and looks of the object as defined.