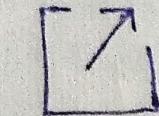


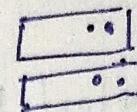
Different types of hosting



Shared hosting



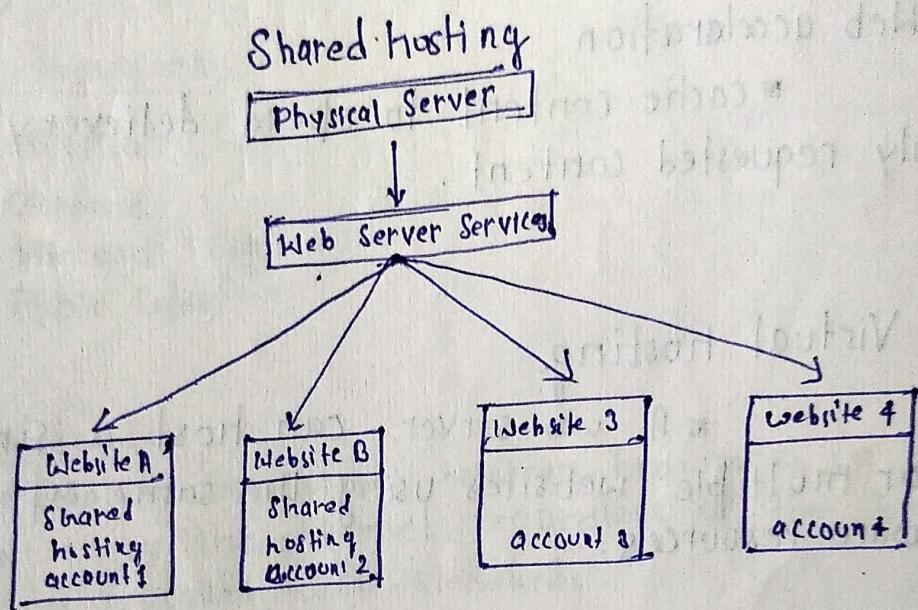
Virtual private
hosting



Dedicated
hosting



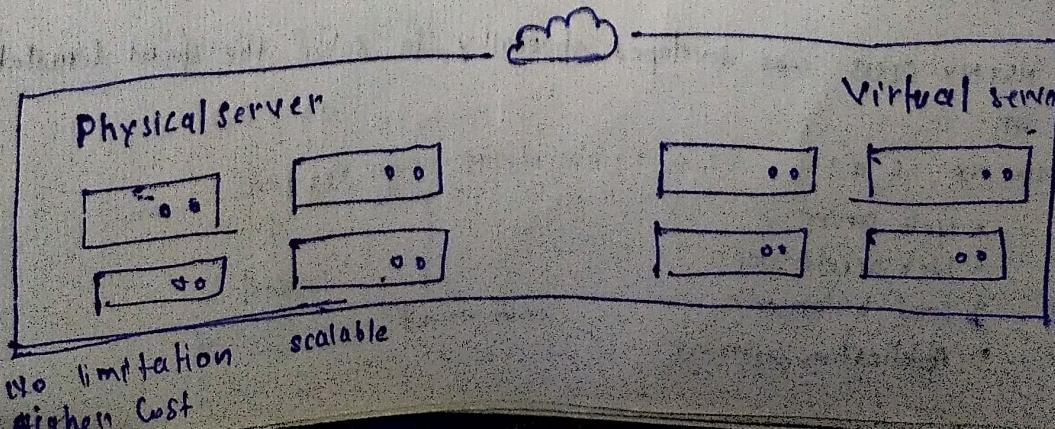
Cloud
hosting



Useful for

- i.) Small websites
- ii.) Practice environment
- iii.) Free with limitation

Cloud hosting



Server Side scripting languages

- ASP (Active Server Pages)
- Javascript
- PHP (Hypertext Preprocessor)
- Python
- Ruby

→ Web acceleration

- cache content to speed delivery of commonly requested content.

→ Virtual hosting

- A web server can host a single website or multiple websites using the same software & hardware resources.

→ limiting speed to prevent dominating a single client

→ NGINX PLUS

- NGINX PLUS and NGINX are the best-in-class load-balancing solutions used by high traffic websites such as, Dropbox, Netflix, Zynga.
- NGINX PLUS and NGINX open source to deliver their content quickly, reliably & securely.
- NGINX PLUS was developed specially to solve the speed limitations.

NGINX is a:-

- Web server
- Web accelerator
- Load balancer
- Application Gateway

Web Hosters

Server Vendors

- Apache,
- nginx
- Cloudflare
- LiteSpeed
- Apple
- Google Cloud

Web browsers

- Mozilla
- Chrome
- Microsoft - Edge
- Apple Safari

Web standards

• Creating consistency between browsers, so that any user can enjoy the internet, regardless of the browser they choose is called web-standards

Rendering

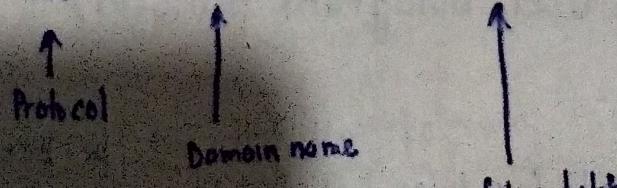
• Web browsers translates data in HTML format to text, images or videos is called rendering.

Hyperlinks allow users to follow paths to other pages or sites on the web.

Web address or URL

has three parts

http://www.google.com/files.txt



Cookies :-

Websites saves info. about you in files called cookies

- to remember you
- to provide you targeted content & ads

Third party cookies

→ websites to track you even you are not visiting them.

extensions are used to customize your browser

- Time sharing computers were origin of internet
- First website was ever was CERN in France in 1991
- In 1989 Timothy Berners-Lee created world wide web. (using HTTP, HTML & URL)

Cloud Computing

- On-demand delivery of IT Resources via internet

Possible Problems in sending emails

- arriving out of order
- becoming damaged & or corrupted
- dropped or lost at the cost of small delay

Two types of protocols

TCP (Transfer Control protocol)

UDP (User Datagram protocol)

→ TCP is the sol. of all three problems

→ TCP is used for data that must arrive correctly and in order

→ UDP is fast.

In TCP model

- IP packets arrive in order
- Doesn't become damaged or corrupted
- Doesn't get dropped or lost during transit.

HTTP

HTTP request syntax

GET / HTTP/1.1

Host: developer.mozilla.org

Accept-Language: en

Method

Path

Version

Headers

HTTP response

HTTP/1.1 200 OK

Status Code

Date: - - - - -

Server: - - - - -

Last-Modified: - - - - -

Content-length: 50

Content-type: text/html

Status Codes

100 to 199 → informational

200 to 299 → Successful

300 to 399 → Redirection

400 to 499 → Client error

500 to 599 → Server error

Hacksplaining

AI. Croogle

Shiftsearch.com

EMMET (in VS code)

Values of "target" element.

- 1) - Self
- 2) - blank
- 3) - top
- 4) - parent

Methods used to submit "form".

GET

POST

~~dependencies~~

dependencies - Libraries, Framework

Package Manager

Javascript handler

Bootstrap - is a popular library for CSS and Javascript.

Add CSS library to HTML head

include following in HTML head

```
<link href = "Bootstrap link" rel = "stylesheet">
```

Add Javascript library to HTML body

include following in HTML body

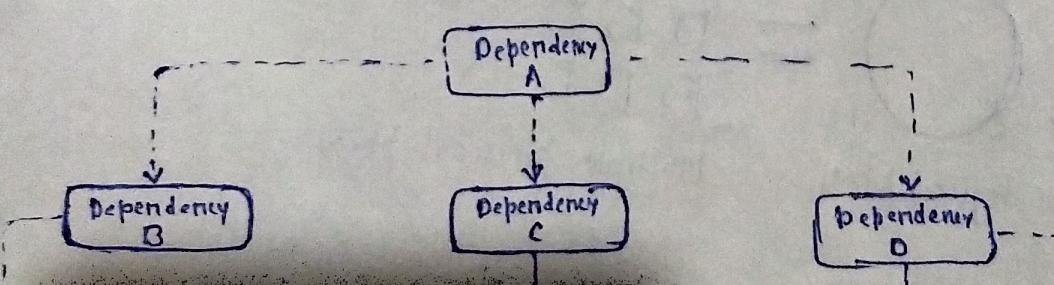
```
<script src = "Bootstrap link"></script>
```

```
<button type = "button" class = "btn btn-primary" > click this </button>
```

↑
Description for

btn class

Dependency tree



Package Manager - is a tool that automatically downloads and stores dependencies / package

NPM (Node package Manager)

Bundler (bundling tool) - Combine all your dependencies into a single file

- Gulp
- Webpack

Responsive design :- Web page can automatically stretch or shrink depending on the screen it is displayed on.

Used to -

① Best user experience

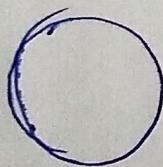
② CSS media queries

③ Fluid images

④ Differentiate between fixed and fluid grids

→ Pixels (horizontal pixels x vertical pixels) → resolution

→ different screens have different resolutions



One logical pixel

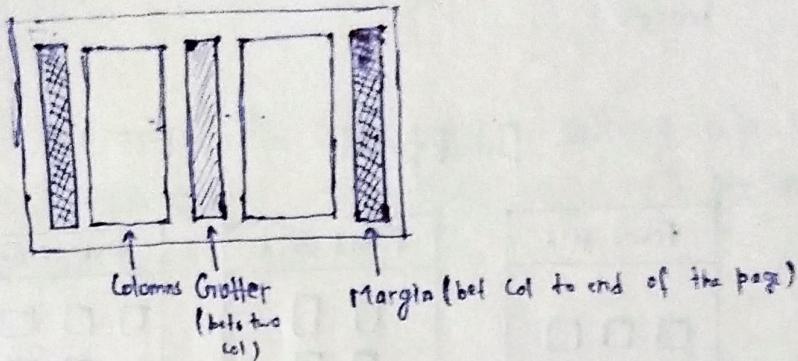
=
D D D
D D D
D D D

Multiple physical pixels

Responsive design is composed of :-

- 1) Flexible grids
 - 2) Fluid images
 - 3) Media queries
- } Responsive grid

1.) Flexible Grids



Not pixel based flexibility

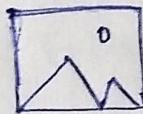


Flexibility



Percentages

2.) Fluid images



max-width : 100%;

3.) Media queries (part of CSS)

⌚ Display size

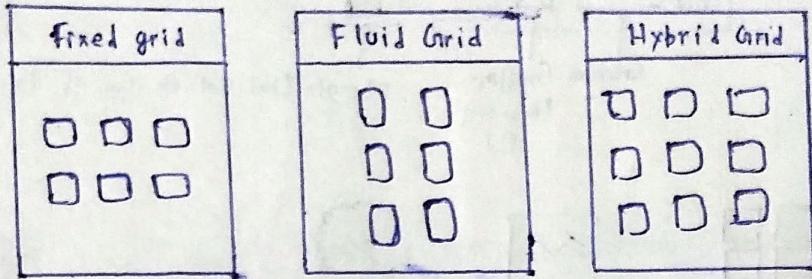
📱 Orientation

📺 Aspect ratio

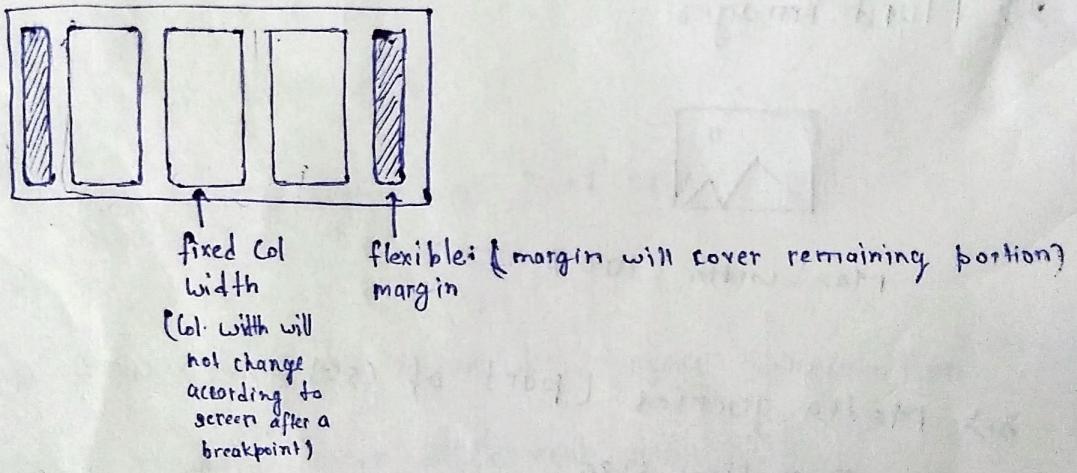
ex—
@media only screen and (max-width : 700px) {
 body {
 background-color : blue;
 }
}

Breakpoint :- A point at which a website's content & layout will adapt to provide the best possible user experience.

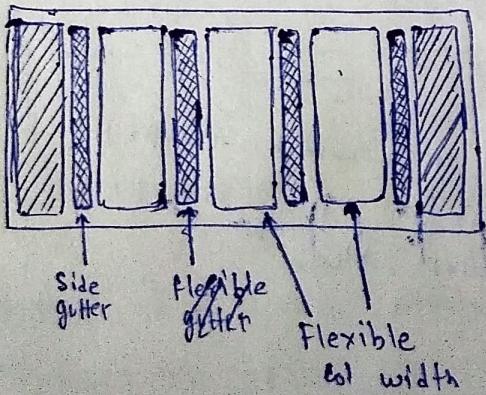
Breakpoint



Fixed grid



Fluid Grid (Full width grid)



Bootstrap - A collection of pre written code chunks in CSS and JavaScript.

→ First element to add when setting up a Bootstrap website is a container, as it is required to be able to use the Bootstrap Grid system.

Bootstrap CSS rule for different screens

Breakpoint	Class infix (Default break point)	Dimensions
Extra Small		< 576 px
Small	sm	≥ 576 px
Medium	md	≥ 768 px
Large	lg	≥ 992 px
Extra Large	xl	≥ 1200 px
Extra Extra Large	xxl	≥ 1400 px

List of modifiers available in Bootstrap.

blue	Primary	Secondary	Success	Info
red	Warning	Danger	Light	Dark

→ Bootstrap modifiers add a CSS class to change the visual style of components. You will use an infix to indicate the breakpoint in Bootstrap CSS rule.

→ Bootstrap Grid system is structured with 3 types of elements.

- Containers
- Rows
- Columns

x Other CSS frameworks & Libraries x

1) Foundation

- Used by large companies like Pixar, Polar, Sonos
- It can style content for sending via email.

2) Pure.css

- If your project is focused on minimal loading time this library is worth considering.

3) Tailwind CSS

- is a CSS framework that uses utility based approach for its CSS rules

4) UIKIT

- is a lightweight CSS framework featuring a small set of responsive components.

5.) MVP.css

- Minimal Viable Product
- is a small CSS library that automatically styles HTML elements without needing to apply CSS classes to them.

x Bootstrap Documentation x

Layout

- ↳ this section describes how to use grid system of Bootstrap like → **offsets**, **column alignment**, **auto-layout**, **variable width columns**

Content

- ↳ It describes Bootstrap's default text styling and how to use responsive images and tables.

Forms

↳ describes how to build forms using Bootstrap's styles.

Form control

Style textual inputs and textareas with support for multiple states

Checks & radios

Use our custom radio buttons and checkboxes in forms for selecting input options

Input Group

Attach labels and buttons to your inputs for increased semantic value

Select

Improve browser default select elements with custom initial appearance

Range

Replace browser default range inputs with our custom version.

Floating labels

Create beautifully simple form labels that float over your input fields.

Form styling

↳ Bootstrap includes CSS rules to improve the visual styles of input elements.

Form Element	CSS class
input	form-control
input type = "checkbox"	form-check-input
input type = "radio"	form-radio-input
input type = "range"	form-range
Select	form-select

Switches

↳ Bootstrap include CSS rules to style checkbox input element as switches..

To do this

```
<div class = "form-check form-switch">  
<input class = "form-check-input type = "checkbox" >  
</div>
```

Input Groups

↳ Useful for proving additional content to input fields.

\$.00
----	-----

To do this:

```
<div class="input-group">  
  <span class="input-group-text">$ </span>  
  <input type="text" class="form-control" />  
  <span class="input-group-text">.00 </span>  
</div>
```

Floating Labels

↳ Helps provide form info. to the user as part of input itself.

↳ different from regular placeholders. (info stays visible if user is interacting with elements of if element has content)

Address	1
---------	---

To do this:

```
<div class="form-floating">  
  <input type="email" class="form-control" id="addressInput" placeholder="Address" />  
  <label for="addressInput">Address </label>  
</div>
```

* If your application requires a library or framework to run this is called a dependency.

* The responsive breakpoint for Bootstrap CSS rule is determined by Infix.

⇒ Bootstrap themes

<https://themes.getbootstrap.com>

SPA - Single Page Application

SPA has two approaches to serving code & resources

1> Bundling

2> lazy loading (Code splitting)

→ in it page is updated by JSON objects

↳ in a SPA, different pages are broken into templates also known as views

↳ Each view will have HTML code that can be updated by application.

↳ if resources are loaded dynamically, the SPA requests the views as required and stores views in the browser for subsequent requests.

SPA / traditional websites

React - a facebook product

→ JavaScript (MVC) Model-View-Controller

→ React is a library for building composable user interfaces.

→ React approaches building UI by breaking into components unlike traditional web app UI's are built using templates or HTML directives.

→ XSS vulnerabilities (Cross-site scripting) is a security vulnerability.

→ JSX - an optional syntax extension.

→ Reconciliation - It is a process or approach by JS to keep DOM up-to-date by using `render` method.

- Facebook has dynamic charts that render to < canvas > instead of HTML.
- Instagram is a "single page" web app built entirely with React and Backbone.Router. Designers regularly contribute React code with JSX.
- Facebook have built internal prototypes that the React apps run in a web worker and use React to drive native iOS views via an objective-C bridge.
- You can run React on the server for SEO, performance, code sharing and overall flexibility.
- Events behave in a consistent, standards-compliant way in all browsers (including IE8) and automatically use event delegation.

Reconciliation can be broken down into following steps :-

Step 1 : The virtual DOM is updated

Step 2 : The virtual DOM is compared to the previous version of virtual DOM and checks which elements have changed

Step 3 : The changed elements are updated in the browser DOM

Step 4 : The displayed webpage updates to match the browser DOM.

Principle of React Fiber Architecture :-

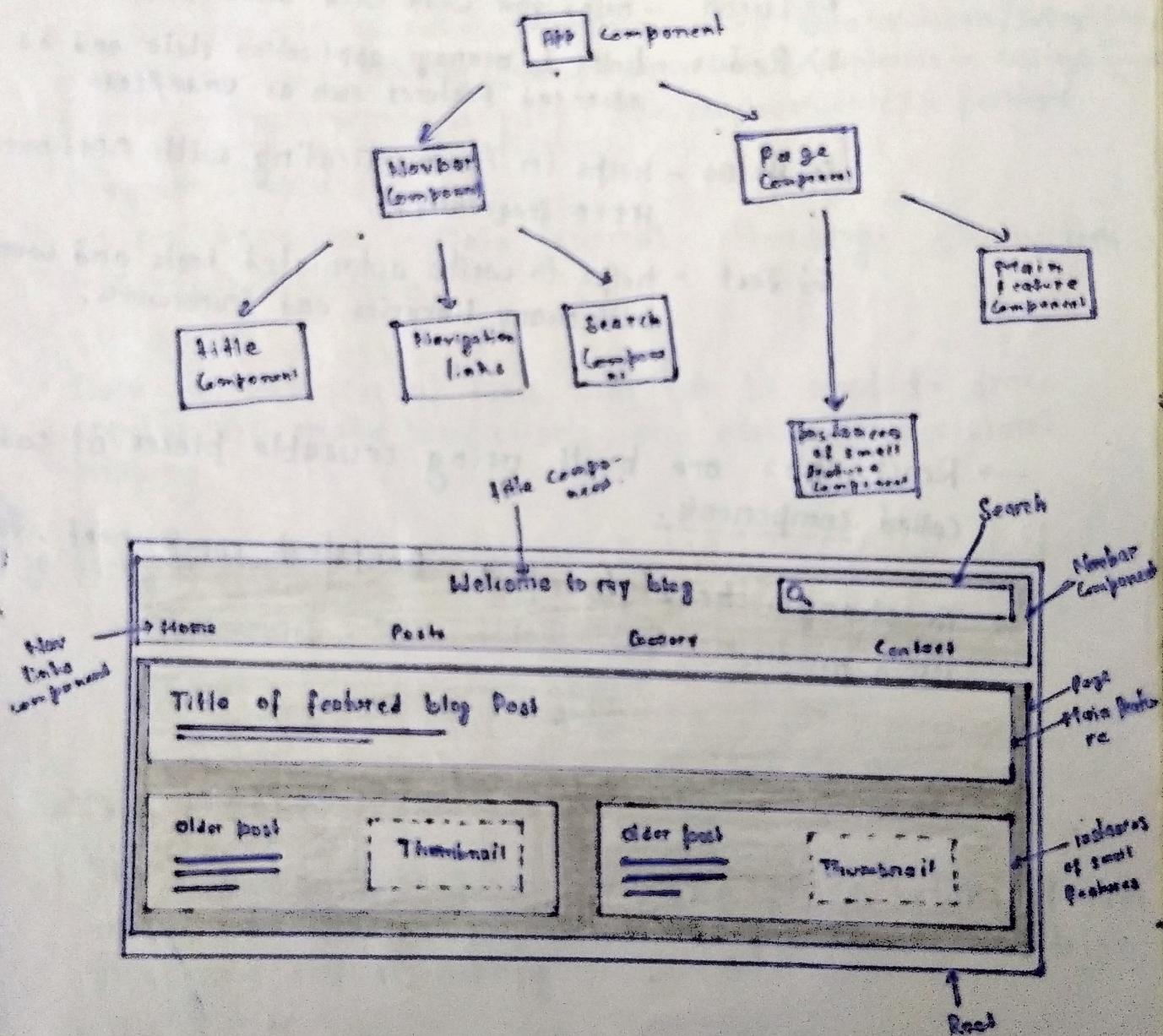
It acts as priority system. The highest priority changes, the elements visible to the user are updated first while lower priority changes, the elements not currently displayed, are updated later.

→ The official React Developer tools web browser plug-ins developed by Meta will be one of the key tools in developer toolbox.

Component hierarchy in React

Every React application contains at least one component, the root component or app component.

Component hierarchy of a blog website



- The great benefit of developing your website ^{component} with React is that components can be reused so that no need to code component from scratch.

React is a library and not a framework.

This means you'll often use other javascript libraries with it to build your application.

Some JS libraries used with React

- 1.) Lodash - provides common logic like sorting & round off
- 2.) Luxon - helps you work with dates & times
- 3.) Redux - helps to manage application state and has advanced features such as undo/redo
- 4.) Axios - helps in communicating with APIs over HTTP frequently.
- 5.) Jest - helps to write automated tests and works with many libraries and frameworks.

- React app's are built using reusable pieces of code called components.
- To change the style of a Bootstrap component, you use a modifier.