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BOOTSTRAP RESPONSIVE NAVIGATION AND MEDIA QUERIES APP FOR WEB DESIGN

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ABSTRACT

In recent years, responsive web design has gained a lot of attention due to its ability to accommodate a wide range of internet terminal resolutions. Using Media Queries, Bootstrap responsive navigation, and the layout of streaming technology will be covered in this paper. Consider the current state of responsive web development, as well.

Keywords-Responsive, Flow Chart, Media Queries, Bootstrapnavigation

1. Introduction

It is impossible to construct a dedicated interface for each device because of the scale of the site, which makes it impossible for Internet terminals to be designed in a variety of ways. As a result, responsive web design is becoming more and more commonplace. Three presentconversion abilities "*flexible network pattern, flexible images, and media and media queries*" have been combined to create responsive Web design, which has been dubbed "*Responsive Web Design*."Its objective is to develop a system for displaying web materialthat can be used on any device, regardless of its size. There's more to responsive design than just changing a page's layout to fit the viewport. It's all about redesigning the design process from the ground up. For desktop computers, web designers employed a fixed-width design before reorganising information by zooming out and shrinking the size of the screen. The design and development of a web page should adapt to the user's operating system, screen size, and screen orientation. Because of this, we should be able to instantly change page resolution, picture size, and related scripting capabilities to accommodate different devices, regardless of screen size[1].

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2. Current situation analysis

The "waterfall model" is a common design method for most websites. Once the system requirements are analysed, the front- and back-ends are designed, and the final product is implemented. The "waterfall model" is well known for its linear character. There are a set of stages that progress the design in a single direction throughout the process. In website development, "responsive design" uses the same set of scripts to ensure that web content is presented correctly on PC, tablet, and smartphone browsers. Increasingly, web developers are developing websites that can be accessed on a wide range of devices and operating systems. We can see that the "waterfall model" almost discounted any other design and advancebackground, which has become its main disadvantage. These cross-platform concerns have been factored in from the beginning of "responsive design" in order to complete pre-patterning "framework, design", and "testing" in more depth. However, the "waterfall model" omits these works. For PCs, tablets, and mobile devices, a responsive design website will be ready to go when it's finished. Since it has become a popular front-end website development technique in recently, "responsive design" has been thoroughly explored, yet several practical issues have emerged as a result of so many designers implementing this technology.[2]

2.1Advantages

- Convenient: the quality of user experience improves as the number of mobile devices grows. Responsive web design, which can be adapted to almost any screen size, clearly provides a user-friendly web interface..
- A responsive website is easier to manage because there is only one layout that can be utilised on any device, which reduces the amount of work that has to be done. Because the data isn't synchronised, designers have to work on both mobile and non-mobile websites at the same time, which takes time.
- There is no need for several domain names in the case of responsive websites. In the case of a mobile site, you'll have to create a separate URL for each.

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2.2Problems

- Code pages that have a big number of lines are more likely to take longer to download. Due to the need for a lot of CSS and JavaScript code, responsive design slows down the loading time of websites.
- Images and videos should be loaded in a consistent manner as part of response design. Reduced-resolution photos and movies that require more power to display due to their high display requirements slow down the device's loading time.
- Since 2010, fewer big portal and e-commerce websites have implemented responsive design. With "responsive design," users can access the same information regardless of the size of their device's screen ("*such as deleting some content on low resolution devices*". There are a lot of "single web pages" on huge portals and "e-commerce websites". For "low-resolution devices", the page will have to be stretched so that the information can be viewed in its full.

3. Implementation

"*Bootstrap responsive navigation and Flow layout*" (a web page's content width is defined by percentage) are among the technologies described in this article. The header tag must have the following line of code added to it:

To accommodate the device's screen resolution, most mobile browsers automatically widen an HTML page's view (viewport). A meta tag can be used to reset the view. This parameter specifies that the device's width will be used as the view width by disabling initial scaling. There are no exceptions to this rule.

```
<meta name="viewport" content="width=device-width,
initial-scale=1, maximum-scale=1, user-scalable=no">
```

3.1 Media Queries

The CSS3 Media Queries module allows us to change the device's CSS style based on the display's properties. All of our pages can be easily resized to fit any device with just a few lines of code. [2] It's possible to find a wide range of media properties. There are many features that can be used to

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determine screen size, such as maximum and minimum widths. However, responsive design relies mostly on these elements. Using a CSS style sheet, you may control how different screen sizes are displayed by modifying the CSS styles. The preciseness with which the range is defined will determine the interoperability of a device with responsive design devices. Terminals with screens that are less than 980px will display the message shown below:

```
@meadia screen and （max-width：980px）{}：
```

If you want to use iPad and iPhone-friendly views, the code is::

```
/**iPad**/
    @media only screen and (min-width:768px) and (max-
width:1024px){}
/*iPhone*/
    @media only screen and (min-width:320px) and (max-
width:767px){}
```

B. Bootstrap responsive navigation

Founded by "Twitter", Bootstrap tool is free and open-source. As an added bonus, it features a CSS/HTML framework. Less is a dynamic CSS language that powers Bootstrap's beautiful HTML and CSS specification [3]. As a result, front-end Web development is made much easier because it brings together pieces whose natures have already been specified. After compressing the response navigation, which is a tiny JavaScript plugin, we can construct "*switchable navigation for small screens*". It's fast and works well with touch screens and CSS3 transitions. Unlike most CSS3 transitions, it also allows for the rare transition from height: 0 to height: auto. The first step is to enter the CSS settings.

```
html , body{min-width:1333px}
```

Because of this, we can achieve responsive navigation with bootstrap.

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```
<link href="assets/css/bootstrap-responsive.css" rel="stylesheet">
```

C. Flow Chart

In many cases, when a user narrows the browser window [3], some of the original page's content is unable to be viewed. The browser's horizontal or vertical scroll bar must be used to access this section. This not only makes it difficult to navigate the web, but it also makes it tough to print on various sizes of paper as well. Flow layout has two major components: DIV modules are float: left by default, and their widths are represented in percentages. [4] As an example, we defined a "CSS rule for the div#content: width:70 percent" ; In other words, the content of div # is 70% of its parent's width. As a result, the div # content width will alter when the browser window is resized As a result of using this strategy, the following examples are provided:

Figure: Responsive web design [4]

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4 Browser compatibility analysis

In order to construct responsive web design, it is vital to investigate browser compatibility issues linked to HTML5, CSS3, and Bootstrap. Our analysis focuses on the three most popular browsers in the world, Chrome, Internet Explorer, and Firefox.

For the most part, Bootstrap can be used on all modern browsers. On the Windows platform, Internet Explorer 8-11 are fully functional. Additionally, Bootstrap's compatibility with Chrome, Firefox, and Internet Explorer 7 performed well. [5] There is more information in the following table:

	Chrome	*Firefox*	*Internet Explorer*	*Opera*	*Safari*
Android	✓	✓	N/A	×	N/A
iOS	✓	N/A	N/A	×	✓
Mac OS X	✓	✓	N/A	✓	✓
Windows	✓	✓	✓	✓	×

Table 1 style: Time table style

"However, some CSS3 and HTML5 properties cannot show good compatibility on Internet Explorer 8 and 9. For example":

CSS Property	*Internet Explorer 8*	*Internet Explorer 9*
border-radius	×	✓
box-shadow	×	✓
transform	×	✓
transition	×	×
placeholder	×	×

Table 2 CSS Property Compatibility

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Internet Explorer 8 also needs to work with Respond.js in order to support Media Queries [6].

In order to compensate for the IE6 incompatibility issue, Bootstrap includes a library called Bies. On IE6, Bise is now able to support most of the attributes of bootstrap, but there are a few that it cannot. Usage of Bise It began by adding a CSS file to the tag, followed by a Bise CSS patch file:

```
<link rel="stylesheet" type="text/css"
href="boostrap/css/boostrap-ie6.css">
<link rel="stylesheet"type="text/css"href="boostrap/css/ie.css0">
```

It is time to include the JavaScript file and the Patch for Bise JavaScript to the HTML content. Overall, Bootstrap-based responsive websites tend to have greater browser compatibility.

5. Conclusion

The web, thanks to adaptable design, is able to adjust to the surroundings of a user's browsing device without the user having to do anything. Because of the disparities in browsing devices, this method substantially avoids iterative development that would otherwise occur. In addition to boosting productivity and saving a significant amount of time and resources, this solution ensures that the view pages on desktops and mobile devices are same. All of the design and content services issues are certainly not solved by a responsive web. Project-specific variables (such as money, target users and site usage) dictate how a project is implemented just like in the past. Reducing the amount of money needed to construct a mobile website is always preferable to using a normal fixed-width design, according to the experiences we have already had. The first interface is typically designed for mobile devices, and the PC is used as an extension of that. No additional resources are being utilised by mobile terminals or redrawing alternative style PC terminals, which could affect the PC's overall performance. If you've already got a website, you can utilise the techniques discussed in this paper to change it into a responsive site that caters to users on a variety of devices.

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