

## Exercise 1.1:

1. When a user enters an URL in the browser, how does the browser fetch the desired result ? Explain this with the below in mind and Demonstrate this by drawing a diagram for the same.
  - a. What is the main functionality of the browser?
  - b. High Level Components of a browser.
  - c. Rendering engine and its use.
  - d. Parsers (HTML, CSS, etc)
  - e. Script Processors
  - f. Tree construction
  - g. Order of script processing
  - h. Layout and Painting

### Overview:

Whenever a user enters an URL in the browser, the browser looks up for the IP address of that specific domain (i.e. google.com) and then initiates a TCP (Transmission Control Protocol) connection with the server.

Once it's successfully done, the browser sends the HTTP request to the server and then the server processes the request and sends a response back, and then the user is able to see the website and its content.

#### **a) What is the main functionality of the browser?**

Main functionality of the browser is to fetch or retrieve the data from world wide web to user on request, translate them from server and display that content to user.

### **b) High Level Components of a browser?**

- User Interface
- Browser Engine
- Rendering Engine
- Networking
- Javascript Interpreter
- UI Backend

### **c) Rendering engine and its use?**

Rendering engine is more like a software which draws the images and texts on the screen. Use cases are primarily associated with drawing structured text from HTML and formatting it properly based on the CSS.

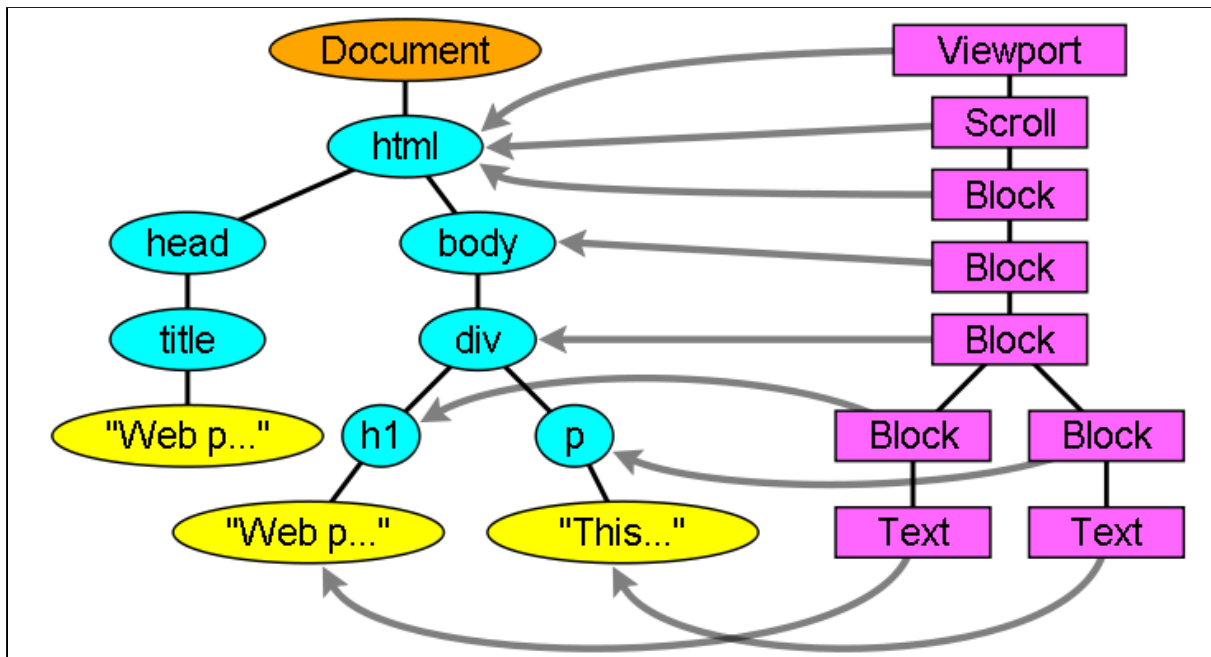
### **d) Parsers (HTML, CSS, etc)**

Parser is a part of a compiler that takes data and builds a data structure. It analyzes and converts a program into an internal format that a runtime environment can actually run. browser parses HTML into a DOM tree. HTML parsing involves tokenization and tree construction.

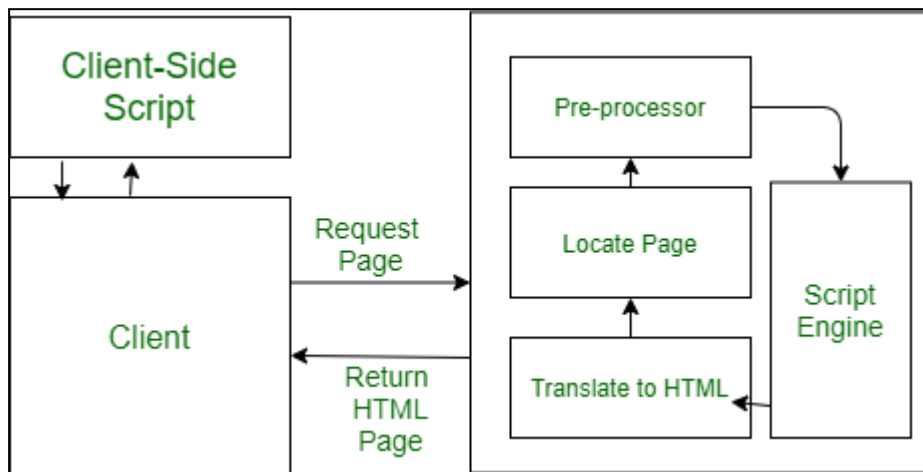
### **e) Script Processors**

Not 100% sure, but associated with processing the scripts. Is there any other explanation to it?

## f) Tree Construction



## g) Order of Script processing



## **h) Layout & Painting**

Not understanding this question.