**Q1. Write 5 differences between React js, Angular js and vue js.**

A1. The main differences between Vue and React lie in the way they are built, syntax, tooling, and talent availability. But there are also other factors that may affect your team and product.

1. **Syntax and Codelength**

While working on both the Frameworks, I have noticed that Angular uses more complex syntax while Vue is easy to learn because of its simplicity in terms of syntax. The time I have consumed to do simple things in Angular is more. Sometimes its complexity often leads to confusion.

Vue is easy to learn because of its uncomplicated nature of syntax. Here, the syntax is neat and clean. And coming from the background of JavaScript, it is quite easy for me to learn Vue. Because Angular uses TypeScript (usage of decorators and injectors), so one should have the basic knowledge of TypeScript or have worked on OOPS concept.

1. **Structure**

Angular is more structured and elaborated. It forces the developer to do everything in a standard way. Mainly large enterprise projects rely on Angular because of its predefined structure which ensures that every developer follows the same architecture.

Vue is more flexible and it allows the developer to structure the project the way you want. It allows the user to write their template in HTML file or Javascript file. You can use Angular if your personal preference is TypeScript and OOPS. Moreover, Vue also provides typescript for project development but there are not many libraries in it.

1. **Code Scalability**

When you are going to have a massive codebase, Angular is good in terms of code scalability because being a full-fledged framework it bounds the developer to develop code in a specific code structure.

On the other hand, Vue.js lacks a list of the best scaling practices. There is no specific application structure applied to users from Vue.js to follow which is very important when you going to have a large code base.

1. **Built-in Libraries**

Since Vue is new, it has less framework-specific libraries, thus you have to include most of the third party libraries explicitly.

Angular has so many framework-specific libraries and also most of the libraries are included earlier in Angular-CLI project.

For example- The library like RxJS are inbuilt in Angular CLI projects but in Vue, you have to explicitly install other libraries including RxJS to make it work.

Also Angular has inbuilt API-specific libraries the developer don’t have to install it explicitly. Vue doesn’t come with API-specific library and have to use AXIOS library explicitly for API calls.

**Q2. Write 5 similarities between React js, Angular js and vue js.**

A2.A JavaScript framework (or library) helps developers create modern applications called single-page apps (SPA). That’s the case for many front-end JavaScript frameworks like React, Vue, Angular, and more.

Technologies like React, Vue, and Angular offer tools and code that allow users to create powerful web applications without having to do the grunt work. These frameworks significantly cut down development time and decrease the overall headache. So, if you looking to be hired as a front-end developer, it’s vital that you master a front-end framework.

These are some of the most popular frameworks that allow developers to build complex and modern user interfaces on the web. Let’s briefly go over their histories.

* **React:** React is an open-source JavaScript library built by Facebook in 2013, which uses React internally. React is used by large companies like Facebook, Twitter, Whatsapp, Instagram, Microsoft, Slack, Asana, Airbnb, and more.
* **Angular:** Angular was developed by Google in 2010. It’s important to note that Angular is a TypeScript-based JavaScript framework. If you want to read more about TypeScript and how it’s different from JavaScript, check out our TypeScript Tutorial article. In 2016, Google released Angular2, which offered a substantial shift. Angular is used by organizations like The Guardian and Weather.com.
* **Vue:** also known as Vue.js, Vue is the youngest out of the three. It was developed by ex-Google employee Evan You in 2014 and has increased in popularity over the past few years. Though not as popular as React, it’s still used by large companies like 9Gag, Alibaba, and Gitlab.

There are several similarities shared by React and Vue. For example, both make use of the component-based architecture and the virtual DOM, each of them uses props, and debugging is done by means of the Chrome Dev tools in the two JS frameworks.

ReactJS and VueJS have some similar features. Let’s view the similarity between these two JS frameworks, this will help you examine the result of React vs Vue war. The similarity between ReactJS and VueJS are:

1) Utilize a virtual DOM

2) Provide reactive & compose-able view components.

3) Keep focus in the core library, with concerns like routing and global state management handled by companion libraries.

4) There doesn’t appear to be a clear-cut winner in this category, as each framework has different pros and cons in terms of frameworks. React does seem to offer more tools and add-ons, but if you don’t like working with the virtual DOM, then Angular is the best bet.

5)Front-end frameworks are growing in popularity as they allow individuals and companies alike to build complex applications in reduced time. These technologies continue to evolve and have revolutionized the world of web development.

**Q3. What is SCSS?**

A3. An explanation from the website. Sass has two syntaxes. The most commonly used syntax is known as “SCSS” (for “Sassy CSS”), and is a superset of CSS3’s syntax. This means that every valid CSS3 stylesheet is valid SCSS as well. SCSS files use the extension.

SCSS contains all the features of CSS and contains more features that are not present in CSS which makes it a good choice for developers to use it. SCSS is full of advanced features. SCSS offers variables, you can shorten your code by using variables. It is a great advantage over conventional CSS.

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The second, older syntax is known as the indented syntax (or just “. sass”). Inspired by Haml’s terseness, it’s intended for people who prefer conciseness over similarity to CSS. Instead of brackets and semicolons, it uses the indentation of lines to specify blocks. Files in the indented syntax use the extension. sass.

We can see the in code below.

/\* SCSS \*/

$blue: #3bbfce;

$margin: 16px;

.content-navigation {

border-color: $blue;

color: darken($blue, 9%);

}

.border {

padding: $margin / 2; margin: $margin / 2; border-color: $blue;

}

In the code above we use ; to separate the declarations. I’ve even added all the declarations for .border onto a single line to illustrate this point further.

**Advantages and Disadvantages of Sass**

**Advantages**

* Sass facilitates you to write clean, easy and less CSS in a programming construct.
* It contains fewer codes so you can write CSS quicker.
* It is more stable, powerful, and elegant because it is an extension of CSS. So, it is easy for designers and developers to work more efficiently and quickly.
* It is compatible with all versions of CSS. So, you can use any available CSS libraries.
* It provides nesting so you can use nested syntax and useful functions like color manipulation, math functions and other values.

**Disadvantages**

* The developer must have enough time to learn new features present in this preprocessor before using it.
* Using Sass may cause of losing benefits of browser’s built-in element inspector.

**Q4. Create a responsive table using bootstrap? Write the code for it**

A4. <!DOCTYPE html>

<html lang="en">

<head>

<title>interactive content 4</title>

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">

<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>

<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>

</head>

<body>

<div class="container">

<table class="table">

<thead>

<tr>

<th>Firstname</th>

<th>Lastname</th>

<th>Email</th>

</tr>

</thead>

<tbody>

<tr>

<td>karan</td>

<td>sehgal</td>

<td>karan160@gmail.com</td>

</tr>

<tr>

<td>jugraj</td>

<td>singh</td>

<td>jugraj22@yahoo.com</td>

</tr>

<tr>

<td>gurpreet</td>

<td>jhamat</td>

<td>gurpreet44@ymail.com</td>

</tr>

</tbody>

</table>

</div>

</body>

</html>

**Q5. Difference between framework and liabrary.**

A5. The technical difference between a framework and library lies in a term called inversion of control. When you use a library, you are in charge of the application flow. You choose when and where to call the library. When you use a framework, the framework is in charge of the flow.

Developers often use the terms “library” and “framework” as if they were the same. But there is a difference.

Both libraries and frameworks are reusable code written by someone else. Their purpose is to help you solve common problems in easier ways.

We can use a house as a metaphor to explain the difference between these concepts.

A library is like building your home from scratch, you have the choice to make your house as you wish, with any architecture you like, you can sort your rooms in the way you like.

On the other hand, Framework is like buying a new house, you don’t have to deal with building problems, but you can’t choose how to sort your rooms because the house is already built.

1. **The Technical Difference**

technical difference between a framework and library lies in a term called inversion of control. When you use a library, you are in charge of the application flow. You choose when and where to call the library. When you use a framework, the framework is in charge of the flow. It provides you with a few places to plug in your code, but it calls the code you plugged in as needed.

1. **Framework Downsides**

A framework is built by writing a lot of code, this means longer loading time and a decrease in performance.

Scalable architecture provides many things as we discussed above. Some applications are so simple, so using a framework makes things more complicated.

With the Framework, we have a lot to learn. In every version, new things added and others removed or deprecated so you have to be up-to-date.

Libraries Upsides

On the other hand, we’re the ones who lead libraries.

Examples: React, JQuery

1. **Libraries focus** only on how to use it, which means that the team doesn’t support libraries for global state management, like HTTP, routing, forms, etc..

And that is a choice, it gives the user the ability of picking libraries that he wants.

That means using libraries, giving us full control of our application, you only add what you want, which makes the application smoother.

1. **Libraries Downsides**

When you are having fun making a specific architecture, it can ruin your application, so you need to take care of this.

That’s why some people choose Angular or Vue because they don’t want to risk time and money building their own rules. They simply learn the framework’s rules and focus on playing the game.

Conclusion

You tell libraries what to do, frameworks tell you what to do.

Overall, frameworks are more opinionated and libraries are more flexible. Both patterns of abstraction have their place in the world of programming, and while neither is inherently better, it’s important to determine which is appropriate for the problem you’re solving.

**Q6. Which HTML5 tag is used for adding audio to the webpage?**

A6. The HTML5 <audio> and <video> tags make it simple to add media to a website. You need to set src attribute to identify the media source and include a controls attribute so the user can play and pause the media. The HTML <audio> element is used to embed sound content in documents. It may contain one or more audio sources, represented using the src attribute or the <source> element: the browser will choose the most suitable one.

Open your Web page in Notepad.

Enter the tag and a link to the sound file you want to use.

Click File→Save and reopen the file.

If the sound doesn’t play, experiment to make sure you have the path right and that sound plays on your machine.

Example

<audio controls>

<source src=”horse.ogg” type=”audio/ogg”>

<source src=”horse.mp3” type=”audio/mpeg”>

Your browser does not support the audio element.

</audio>

The controls attribute adds audio controls, like play, pause, and volume.

The <source> element allows you to specify alternative audio files which the browser may choose from. The browser will use the first recognized format.

The text between the <audio> and </audio> tags will only be displayed in browsers that do not support the <audio> element.

**Q7. Which HTML5 tag is used for adding video to the webpage?**

A7. The <embed> element is used to embed multimedia content into an HTML document. The following code fragment embeds a Flash video into a web page.

The <video> tag is used to embed video content in a document, such as a movie clip or other video streams. The <video> tag contains one or more <source> tags with different video sources. The browser will choose the first source it supports.

To Add a Video to Your Website in HTML (HTML5)

Using a Video Sharing Site. Instead of hosting the video file directly on your website, you can also upload it to a video sharing site like YouTube, get the embed code (the HTML code) for that video, and insert it into your web page. …

Using a Third-Party Video Player Script.

As you copy the embed link you can insert it into your HTML document as the src of your <iframe> element. Also, define the width and height for your video.

Insert videos from YouTube using the <iframe> tag¶

Open the video on YouTube and click the share button.

Open the Embed code.

Copy the Source link.

**Q8. What is HTML5 canvas?**

A8. The HTML <canvas> element is used to draw graphics on a web page. The graphic to the left is created with <canvas>. It shows four elements: a red rectangle, a gradient rectangle, a multicolor rectangle, and a multicolor text. The HTML <canvas> element is used to draw graphics, on the fly, via JavaScript.

The <canvas> element is only a container for graphics. You must use JavaScript to actually draw the graphics.

Canvas has several methods for drawing paths, boxes, circles, text, and adding images.

Canvas Examples

A canvas is a rectangular area on an HTML page. By default, a canvas has no border and no content.

The markup looks like this:

<canvas id=”myCanvas” width=”200” height=”100”></canvas>

Note: Always specify an id attribute (to be referred to in a script), and a width and height attribute to define the size of the canvas. To add a border, use the style attribute. The Canvas API largely focuses on 2D graphics. The WebGL API, which also uses the <canvas> element, draws hardware-accelerated 2D and 3D graphics.

The canvas element is part of HTML5 and allows for dynamic, scriptable rendering of 2D shapes and bitmap images. It is a low level, procedural model that updates a bitmap and does not have a built-in scene graph, but through WebGL it allows 3D shapes and images to be displayed. Canvas was initially introduced by Apple for use in their own Mac OS X WebKit component in 2004, powering applications like Dashboard widgets and the Safari browser. Later, in 2005 it was adopted in version 1.8 of Gecko browsers, and Opera in 2006 and standardized by the Web Hypertext Application Technology Working Group (WHATWG) on new proposed specifications for next generation web technologies

**Q9. Mention six animation properties exist in CSS3?**

A9. An animation lets an element gradually change from one style to another. You can change as many CSS properties you want, as many times you want. To use CSS animation, you must first specify some keyframes for the animation. Keyframes hold what styles the element will have at certain times.CSS Animations is a module of CSS that lets you animate the values of CSS properties over time, using keyframes. The behavior of these keyframe animations can be controlled by specifying their timing function, duration, their number of repetitions, and other attributes.

The animation property is a shorthand property for:

* Animation-name
* Animation-duration
* Animation-timing-function
* Animation-delay
* Animation-iteration-count
* Animation-direction
* Animation-fill-mode
* Animation-play-state

**Q10. How to integrate font awesome buttons In HTML? Write the code for it.**

A10. The plain HTML way is to put it in a <form> wherein you specify the desired target URL in the action attribute. If necessary, set CSS display: inline; on the form to keep it in the flow with the surrounding text. Instead of <input type=”submit”> in above example, you can also use <button type=”submit”> .

How To Add Icons To Buttons Using Font Awesome

Step 1 – Installing Font Awesome. To use Font Awesome, you’ll need to first link the Font Awesome CDN (Content Delivery Network) to your HTML document.

Step 2 – Using the Button Tag. We’ll be using the <button> tag for the buttons. …

Step 3 – Styling the Buttons.

Step 4 – Adding the Font Awesome Icons.

You can place Font Awesome icons just about anywhere using a style prefix and the icon’s name. We’ve tried to make it so that icons take on the characteristics and appear alongside text naturally.

Font Awesome is designed to be used with inline elements, and we recommend sticking with a consistent HTML element to reference them by in your project. We like the <i> tag for brevity and because most folks use <em></em> for emphasized/italicized semantic text these days. If that’s not your cup of tea, using a <span> is more semantically correct.

To reference an icon, you need to know two bits of information. 1) its name, prefixed with fa- (meaning “font awesome” naturally!) and 2) the style you want to use’s corresponding prefix\*\*.