FRONT-END DEVELOPER

INTREVIEW QUESTIONS

Akademia 108

Szkoła programowania - zakoduj swoją przyszłość

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General Questions: Answer depends on person.

1. **Why do you want to be a Front-End Developer and not a Backend Developer?**

2. **Talk about your preferred development environment. (OS, Editor, Browsers, Tools etc.)**

3. **What excites or interests you about coding?**

4. **What is the most important in job for you?**

5. **What is a recent technical challenge you experienced and how did you solve it?**

6. **Which version control systems are you familiar with?**

7. **Can you describe your workflow when you create a web page?**

8. **How would you optimize websites assets/resources?**

   For example:
   Minimize Http calls
   Use cdn
   Set expires headers
   Use gzip
   Put css on top
   Put scripts on bottom
   Make Javascript and css external
   Minify Javascript and css
   Avoid redirects
   Reduce dom size
   Don't scale images on client

   https://github.com/shikolay/Front-end-Developer-Interview-Answers

9. **Name 3 ways to decrease page load.**

   For example:

Optimize Images
Browser Caching
Compression
Optimize Your CSS
Keep Your Scripts Below the Fold

https://blog.hubspot.com/marketing/how-to-reduce-your-websites-page-speed#sm.0001xjplem7qad45wtf28ynz4s7mg

https://www.truconversion.com/blog/conversion-rate-optimization/9-tips-to-reduce-page-load-time-and-improve-website-speed/

https://blog.crazyegg.com/2013/12/11/speed-up-your-website/

10. What's the coolest thing you've ever coded, what are you most proud of?

11. What are some things you like about the developer tools you use?

12. What's a cool project that you've recently worked on?

13. How look your traditional day at work?

14. What do you use to create responsive websites (frameworks, javascript, pure CSS - @media queries?

15. Have you ever used a grid system, and if so, what do you prefer?

Examples of grid system: Bootstrap, Foundation, W3.CSS

16. Have you ever worked with retina graphics? If so, when and what techniques did you use?

Technique: @media queries for retina

17. If you have 5 different stylesheets, how would you best integrate them into the site?

Use a CSS preprocessor to nest them with @import statements in class names for each stylesheet, and merge them into a built file. In production, minify the built file with a CSS minifier.

18. Have you used or implemented media queries or mobile specific layouts/CSS?

19. Name some online resources that you reference when having CSS issues.

For example:
Google
w3schools
MDN (Mozilla Developer Network)
stackoverflow

20. Do you know Photoshop or another visual design software alternative?

21. Do you worked before on commercial projects?

22. Do you prefer to work in a team or individually?

23. Do you know and use some languages for backend? What? How would you rate your level of knowledge?

24. How would you rate your frontend language skills (JavaScript, HTML5, CSS3, SASS/LESS)?

25. Do you know and use some JavaScript frameworks or libraries? What? How would you rate your level of knowledge?

For example:
Angular.js
Node.js
jQuery

26. Do you know OOP JavaScript? How would you rate your level of knowledge?

27. Are you using pure JavaScript or using libraries for example jQuery? What do you prefer?

28. Do you use a pure CSS3 or use pre-processors? If you are using a pre-processor, which one?

29. Do you have knowledge of Photoshop or another visual design software alternative on the level allowing for preparation of simple graphic designs and work with graphic projects?

30. While cutting graphic project to HTML what kind of files do you work with when you?

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For example: psd

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HTML5 Questions:

1. **What does a doctype do?**

   doctype is an instruction to the browser to inform about the version of html document and how browser should render it.

   It ensures how element should be displayed on the page by most of the browser. And it also makes browser's life easier. otherwise, browser will guess and will go to quirks mode. Moreover, doctype is required to validate markup.

   http://www.thatjsdude.com/interview/html.html#doctype

2. **You have the three radio buttons, for example: Male, Female, Other
   How to do that when you click on one of the text labels to toggle the right control?**

   You must use <label> tag with attribute for=related_input_id (input with type=radio)

   http://www.w3schools.com/tags/tryit.asp?filename=tryhtml_label

3. **How to group data in a form?**

   The <fieldset> element is used to group data in a form.

4. **How to define a input field read only?**

   Use attribute "readonly".

   http://www.w3schools.com/html/html_form_attributes.asp

5. **What is the value of the attribute "required"?**

   The attribute "required" does not accept value.

   http://www.w3schools.com/html/html_form_attributes.asp

6. **What attributes have been added to the forms in HTML5? What they mean?**

autocomplete
novalidate

When autocomplete is on, the browser automatically complete the input values based on values that the user has entered before.

When present, novalidate specifies that the form data should not be validated when submitted.

http://www.w3schools.com/html/html_form_attributes.asp

7. What is wrong? Fix it.

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta http-equiv="Content-Type" content="text/html; charset=utf-8"/>
   <meta name="title" content="Hallo World!">
   <style rel="stylesheet" href="main.css"></style>
   <script src="main.js"></script>
</head>
<body>

   <header>
     <!-- Nav page ->
   </header>

   <section>
     <p>Content page</p>
     <img href="img.jpg" alt="Title Image"/>
   <section>

   <footer>
     <p>Footer page</p>
   </footer>
<body>
</html>
```

Answer:
Old declaration charset, CORRECT: <meta charset="UTF-8">
Meta tag title doesn't exist, CORRECT: <title>Hallo World!</title>
Wrong declaration of styles, CORRECT: <link rel="stylesheet" href="main.css"/>

Script in head - permissible error but is good if see it, CORRECT: script before end tag body
No end tag: BODY, SECTION
img element does not have a href attribute, CORRECT:
Wrong add a comment in the header, CORRECT: <!-- comment →

8. **What meta tag gives the browser instructions on how to control the page's dimensions and scaling?**

   Meta tag viewport.

   http://www.w3schools.com/tags/tag_meta.asp

9. **What mean:**

   ```
   <style>
      p {
         background-color:lightblue;
      }
   </style>

   <!--[if gte IE 8]>
      <style>
         p {background-color:silver;}
      </style>
   <![endif]-->
   ```

   Answer:
   Background color of <p> elements form IE8 and upwards is silver. Rest IE and browser is lightblue.

10. **What is HTML5Shiv?**

    The HTML5Shiv is a JavaScript workaround to enable styling of HTML5 elements in versions of Internet Explorer prior to version 9.

    http://www.w3schools.com/html/html5_browsers.asp

11. **When should you use HTML5Shiv?**

    You should use the HTML5Shiv when you are using the new HTML5 elements such as: <article>, <section>, <aside>, <nav>, <footer>.

http://www.w3schools.com/html/html5_browsers.asp

12. What is it?

```
<!--[if lt IE 9]>
<script src="https://oss.maxcdn.com/libs/html5shiv/3.7.0/html5shiv.js"></script>
<![endif]-->
```

Answer:
It is a definition of HTML5Shiv for document in versions of Internet Explorer prior to version 9.

http://www.w3schools.com/html/html5_browsers.asp

13. Where in a document should I put definition of HTML5Shiv?

The HTML5Shiv script must be placed in the <head> element, after any stylesheets.

http://www.w3schools.com/html/html5_browsers.asp

14. What is conditional comments?

Conditional comments defines some HTML tags to be executed by Internet Explorer only.

```
For example:
<!--[if IE 9]>
    .... some HTML here ....
<![endif]-->
```

http://www.w3schools.com/html/html_comments.asp

15. How to open a link in new window/tab?

Using target attribute with value _blank.

http://www.w3schools.com/html/html_links.asp

16. How to create that list using HTML:

> **i. Coffee**
> **ii. Tea**
> **iii. Milk**
> **?**
>
> **Answer:**
> ```
> <ol type="i">
>         <li>Coffee</li>
>         <li>Tea</li>
>         <li>Milk</li>
> </ol>
> ```
>
> Create ordered HTML list with a type attribute with value i (type="i"the list items will be numbered with lowercase roman numbers).
>
> http://www.w3schools.com/html/html_lists.asp

17. **What are the HTTP method for to be used when submitting the form data?**

    GET and POST

    http://www.w3schools.com/html/html_forms.asp

18. **What are the differences between GET and POST?**

    When GET is used, the submitted form data will be visible in the page address field. The POST method does not display the submitted form data in the page address field.

    GET has size limitations, POST has no size limitations.

    http://www.w3schools.com/html/html_forms.asp

19. **If I see this in the page address field:**
    action_page.php?firstname=Mickey&lastname=Mouse
    Which the HTTP method is used?

    GET

    http://www.w3schools.com/html/html_forms.asp

20. **When to use POST? When to use GET?**

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GET must NOT be used when sending sensitive information! When GET is used, the submitted form data will be visible in the page address field. GET is best suited for short, non-sensitive, amounts of data, because it has size limitations too.

Always use POST if the form data contains sensitive or personal information. The POST method does not display the submitted form data in the page address field.

POST has no size limitations, and can be used to send large amounts of data.

http://www.w3schools.com/html/html_forms.asp

21. How many HTML tags are should be used for the most simple of web pages? Explain.

Answer:
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Document</title>
</head>
<body>

</body>
</html>
```

9 total.

22. What is the syntax difference between a bulleted list and numbered list?

Bulleted lists use the <ul> tag, which stands for "unordered," whereas <ol> is used to create an ordered list.

23. What kind of things must you be wary of when design or developing for multilingual sites?

hreflang attr in link
dir attr indicating language direction, such as rtl
<meta charset='UTF-8'>
font-size for :lang({language_code}) selectors in CSS
difference in word langth for each language

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/html-questions.md

24. How do you serve a page with content in multiple languages?

Use lang (or xml:lang for XHTML) in tags. Also metadata and Content-Language HTTP header can be used.

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/html-questions.md

25. Describe the difference between <script>, <script async> and <script defer>.

<script> stops rendering process, and download and run a script.
<script async> don't stop rendering process while asynchronously downloading a script. When finishing download, it stops rendering and runs the script.
<script defer> don't stop rendering process while asynchronously downloading a script. When finishing rendering, it runs the script.

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/html-questions.md

26. What is the use of data-* attribute?

Allow you to store extra information/ data in the DOM. You can write valid html with embedded private data. You can easily access data attribute by using javascript and hence a lot of libraries like knockout uses it.

http://www.thatjsdude.com/interview/html.html#data_attribute

27. Can you explain the difference between localStorage and sessionStorage?

Data stored on a user's browser via localStorage will remain on the user's computer until they clean their browser or a web app deletes it. Data stored using sessionStorage is temporary, and will only remain until the top-level window or tab running the script is closed. It is worth noting that the scope of sessionStorage is confined to the window that it is operating within—opening multiple tabs displaying content from the same origin will create separate sessionStorage data that cannot be altered by scripts running in other tabs.

https://www.upwork.com/i/interview-questions/html5/#/sm.0001xjplem7qad45wtf28ynz4s7mg

28. **How would you use HTML5 to embed a video stored at "http://www.example.com/amazing_video.mp4" with user controls? Make it any size you like.**

    While there are many ways to do this, one potential solution is depicted below.

    ```
    <video width="500" height="400" controls>
     <source src="http://www.example.com/amazing_video.mp4">
    </video>
    ```

    Alternatively, here is a more straightforward approach.

    ```
    <video src="http://www.example.com/amazing_video.mp4" width="500" height="400" controls></video>
    ```

    Alternatively, the source file may be indicated with a separate <source> tag inside the <video> element, as in:

    ```
    <video width="500" height="400" controls>
      <source src="http://www.example.com/amazing_video.mp4">
    </video>
    ```

    https://www.toptal.com/html5/interview-questions
    https://www.upwork.com/i/interview-questions/html5/#/sm.0001xjplem7qad45wtf28ynz4s7mg

29. **What is the Geolocation API and why would you use it?**

    The HTML5 Geolocation API allows users to share their location with a website. This is a useful feature that asks a user permission to share their latitude and longitude with the app to receive the benefits of location-aware features, such as the ability to present the landing page of the business closest to the user's location.

    https://www.upwork.com/i/interview-questions/html5/#/sm.0001xjplem7qad45wtf28ynz4s7mg

30. **How would you create a 500×500-pixel with an orange 300×100-pixel rectangle within the top right corner of the square, 20 pixels from the top and left edges of the canvas? ***

    One possible solution is depicted below.

```
<canvas id="c" width="500" height="500"></canvas>
<script>
 var canvas = document.getElementById( "c" );
 var drawing_context = canvas.getContext( "2d" );
 drawing_context.fillStyle = "orange";
 drawing_context.fillRect( 20, 20, 300, 100 );
</script>
```

31. What are the benefits of SVG?

SVG is an image format that is vector based. It's an efficient format for that (small file sizes). You can scale them and they retain their sharpness at any size (bonus points for mentioning raster might have the upper hand at tiny sizes). You can affect parts of them with CSS and JavaScript as well as SVG specific filters that can do things like blurring.

32. How to define superscripted and subscripted text in HTML?

```
<sub>  Defines subscripted text
<sup>  Defines superscripted text
```

33. How to define important text in HTML?

```
<strong>
```

34. What does it mean?

```
<blockquote cite="http://www.worldwildlife.org/who/index.html">For 50 years, WWF
has been protecting the future of nature. The world's leading conservation
organization, WWF works in 100 countries and is supported by 1.2 million members
in the United States and close to 5 million globally.</blockquote>
```

Answer:
Defines a text that is quoted from that (cite="") source.

35. What does it mean?

```
<bdo dir="rtl">Hello world</bdo>
```

Answer:
This line will be written from right to left - dlrow olleH

36. How to define a short inline quotation in HTML?

<q>

37. What are the differences between <kbd>, <samp>, and <code>?

The <kbd>, <samp>, and <code> elements are all displayed in fixed letter size and spacing.

The HTML <kbd> element defines keyboard input.
The HTML <samp> element defines sample output from a computer program.
The HTML <code> element defines a piece of programming code.

http://www.w3schools.com/html/html_computercode_elements.asp

38. Which are HTML elements to define computer code elements?

<code> Defines programming code
<kbd> Defines keyboard input
<samp> Defines computer output
<var> Defines a variable
<pre> Defines preformatted text

http://www.w3schools.com/html/html_computercode_elements.asp

39. What are the differences between <div> and <span>?

<div> Defines a section in a document (block-level)
<span> Defines a section in a document (inline)

http://www.w3schools.com/html/html_blocks.asp

40. Which HTML tag defines an alternate content for users that do not support client-side scripts?

<noscript>

http://www.w3schools.com/tags/tag_noscript.asp

41. What are a character entities?

Character entities are used to display reserved characters in HTML.

http://www.w3schools.com/html/html_entities.asp

42. What are SVG and CANVAS?

The HTML <canvas> element is used to draw graphics on a web page.
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.

SVG is an image format that is vector based.
SVG is used to define graphics for the Web.
The HTML <svg> element is a container for SVG graphics.
SVG has several methods for drawing paths, boxes, circles, text, and graphic images.

http://www.w3schools.com/html/html5_svg.asp
http://www.w3schools.com/html/html5_canvas.asp

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CSS3 Questions:

1. **What are the differences between "visibility: hidden" and "display: none"?**

   display: none removes the element from the normal layout flow and allow other elements to fill in. visibility: hidden tag is rendered, it takes space in the normal flow but doesn't show it.

   http://www.w3schools.com/css/css_display_visibility.asp
   http://www.thatjsdude.com/interview/css.html#displayVisibility

2. **How could you apply css rules specific to a media?**

   @media (max-width: 700px){...} means you want to apply rules to those media whose max-width is 700 px. this means every smaller device will have this rule.

   @media (max-width: 700px) and (orientation: landscape){...} will apply rules for media smaller than 700px and in landscape orientation.

   http://www.thatjsdude.com/interview/css.html#mediaQueries

3. **Which one would you prefer among px, em % or pt and why?**

   It depends on what you are trying to do.

   http://www.thatjsdude.com/interview/css.html#units

4. **What are the pre processors CSS? Do you know anyone?**

   Pre-processors extend CSS with variables, operators, interpolations, functions, mixins and many more other usable assets.

   SASS, LESS and Stylus

5. **What are the reasons to use preprocessor?**

   You write css in high level with some special syntax (declaring variable, nested syntax, mathematical operations, etc.) and that is compiled to css. Preprocessor

helps you to speed up develop, maintain, ensure best practices and also confirms concatenation, compression, etc.

http://www.thatjsdude.com/interview/css.html#preProcessor

6. **If you have a <p> element with font-size: 10rem, will the text be responsive when the user resizes / drags the browser window?**

It depends on the size of which is expressed in font-size of the element <html>. If we use for example px, text will not be responsive, but if we use for example vw text will be responsive.

7. **How to center elements on the page?**

CENTERING LINES OF TEXT
text-align: center;

CENTERING A BLOCK ELEMENTS
width: 50%;
margin-left: auto;
margin-right: auto;

CENTERING A INLINE ELEMENTS
display: block;
margin-left: auto;
margin-right: auto;

CENTERING VERTICALLY
vertical-align: middle;

or use line-height

or use positioning

https://www.w3.org/Style/Examples/007/center.en.html

8. **How do you align a p center-center inside a div?**

text-align: center will do the horizontal alignment but vertical-align: middle will not work here.

There are couple of different ways to solve this problem and one of them are positioning. You make the parent as relative position and child as absolute positioning.

Example: https://www.w3.org/Style/Examples/007/center.en.html

9. **What would be the color of text "I am awesome" for he following rules?**

```
<ul class="shopping-list" id="awesome">
        <li><span>Milk</span></li>
        <li class="favorite" id="must-buy"><span class="highlight">I am
awesome</span></li>
</ul>

<style>

ul.shopping-list li .highlight {
        color: red;
}

ul.shopping-list li .highlight:nth-of-type(odd) {
        color: blue;
}

</style>
```

Answer: blue

http://www.thatjsdude.com/interview/css.html#seeAndTell

10. **What will this selector do?**

[role=navigation] > ul a:not([href^=mailto]) {}

This selects anchor links that are not email links that are decedents of an unordered list that is the direct child of any element with a role attribute of 'navigation'.

http://www.thatjsdude.com/interview/css.html#seeAndTell

11. **What are the differences between p { font-size: inherit; } and p { font-size: initial; }?**

p { font-size: initial; }

Sets this property to its default value.

p { font-size: inherit; }
Inherits this property from its parent element.

http://www.w3schools.com/cssref/pr_font_font-size.asp

12.   What are the differences between inline, block and inline-block?

inline, elements do not break the flow. think of span it fits in the line. Important points about inline elements, margin/ padding will push other elements horizontally not vertically. Moreover, inline elements ignores height and width.

block, breaks the flow and dont sits inline. they are usually container like div, section, ul and also text p, h1, etc.

inline-block, will be similar to inline and will go with the flow of the page. Only differences is this this will take height and width.

http://www.thatjsdude.com/interview/css.html#inlineBlock

13.   What will happen to the position of #foo?

```
<style>
        #foo {
                margin-bottom: -5px;
        }
</style>
<p id="foo">Some text</p>
```

Answer: All elements succeeding #foo will move 5px updward.

http://www.thatjsdude.com/interview/css.html#seeAndTell

14.   How to create a responsive site without using frameworks?

Using @media queries or use Javascript. But should use @media queries.

15.   Which properties css are responsible for the display elements on the page?

display, visibility

16.   What will happen?

```
<style>
        div + p {
                background-color: yellow;
        }

        div > p {
                background-color: yellow;
        }
</style>

<div>
        <p>Paragraph 1 in the div.</p>
        <p>Paragraph 2 in the div.</p>
</div>

<p>Paragraph 3. Not in a div.</p>
<p>Paragraph 4. Not in a div.</p>
```

Answer: background color yellow for Paragraph 1, 2, 3

17. **How to define a color using an rgb?**

Using this formula: rgb(red, green, blue). Each parameter (red, green, and blue) defines the intensity of the color between 0 and 255.

http://www.w3schools.com/html/html_colors.asp

18. **What are the differences between define a color using an rgb and an hex?**

Form of define.

A color define as an RGB value, using this formula: rgb(red, green, blue). Each parameter (red, green, and blue) defines the intensity of the color between 0 and 255.

A color define as an HEX (hexadecimal) value, using this formula: #RRGGBB, where RR (red), GG (green) and BB (blue) are hexadecimal values between 00 and FF (same as decimal 0-255).

http://www.w3schools.com/html/html_colors.asp

19. **What consists the CSS Box Model?**

It consists of: margins, borders, padding, and the actual content.

http://www.w3schools.com/css/css_boxmodel.asp

20.   What is a total element width?

Total element width = width + left padding + right padding + left border + right border + left margin + right margin

http://www.w3schools.com/css/css_boxmodel.asp

21.   What is a total element height?

Total element height = height + top padding + bottom padding + top border + bottom border + top margin + bottom margin

http://www.w3schools.com/css/css_boxmodel.asp

22.   How to specify in CSS, an element shouldn't have padding and border included in the element's total width and height?

Using box-sizing: border-box;

http://www.w3schools.com/cssref/css3_pr_box-sizing.asp

23.   What are the total elements width if elements are empty?
```
span {
        height: 30px;
        margin: 10px;
        padding: 0 5px 3px 0;
        border-left: 1px solid blue;
}

div {
        height: 30px;
        margin: 10px;
        padding: 0 5px 3px 0;
        border-left: 1px solid blue;
}
```

Answer:

div -> 100% of window width - because element width is 100% of window width, even if element is empty
span -> 10px + 10px + 5px + 0 + 1px = 26px

24. **What are vw, vh, vmin, vmax?**

They are the viewport units.
1vw = 1% of viewport width
1vh = 1% of viewport height
1vmin = 1vw or 1vh, whichever is smaller
1vmax = 1vw or 1vh, whichever is larger

http://www.w3schools.com/cssref/css_units.asp

25. **How do you clear a floated element?**

clear:both

http://www.w3schools.com/cssref/pr_class_clear.asp

26. **How to fix it using CSS3?**

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent id imperdiet ex. Praesent id interdum augue, id gravida augue. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Vivamus ut iaculis enim. Proin quis ante et tortor suscipit ornare. In hac habitasse platea dictumst.

Answer:
Change the height of the box
or
Change the font size of the text
or
Use overflow:auto

27. **What's the difference between "resetting" and "normalizing" CSS? Which would you choose, and why?**

    Resetting: Remove all the native styles provided by browsers
    Normalizing: Make the browser styles consistent

    Which would you choose, and why? Answer depends on person.

    https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md
    http://nicolasgallagher.com/about-normalize-css/
    https://the-pastry-box-project.net/oli-studholme/2013-june-3#r1

28. **How do you optimize your webpages for print?**

    @media print {
      ...
    }

    https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md

29. **How would you implement a web design project that uses non-standard fonts?**

    @font-face to write my own font-family
    @import to import prepared web font(e.g. Google Webfonts)

    https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md

30. **What are some of the "gotchas" for writing efficient CSS?**

    Usually about CSS selectors.

    Avoid key selector for large numbers of elements
    Prefer class and ID selector to tag selector
    Avoid redundant selectors
    Care of batching

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md#what-are-some-of-the-gotchas-for-writing-efficient-css

31. **Write a simple drop-down menu with one level. Explain what you do. 15 min on a piece of paper**

For example:

```html
<ol>
  <li><a href="#">name - 1</a>
   <ul>
    <li><a href="#">link - 1</a></li>
    <li><a href="#">link - 2</a></li>
    <li><a href="#">link - 3</a></li>
    <li><a href="#">link - 4</a></li>
   </ul>
  </li>

  <li><a href="#">name - 2</a></li>

  <li><a href="#">name - 4</a>
   <ul>
    <li><a href="#">link - 1</a></li>
    <li><a href="#">link - 2</a></li>
   </ul>
  </li>
 </ol>
```

```css
ol {
    list-style-type:none;
    padding:0;
    margin:0;
    height:2em;
    line-height:2em;
    text-align:center;
    }

  ol a {
    display:block;
    text-decoration:none;
    }
```

```
ol > li {
  float:left;
  width:150px;
  margin-left:1px;
  height:2em;
}

ol > li:first-child {
  margin-left:0;
}

ol > li:hover {
  background-color:#EEE;
}

ol > li:hover > a {
  color:#09C;
}

ol > li:hover > ul {
  display:block;
}

ol > li > ul {
  display:none;
  list-style-type:none;
  padding:0;
  margin:0;
}

ol > li > ul > li {
  position:relative;
  background-color:#EEE;
}

ol > li > ul > li:hover {
  background-color:#DDD;
}

ol > li > ul > li:hover > a {
  color:#09C;
}
```

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32. **How to set the font size and font color for all checked <option> elements?**

```
option:checked {
    color:red;
    font-size: 16px;
}
```

33. **How to select and style only if the <input> element does not have a "required" attribute?**

```
input:optional {

}
```

34. **Does padding has effect on inline element?**

Only padding-left and padding-right.

35. **Does margin has effect on inline element?**

Only margin-left and margin-right.

36. **Explain how a browser determines what elements match a CSS selector.**

Browsers read CSS selectors from right to left. That means that in the selector ul > li a[title="home"] the first thing thing interpreted is a[title="home"]. This first part is also referred to as the "key selector" in that ultimately, it is the element being selected.

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md#explain-how-a-browser-determines-what-elements-match-a-css-selector
https://css-tricks.com/efficiently-rendering-css/#article-header-id-0

37. **How to optimize css selectors?**

Avoid Universal Rules
Don't qualify ID Rules with tag names or classes
Don't qualify Class Rules with tag names
Use the most specific category possible
Avoid the descendant selector
Tag Category rules should never contain a child selector
Question all usages of the child selector

Rely on inheritance
Use scoped stylesheets

http://www.thatjsdude.com/interview/css.html#optimizeSelector
http://vanseodesign.com/css/css-selector-performance/
https://css-tricks.com/efficiently-rendering-css/#article-header-id-0
https://developer.mozilla.org/en-US/docs/Web/Guide/CSS/Writing_efficient_CSS

38. What are sprites and why would use them? How would implement them on a page or site?

Sprites are essentially multiple images combined into one.

Performance is the reason that they are used. Generally speaking, the slowest thing a website can do is request a resource. The fewer requests a site needs to make, the faster it is. Fast = good. Combining what would be many requests into one = good.

It's implemented using background property.

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/css-questions.md#explain-css-sprites-and-how-you-would-implement-them-on-a-page-or-site

39. What are possible alternatives to sprites?

For example:
ICON FONTS
UNICODE
SVG Stacks

40. Explain what elements will match each of the following CSS selectors:

div, p
div p
div > p
div + p
div ~ p

Answer:
div, p - Selects all <div> elements and all <p> elements
div p - Selects all <p> elements that are anywhere inside a <div> element
div > p - Selects all <p> elements where the immediate parent is a <div> element

div + p - Selects all <p> elements that are placed immediately after a <div> element
div ~ p - Selects all <p> elements that are anywhere preceded by a <div> element

https://www.toptal.com/css/interview-questions

41. **Given the following HTML:**

```
<div id="page">
  <h1>Heading Title</h1>
  <h2>Subheading Title</h2>
  <h2>Subheading Title</h2>
  <h1>Heading Title</h1>
  <h2>Subheading Title</h2>
  <h1>Heading Title</h1>
</div>
```

How could you use CSS to achieve the following automatic numbering:

1) Heading Title
1.1) Subheading Title
1.2) Subheading Title

2) Heading Title
2.1) Subheading Title

3) Heading Title

Answer:
```
#page {
  counter-reset: heading;
}

h1:before {
  content: counter(heading)") ";
  counter-increment: heading;
}

h1 {
  counter-reset: subheading;
}

h2:before {
  content: counter(heading)"." counter(subheading)") ";
```

```
    counter-increment: subheading;
}
```

42. **Given the following HTML: <img src="img_flowers.jpg" alt="Flowers">
How to create responsive image?**

For example:

```
img {
    width: 100%;
    height: auto;
}
```

43. **How to create textarea which user can not resize the element?**

```
textarea {
    resize: none;
}
```

http://www.w3schools.com/cssref/css3_pr_resize.asp

44. **Create simple responsive grid.**

Create 5 columns.

When the screen (browser window) gets larger than 768px:
  .col-1 should have a width of 20%
  .col-2 should have a width of 40%
  .col-3 should have a width of 60%
  .col-4 should have a width of 80%
  .col-5 should have a width of 100%

**When the screen (browser window) gets smaller than 768px, each column
should have a width of 100%.**

Use a mobile-first approach.

Answer:
```
/* For mobile phones: */
[class*="col-"] {
    width: 100%;
}
```

```
@media only screen and (min-width: 768px) {
    /* For desktop: */
    .col-1 {width: 20%;}
    .col-2 {width: 40%;}
    .col-3 {width: 60%;}
    .col-4 {width: 80%;}
    .col-5 {width: 100%;}
}
```

45.   What do you know about transition?

CSS3 transitions allows you to change property values smoothly (from one value to another), over a given duration.

http://www.thatjsdude.com/interview/css.html#transition
http://www.w3schools.com/css/css3_transitions.asp

46.   What are the possible value of the property "position"?

static
absolute
relative
fixed
initial
inherit

http://www.w3schools.com/cssref/pr_class_position.asp

47.   What are the properties Associated with CSS3 Multi-Column Feature?

column-count
column-gap
column-rule-style
column-rule-width
column-rule-color
column-rule
column-span
column-width

http://www.w3schools.com/css/css3_multiple_columns.asp

48. **Given the following HTML:**

<div class="newspaper">Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum.</div>

Divide text into 4 columns. With gaps between the columns equal 40px and dividers between the columns (width = 1px, style=solid, color= #e1ebed).

The text should look like this:

| Lorem ipsum dolor sit amet, consectetuer adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis | nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel | illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue duis dolore te feugait nulla facilisi. Nam liber tempor cum | soluta nobis eleifend option congue nihil imperdiet doming id quod mazim placerat facer possim assum. |

Answer:

```
.newspaper {
    -webkit-column-count: 4; /* Chrome, Safari, Opera */
    -moz-column-count: 4; /* Firefox */
    column-count: 4;
    -webkit-column-gap: 40px; /* Chrome, Safari, Opera */
    -moz-column-gap: 40px; /* Firefox */
    column-gap: 40px;
    -webkit-column-rule: 1px solid #e1ebed; /* Chrome, Safari, Opera */
    -moz-column-rule: 1px solid #e1ebed; /* Firefox */
    column-rule: 1px solid #e1ebed;
}
```

49. **Given the following HTML:**

```
<ul class="pagination">
 <li><a href="#">«</a></li>
 <li><a href="#">1</a></li>
 <li><a class="active" href="#">2</a></li>
```

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```
    <li><a href="#">3</a></li>
    <li><a href="#">4</a></li>
    <li><a href="#">»</a></li>
</ul>
```

Style a simple pagination. The pagination should look like this:

«   1   2   3   4   »

Answer:
For example:

```
ul.pagination {
    display: inline-block;
    padding: 0;
    margin: 0;
}

ul.pagination li {display: inline;}

ul.pagination li a {
    color: black;
    float: left;
    padding: 8px 16px;
    text-decoration: none;
}

ul.pagination li a.active {
    background-color: #4CAF50;
    color: white;
}

ul.pagination li a:hover:not(.active) {
    background-color: #ddd;
}
```

==

JavaScript Questions:

1. **What is the value of foo?**

   var foo = 10 + '20';

   Answer: 1020

   http://h5bp.github.io/Front-end-Developer-Interview-Questions/

2. **What is the outcome of the two alerts below?**

   ```
   var foo = "Hello";
   (function() {
           var bar = " World";
           alert(foo + bar);
   })();
   alert(foo + bar);
   ```

   Answer: The outcome from first alert is "Hello World", but second alert is error in console because bar is not defined. bar is defined only for function and is not defined after the function.

   bar is local variable.

   http://h5bp.github.io/Front-end-Developer-Interview-Questions/

3. **What is the value of foo.length?**

   ```
   var foo = [];
   foo.push(1);
   foo.push(2);
   ```

   Answer: 2

   http://h5bp.github.io/Front-end-Developer-Interview-Questions/

4. **What is the value of foo, bar, dude?**

```
var foo = 2+true;
var bar = '2'+true;
var dude = 2+'2';
```

Answer:
foo = 3
The plus operator between a number and a boolean or two boolean will convert boolean to number. Hence, true converts to 1 and you get result of 2+1

bar = 2true
If one of the operands of the plus (+) operator is string it will convert other number or boolean to string and perform a concatenation. "2"+true will return "2true"

dude = 22

http://www.thatjsdude.com/interview/js2.html#rapidFire

5. **What is the value of 4+3+2+"1"?**

   The addition starts from the left, 4+3 results 7 and 7+2 is 9. So far, the plus operator is performing addition as both the operands are number. After that 9 + "1" where one of the operands is string and plus operator will perform concatenation.

   http://www.thatjsdude.com/interview/js2.html#rapidFire

6. **What is the value of "1"+2+4?**

   For this one "1" + 2 will produce "12" and "12"+4 will generates "124"

   http://www.thatjsdude.com/interview/js2.html#rapidFire

7. **If you have var y = 1, x = y = typeof x; What is the value of x?**

   undefined

   http://www.thatjsdude.com/interview/js2.html#rapidFire

8. **What does Math.random() method?**

   Return a random number between 0 (inclusive) and 1 (exclusive).

9. **What are the different ways to get an element from DOM?**

You can use the following methods in document

getElementById to get a element that has the provided Id.
getElementsByClassName to get a nodelist (nodelist is not an array, rather it is array-like object) by providing a class name.
getElementsByTagName to get a nodelist by the provided tag name.
querySelector you will pass css style selector (jquery style) and this will return first matched element in the DOM.
querySelectorAll will return a non-live nodelist by using depth-first pre order traversal of all the matched elements. Non-live means, any changes after selecting the elements will not be reflected.

http://www.thatjsdude.com/interview/dom.html#queryDOM

10. What are the differences between == and ===?

The simplest way of saying that, == will not check types and === will check whether both sides are of same type. So, == is tolerant. But under the hood it converts to its convenient type to have both in same type and then do the comparison.

=== compares the types and values. Hence, if both sides are not same type, answer is always false.

http://www.thatjsdude.com/interview/js2.html#doubleVsTripleEqual

11. What appears in the console?

```
var num = 10,
name = "Jon Doo",
    obj1 = {
        value: "first value"
    },
    obj2 = {
      value: "second value"
    },
    obj3 = obj2;

function change(num, name, obj1, obj2) {
   num = num * 10;
   name = "Paul Irish";
   obj1 = obj2;
   obj2.value = "new value";
}
```

```
change(num, name, obj1, obj2);

console.log(num);
console.log(name);
console.log(obj1.value);
 console.log(obj2.value);
console.log(obj3.value);
```

Answer:
10
"Jon Doo"
"first value"
"new value"
"new value"

12. What value is returned?

```
"Hello world".split("").reverse().join("");
```

Answer: "dlrow olleH"

https://github.com/shikolay/Front-end-Developer-Interview-Answers

13. What's the difference between .call and .apply?

The difference is that apply lets you invoke the function with arguments as an array; call requires the parameters be listed explicitly.

https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Function/apply
https://developer.mozilla.org/en-US/docs/Web/JavaScript/Reference/Global_Objects/Function/call

14. What's the difference between an "attribute" and a "property"?

Attributes are defined by HTML. Properties are defined by DOM.

Some HTML attributes have 1:1 mapping onto properties. id is one example of such.

Some do not (e.g. the value attribute specifies the initial value of an input, but the value property specifies the current value).

---

15. Difference between document load event and document ready event?

document ready: when a HTML document is loaded and rendered
document load: when a HTML document and assets in the document are all loaded
and rendered

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/js-questions.md

16. What is "use strict";? what are the advantages and disadvantages to using it?

Advantages
- Can't assign a value to an undefined global variable
- fire TypeError for not-allowed assignments
- this in a normal function refers to undefined, instead of global

In short, it secures JavaScript.

Disadvantage
- When using global strict mode and concatenating the script with other scripts not using strict mode, the other scripts can be broken.

https://github.com/noraesae/Front-end-Developer-Interview-Questions-And-Answers/blob/master/answers/js-questions.md

17. Is there any difference between window and document?

Yes. JavaScript has a global object and everything runs under it. window is that global object that holds global variables, global functions, location, history everything is under it. Besides, setTimeout, ajax call (XMLHttpRequest), console or localStorage are part of window.

document is also under window. document is a property of the window object. document represents the DOM and DOM is the object oriented representation of the html markup you have written. All the nodes are part of document. Hence you can use getElementById or addEventListener on document. These methods are not present in the window object.

http://www.thatjsdude.com/interview/dom.html#windwoVsDocument

18. Does document.onload and window.onload fire at the same time?

window.onload

By default, it is fired when the entire page loads, including its content (images, css, scripts, etc.)
In some browsers it now takes over the role of document.onload and fires when the DOM is ready as well.

document.onload

It is called when the DOM is ready which can be prior to images and other external content is loaded.

http://www.thatjsdude.com/interview/dom.html#compareTwoOnload

19. **How could you make sure to run some javaScript when DOM is ready like $(document).ready?**

Place your code inside a DOMContentLoaded handler. This event will be fired when DOM is completely loaded.

```
document.addEventListener('DOMContentLoaded', function(){
   //put your script here
});
```

20. **What does innerHTML?**

The innerHTML property sets or returns the HTML content (inner HTML) of an element.

http://www.w3schools.com/jsref/prop_html_innerhtml.asp

21. **Which variables are local and which are global?**

```
var x;
var z = 2;

function count() {

   x = 3;
   var a = x + z;
   b = 2 + a;
   var d = 3 + a;
   c = d;
```

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```
        return sum = a + b + c;;
    }

    i = count();
```

Answer:
Global variables: x, z, b, c, sum, i
Local variables: a, d

22. **If you have var y = 1, x = y = typeof x; What is the value of x?**

    undefined

23. **What is AJAX?**

    AJAX = Asynchronous JavaScript And XML.

    AJAX is not a programming language.

    AJAX just uses a combination of:

    A browser built-in XMLHttpRequest object (to request data from a web server)
    JavaScript and HTML DOM (to display or use the data)

    AJAX allows web pages to be updated asynchronously by exchanging data with a
    web server behind the scenes. This means that it is possible to update parts of a web
    page, without reloading the whole page.

    http://www.w3schools.com/js/js_ajax_intro.asp

24. **What is JSON?**

    JSON: JavaScript Object Notation.

    JSON is a syntax for storing and exchanging data.

    JSON is text, written with JavaScript object notation.

    JSON is text, and we can convert any JavaScript object into JSON, and send JSON
    to the server.

    We can also convert any JSON received from the server into JavaScript objects.

This way we can work with the data as JavaScript objects, with no complicated parsing and translations.

http://www.w3schools.com/js/js_json_intro.asp

25. **Given the following HTML:**

<div id="data"></div>

Add using JavaScript current date in form 23-Jan-2017.

Answer:
```
var m_names = new Array("Jan", "Feb", "Mar", "Apr", "May", "Jun", "Jul", "Aug",
"Sep", "Oct", "Nov", "Dec");

var d = new Date();
var curr_date = d.getDate();
var curr_month = d.getMonth();
var curr_year = d.getFullYear();

document.getElementById("data").innerHTML = curr_date + "-" +
m_names[curr_month] + "-" + curr_year;
```

26. **What does sort()?**

The sort() method sorts an array alphabetically.

27. **Create object Person. Object has firstName, lastName, age, eyeColor and one method which return firstName and lastName.**

```
function Person(first, last, age, eye) {
    this.firstName = first;
    this.lastName = last;
    this.age = age;
    this.eyeColor = eye;
    this.fullName = function() {return this.firstName + " " + this.lastName;};
}

var myFather = new Person("John", "Doe", 50, "blue");
console.log(myFather.fullName());
var myMother = new Person("Sally", "Rally", 48, "green");
console.log(myMother.fullName());
```

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28. What is wrong? Fix it.

```
Function Person(first, last, age, eye) {
    this.firstName = first;
    this.lastName = last;
    this.age = age;
    this.eyeColor = eye;
    fullName = function() {this.firstName + " " + this.lastName};
}

var myFather = person("John", "Doe", 50, "blue");
console.log(myFather.fullName());
var myMother == new person("Sally", "Rally", 48, "green");
console.log(myMother.fullName())
```

Answer:
```
function Person(first, last, age, eye) {
    this.firstName = first,
    this.lastName = last,
    this.age = age,
    this.eyeColor = eye,
    this.fullName = function() {return this.firstName + " " + this.lastName;};
}

var myFather = new Person("John", "Doe", 50, "blue");
console.log(myFather.fullName());
var myMother = new Person("Sally", "Rally", 48, "green");
console.log(myMother.fullName());
```

29. What is this?

In JavaScript, the thing called this, is the object that "owns" the JavaScript code.

The value of this, when used in a function, is the object that "owns" the function.

The value of this, when used in an object, is the object itself.

The this keyword in an object constructor does not have a value. It is only a substitute for the new object.

The value of this will become the new object when the constructor is used to create an object.

http://www.w3schools.com/js/js_object_definition.asp

30. What is jQuery?

jQuery is a lightweight, "write less, do more", JavaScript library.

The purpose of jQuery is to make it much easier to use JavaScript on your website.

jQuery takes a lot of common tasks that require many lines of JavaScript code to accomplish, and wraps them into methods that you can call with a single line of code.

jQuery also simplifies a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.

The jQuery library contains the following features:

HTML/DOM manipulation
CSS manipulation
HTML event methods
Effects and animations
AJAX
Utilities

31. What does mean: $(this).hide() if using jQuery?

Hides the current element.

32. What do text(), html() and val() if using jQuery?

text() - Sets or returns the text content of selected elements
html() - Sets or returns the content of selected elements (including HTML markup)
val() - Sets or returns the value of form fields

http://www.w3schools.com/jquery/jquery_dom_get.asp

33. How to add some text before element using jQuery?

With using before().

34. What are the differences between after() and append()?

append() - Inserts content at the end of the selected elements
after() - Inserts content after the selected elements

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http://www.w3schools.com/jquery/jquery_dom_add.asp

35. Given the following HTML:

<div id="bg">This is a text.</div>

Add background color and font size using jQuery and pure JavaScript.

with jQuery
```
$(document).ready(function(){
    $("button").click(function(){
        $("#bg").css({"background-color": "yellow", "font-size": "200%"});
    });
});
```

pure Js
```
document.getElementById("#bg").style.backgroundColor = "yellow";
document.getElementById("#bg").style.fontSize = "200%";
```

==

Other Questions:

1. **What can you do to improve page performance?**

   For example:
   Javascripts should be at the bottom of the page.
   Compress images whenever possible.
   Ensure parallel requests of your JS and CSS files.
   Use Browser Caching is also very import to be set for static resources like JS and CSS files, images, PDFs and HTML.
   Styles and JavaScript in separate files (not with HTML).
   Use compressed CSS and JS.

   http://blog.teamtreehouse.com/speeding-up-page-load-times