HTML

- HTML stands for Hyper Text Markup Language
- HTML is the standard markup language for creating Web pages
- HTML describes the structure of a Web page
- HTML consists of a series of elements
- HTML elements tell the browser how to display the content

- The HyperText Markup Language is the standard markup language for documents designed to be displayed in a web browser.
- HTML describes the structure of a web page semantically and originally included for the appearance of the document.
- HTML elements are the building blocks of HTML pages, written using angle brackets. Browsers do not display the HTML tags but use them to interpret the content of the page.

CSS

- CSS stands for Cascading Style Sheets
- CSS describes how HTML elements are to be displayed on screen, paper, or in other media
- CSS saves a lot of work. It can control the layout of multiple web pages all at once
- External stylesheets are stored in CSS files
- CSS is used to define styles for your web pages, including the design, layout and variations in display for different devices and screen sizes.
- Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML.
- CSS is designed to enable the separation of presentation and content, including layout, colours and fonts.
- Improve content accessibility; provide more flexibility, control presentation characteristics; enable multiple web pages to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be cached to improve the page load speed between the pages that share the file and its formatting.
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Bootstrap

- Bootstrap is a free and open-source tool collection for creating responsive websites and web applications.
- It is the most popular HTML, CSS, and JavaScript framework for developing responsive, mobile-first websites.
- It solves many problems which we had once, one of which is the cross-browser compatibility issue.

Why Bootstrap?

- Faster and Easier Web Development.
- It creates Platform-independent web pages.
- It creates Responsive Web-pages.
- It is designed to be responsive to mobile devices too.
- It is Free! Available on www.getbootstrap.com
- Simple Example

- JavaScript

- JavaScript often abbreviated JS, is a programming language that is one of the core technologies of WWW alongside HTML and CSS.
- It has dynamic typing, prototype-based object-orientation, and first-class functions.

Itis multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

- Forms

- Forms are enclosed in the HTML <form> element.
- This element specifies the communication endpoint the data entered into the form should be submitted to, and the method of submitting the data, GET or POST.

- **Docker-**

- Docker is a great resource for creating a private environment where you can develop applications.
- If you have ever worked with python in the past, you may be familiar

with virtualenv which allows you to store all the dependencies for a new applicationwithin an independent virtual environment.

- In the same way, Docker was created to allow you to have a completely independent "container" which acts as a sort of mini computer that you can use to store or install the dependencies your application needs.
- The advantage is that you are preventing dependency management problems by separating the needs and concerns of one application from the other.
- Docker can save you time spent on configuration and installation when you are getting started using a new tool or language
- Docker's container system is very efficient because it works with commits. This saves space, and allows you to see changes to the container.

- Docker containers

- Docker containers is that they rely on something called Docker images (a snapshot taken of a specific container at a given point in time).

- Check out Docker Hub, which is a collection of Docker images ranging from Ubuntu to a fully functional Nginx server.

- **Angular**

  - Angular is an open-source, JS framework written in Typescript.
  - Google maintains it, and its primary purpose is to develop single-page applications.
  - providing a standard structure for developers to work with.
  - It enables users to create large applications in a maintainable manner.
  - **Angular** is a platform for building mobile and desktop web applications
  - AngularJS extends HTML with new attributes.
  - AngularJS is perfect for Single Page Applications (SPAs).
  - AngularJS is easy to learn.
  - **package. json** holds metadata relevant to your project whereas **angular. json** provides workspace-wide and project specific configuration defaults for build and development tools provided by Angular CLI.

Advantages-

1. Custom Components
2. Data Binding
3. Testing

4. Dependency Injection
5. Comprehensive

Browser Compatibility

➢ Node.js-

- Node.js is an open-source and cross-platform JavaScript runtime environment. It is a popular tool for almost any kind of project!
- Node.js runs the V8 JavaScript engine, the core of Google Chrome, outside of the browser. This allows Node.js to be very performant.
- A Node.js app runs in a single process, without creating a new thread for every request. Node.js provides a set of asynchronous I/O primitives in its standard library that prevent JavaScript code from blocking and generally, libraries in Node.js are written using non-blocking paradigms, making blocking behavior the exception rather than the norm.
- Node comes with **NPM**, which is package manager for JavaScript. NPM allows the discovery and usage of common packages functionality.
- For demonstration purpose we will use the **Express framework**. Express is a minimal and flexible Node.js web application framework that provides a robust set of features for web and mobile applications.

Express-

- Express is one of the most popular web frameworks for node.js.
- It is built on top of node.js http module, and adds support for routing, middleware, view system etc.
- It is very simple and minimal, unlike other frameworks that try do way to much, thereby reducing the flexibility for developers to have their own design choices.

Mongoose-

- Monogose is an ODM (Object Document Mapping) tool for Node.js and MongoDB
- It helps you convert the objects in your code to documents in the database and vice versa.
- We'll use Mongoose for interacting with the MongoDB instance.

MongoDB-

- MongoDB is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability.
- MongoDB works on concept of collection and document.

- **Purpose-**
  - Scalability
  - Performance
  - High Availability
  - Scaling
  - Key points of MongoDB
  - Develop Faster
  - Deploy Easier
  - Scale Bigge

CRUD Application

CRUD is an acronym that comes from the world of computer programming and refers to the four functions that are considered necessary to implement a persistentstorage application: **create, read, update** and **delete**.

➢ JQuery Mobile-

- JQuery Mobile is a user interface framework, built on jQuery Core and used for developing responsive websites or applications that are accessible on mobile, tablet, and desktop devices.
- It uses features of both jQuery and jQueryUI to provide API features for mobile web applications.
- It was developed by the jQuery project team in the year 2010 and written in JavaScript.

Features of jQuery Mobile

- It is built on jQuery Core and "write less, do more" UI framework.
- It is an open source framework, and cross-platform as well as cross-browser compatible.
- It is written in JavaScript and uses features of both jQuery and jQuery UI for building mobile-friendly sites.
- It integrates HTML5, CCS3, jQuery and jQuery UI into one framework for creating pages with minimal scripting.

It includes Ajax navigation system that uses animated page transitions

What is Cloud Computing?

- Cloud computing is a term referred to storing and accessing data over the internet. It doesn't store any data on the hard disk of your personal computer. In cloud computing, you can access data from a remote server.

What is AWS?

- The full form of AWS is Amazon Web Services.
- It is a platform that offers flexible, reliable, scalable, easy-to-use and, cost-effective cloud computing solutions.
- AWS is a comprehensive, easy to use computing platform offered Amazon.
- The platform is developed with a combination of infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS) offerings.
- It is a secure cloud services platform, offering compute power, database storage, content delivery and other functionality to help businesses scale and grow.
- In simple words AWS allows you to do the following things- Running web and application servers in the cloud to host dynamic websites.

Applications of AWS services

- Web site hosting
- Application hosting/SaaS hosting
- Media Sharing (Image/ Video)
- Mobile and Social Applications
- Content delivery and Media Distribution
- Storage, backup, and disaster recovery

- Development and test environments
- Academic Computing
- Search Engines
- Social Networking

➢ Elastic Beanstalk

- Elastic Beanstalk is an easy-to-use service for deploying and scaling web applicationsand services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.
- You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to applicationhealth monitoring.
- At the same time, you retain full control over the AWS resources powering yourapplication and can access the underlying resources at any time.

➢ Amazon VPC-

- Amazon Virtual Private Cloud (Amazon VPC) provides a logically isolated area of the AWS cloud where you can launch AWS resources in a virtual network that you define.
- You have complete control over your virtual networking environment, including a selection of your IP address range, the creation of subnets, and configuration of route tables and network gateways.
- You can easily customize the network configuration for your Amazon Virtual Private Cloud. For example, you can create a public-facing subnet for web servers that can access to the internet and can also place your backend system such as databases or application servers to a private-facing subnet.
- You can provide multiple layers of security, including security groups and network access control lists, to help control access to Amazon EC2 instances in each subnet.