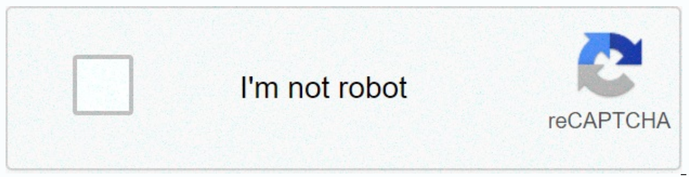

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Codehs answers javascript and graphics

The word JavaScript has become a lightning rod in the Web development community. Depending on who you listen to, JavaScript is either the shining beacon of light that leads us to Web 3.0 or it's a treacherous plot to bring the Web to its knees, one button hovering at a time. If you eliminate radical views at each end of the spectrum, you'll be left with very real questions about when it makes sense to use JavaScript, and when it doesn't. There is no doubt that overzealous scripters have built applications that stretch the boundaries of JavaScript... and in some cases, logic. More about Dynamic Languages & Web Dev Did You Use Python to Write WHAT? You used Pearl to write what? Business PHP advantages and weaknesses, get 2 You used PHP to write what?! Beyond Ajax: Software Development, two years from now five compelling reasons to use MySQL What kind of JavaScript development scenario qualifies as stretching the boundaries of logic? For one, it tries to create complex multimedia applications, such as action games. Certainly, in many ways it is technically possible to achieve since JavaScript is a powerful technology with the ability to manipulate images, realize animation schedule, etc. But high-performance multimedia is by no means the powerful suit of JavaScript. Even though performance wasn't a critical estimate, JavaScript still falls short compared to other options, such as Adobe Flash. If you're trying to create complex media software with JavaScript, you're finally reinventing several wheels. specialized tools exist for the very purpose of empowering Web developers to build rich, online multimedia experiences. Okay, so maybe Halo 4 in JavaScript was never really on the table in your company. Does that mean everything else is open? Not so much. There are still other pitfalls waiting for the overconfident JavaScript developer who insists on using a JavaScript hammer to whack away at every interactive Web nail in sight. But the problem of using JavaScript as Web development technology is ultimately more subtle than just pointing out a handful of less-than-ideal coding techniques or application categories. Yes, it is true that capable little web effects such as image roll-overs should be performed using overlapping style sheets (CSS), not JavaScript. It is also true that it is generally a bad idea to construct hyperlinks using JavaScript code that breaks down when JavaScript is absent. And don't even get me started using JavaScript to detect versions browser or, scariest of all, hijack the browser's status bar to display a cute animated message. The real issue of evaluating the role of JavaScript in a particular Web application comes down to the role of the application. Is it a page, a program, or some combination of the two? So now you're thinking, Wait a minute, I thought this article was going to give me a handy bulleted list of to use JavaScript and when not to, and now I'm having to think philosophically about what it is I'm building? It's true, it's true. The key to understanding when and when not to deploy JavaScript has as much to do with the intent of the target application as JavaScript itself does. You already have an idea that JavaScript is a client-side scripting language that can add interaction to Web pages in many different ways. But are you really developing a collection of Web pages or are you developing a full client application that happens to be running in a Web browser? And this application is designed for internal use within a corporate intranet (where you have a degree of browser control), or is it for the general public to consume? These are important questions because, as you may also know, JavaScript is both powerful and flexible enough to be used in almost any Web application. The question we are trying to answer here is when, why and why not. So let's get back to the concept of the web-based version of Halo 4 as a possible JavaScript application. Why wouldn't it make sense for such an application to be built into JavaScript? First of all is performance. Action games are always on the bleeding edge of multimedia technology, and usually need to squeeze every spare cycle out of the processor. As an interpreted language, JavaScript simply isn't cut for such hardcore performance. These games are usually embedded in compiled languages that run natively on a given processor. But for the sake of argument, let's say that performance is not a deal breaker. What about JavaScript and Halo 4 then? There are still problems, and one of them has to do with the fact that you have to aim for a mass market with a video game, but it is a market that does not necessarily have universal support for JavaScript. For example, some people are disabled by JavaScript for security reasons. And since the whole game depends on JavaScript, there is no way to gracefully downgrade the Halo experience for users without JavaScript. They just stayed out. Maybe it's okay, though. And this leads back to the issue of the page versus the program. Let's switch gears to a completely different JavaScript app: a product review service where people post product reviews. This sounds more like the Web we know and love, a web of pages. In this app, each product has its own page. this page contains a list of all product reviews. Although parts of the application could potentially benefit from nothing about it screams I need JavaScript! Product reviews can be created by using a traditional Web form that is registered on the server for storage in a database. And each page of the product can be assembled on the server using a server script language, such as PHP. So far, we're talking about the traditional Web 1.0 way to do things with me and good old forms. But what about Ajax, that clever fusion of JavaScript, XML and some kind of asynchronous something or other? With the help of a small Ajax, the product review application could become more responsive, eliminating traditional banter between customer and server as formats are processed and data is sent back and forth to small pieces on a need-to-know basis. In many ways, the Ajax version of the app represents a slight improvement but, in terms of usability, could have a significant performance. And there you have it, a perfect excuse for JavaScript in an otherwise traditional Web application. The case is closed... Or is it? The problem with the occasional injection of Ajax (JavaScript) into traditional Web applications that are not desperately needed is that they run the risk of making the application dependent on JavaScript, and perhaps inadvertently limiting the pool of users who can access it. Remember, there will be people who don't have JavaScript support. You already had a very good (and functional) Web application, even if it was categorized as oh-so-passé Web 1.0. But what's worse: dull and boring, but consistent, or hip and flashy, but exclusive? Would you prefer all users to have a satisfying experience, or do most users have a superior experience at the expense of a minority of users? These are important questions, and lead back once again to whether your application is a page or a program. Okay, okay, then let's officially declare the product review request a set of pages. Does that statement eliminate JavaScript? No. But it affects how JavaScript is used. More specifically, by committing to a page mentality, you say that interaction is secondary to content. And that means that page accessibility cannot be reduced if JavaScript is not available. What is summarized is that JavaScript should be used as an improvement in the application, not as a necessary element. The beauty of this philosophy is that it still leaves the door open for slick Web 2.0 results such as dynamic data exchange with Ajax, while maintaining traditional Web development techniques that still act as a lower common browser denominator. The other side of the coin is the mindset of viewing a Web application as a program, as opposed to a page. In this scenario, the application is completely dependent on the active functionality made possible by JavaScript, which means that it is ok to forgo users who lack JavaScript support. Google has embraced this philosophy in marquee products, two of which are extremely popular: Gmail and Google Maps. Both applications make extensive use of Ajax (JavaScript), and do not apologize to users who cannot run them due to lack of JavaScript. If this article had been written just a few years ago, I could have used an email application as as example of when not to use JavaScript instead of Halo. But Gmail has pushed through this barrier. What has not yet fully shaken-out is the viability of Web-based applications to perform the tasks we are used to doing in native client applications such as e-mail. Gmail has come a long way and many people use it, but you still hear a few grumbles about that intangible usability difference between a search engine-based application and a standalone application. Even though JavaScript-powered, web-based email finally gets hold of it, surely there are other stand-by applications that simply won't make sense in Web format. Two such applications that come to mind are video and photo editing. Similar to games, these are such media-intensive applications that they just can't make sense in JavaScript, right? However, Adobe has already released Premiere Express for online video editing and is putting the finishing touches to Photoshop Express for web-based photo editing. What is interesting about these applications is that they are not technically built into JavaScript; is built on ActionScript, a close cousin of JavaScript used in Adobe's Flex development environment. But ActionScript in these applications has been compiled so that the net result is more similar to a native application. Adobe may herald the future of Web scripting to some extent, at least in terms of building more features-rich applications. And in doing so, they force us to rethink exactly what is possible with scenario languages. Adobe aside, it's hard to draw lines in the sand when it comes to using JavaScript on the Internet because the sand is still shifting under our feet. So while I'll stick to my guns for not building Halo 4 into JavaScript, over time it will become increasingly difficult to exclude entire categories of applications as viable in Web format. Halo 7 can be a different story! For the foreseeable future, the most important decision is accessibility and ensuring that the Web application works — and works well — for most possible users. If you're wrong on the side of viewing JavaScript as an improvement technology, it's unlikely to go wrong. Michael Morrison is a writer, programmer and author of a variety of books covering topics such as Java, web scripting, game development and mobile devices. Some of Michael's notable writing projects include Chief First JavaScript (O'Reilly, 2007); JavaScript Bible, 6th edition (Wiley, 2006) Teach yourself HTML & CSS in 24 hours, 7th (Sams Publishing, 2005) and Start Mobile Phone Game Programming (Sams Publishing, 2004). In addition to his main profession as a writer and technical consultant, Michael is the founder of Stalefish Labs, an entertainment company specializing in games, games and interactive media. When not glued to his computer, skateboarding, playing hockey or watching movies movies His wife, Masheed, Michael enjoys hanging out of his koi pond.

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