**Main functionality of the browser**

Display requested web resource from server. The resource usually an HTML document ( it can be pdf or image also).

The location of web resource is specified by URI (Uniform Resource Identifier)

**Browser’s main components are**

1: - User Interface: This includes address bar, back/forward button, bookmark menu

2: - Browser Engine: Transfers action between browser interface and rendering engine.

3: - Rendering Engine: - It is responsible for displaying requested content. If requested content is HTML document, then its parses HTML and CSS and displays parsed content in screen.

4: - Networking: - It is responsible for making HTTP request.

5: - UI backend: - It uses operating system user interface method.

6: - JavaScript Interpreter: - It is used to parse and execute JavaScript code.

7: - Data Storage: - This may save data locally such as cookies. Browser also supports local storage, Web SQL and File System.

Data

Storage

User Interface

Browser Engine

Render Engine

JavaScript Interpreter

UI Back End

Network

**Rendering Engines: -**

: - Different browsers user different rendering engines.

:- Gets information from networking layer

:- Parse HTML to construct DOM tree ( DOM nodes like p, h1, input etc)

:- It further creates render tree( contains style information like color dimension)

:- Render engine then creates layout for dom nodes( exact location where it should appear)

:- Last stage is painting the nodes with help of back end layer

Layout ( Exact Location where DOM node should be placed)

Construct Render tree( Style)

Construct DOM tree( Parent child relationship of tags)

Paint node on UI( UI back end layer)

**HTML Parser: -**

:- It creates DOM tree

<html>

<head></head>

<body> <p>Hi</p>

</body>

</html>

HTML

body

head

P

**CSS parser: -**

: - CSS parser parses style file and creates stylesheet objects.

: - Stylesheet objects contain CSS rule.

:- CSS rule object has selector and declaration objects.

H1{

Color: red;

Height:12px;

}

CSSStyleSheet

CSS Rule

Declaration

Selector