**Solution to exercises**

**Cross-word**

**Across**

**Down**

1. It is the application of fluid grids to images that are used within a Web page. 🡪 Flexible images
2. In this technique, a single website responds to all devices in which it is viewed. 🡪 RWD
3. It refers to the process of optimizing websites so that they become more search engine friendly and obtain higher position in the search results.

**Across**

1. In this technology, Web page has a grid layout. 🡪 Fluid grids
2. It enables designers to add animations and visual effects to a Web page. 🡪 Javascript

**Match the following:**

|  |  |
| --- | --- |
| **Column A** | **Column B** |
| CSS | Client-side scripting layer |
| jQuery | Content layer |
| HTML | Presentation layer |

Ans. CSS 🡪Presentation layer

jQuery🡪Client-side scripting layer

HTML🡪Content layer

**State whether the following statements are True or False:**

1. A Web page having a flexible grid layout will shrink as per the screen size.

Ans. True

1. AWD is client-side technique.

Ans. False

1. RWD is a server-side technique.

Ans. False

1. RWD follows one web approach.

Ans. True

1. The AWD technique allows users to view websites on various devices having different screen sizes.

Ans. True

1. Websites having a large number of images slow down the performance of the site.

Ans. True

1. Grid layout is not fluid in nature.

Ans. False

1. You cannot add interactivity, such as the click event or the mouse hover event to a Web page using jQuery.

Ans. False

1. RWD technique helps designers create device-independent Web content.

Ans. True

1. It is easy to track an RWD site, as it uses the one-Web or one-URL approach to access a website on different devices.

Ans. True

1. AWD sites reduce the development, support, and maintenance overhead.

Ans. False

1. The three building blocks of RWD enable designers to achieve the flexibility for creating a responsive website.

Ans. True

1. Media queries are styling capabilities that allow designers to specify different media, such as screen, and their attributes, such as height or width.

Ans. True

1. The presentation layer lies at the top of the architecture of RWD.

Ans. False

1. Architecture of RWD consists of four layers.

Ans. False

1. The content layer lies at the bottom of the architecture of RWD.

Ans. False

**Subjective questions:**

1. List the differences between AWD and RWD techniques.

Ans. The following table displays the differences between the AWD and the RWD techniques.

|  |  |
| --- | --- |
| ***AWD Technique*** | ***RWD Technique*** |
| *AWD uses separate URLs to represent the same website on different devices.* | *RWD uses a single URL to represent the same website on different devices.* |
| *In the AWD technique, different versions of Web pages are carefully constructed for a varied set of devices. When a request for a Web page is received, the appropriate version of the Web page is sent as a response, depending upon the device from which the request is received.* | *In the RWD technique, new concepts, such as media queries, flexible images, and fluid grids, are introduced. These new concepts, when implemented, allow you to create a single Web page that modifies its layout as per the screen size of the device.* |
| *AWD is server side. This means that server performs the tasks of detecting various devices, loading the accurate template or CSS according to the device’s attributes, and changing the layout as per the device screen. For example, the server renders high-quality images when a request is received from a device with retina display and low-quality images when a request is received from a standard device.* | *RWD is client side. This means that the Web page is directly sent to the device’s browser. The browser then adjusts the appearance of the Web page as per the CSS and the browser window of the device.* |
| *In AWD, the website loads faster because different designs for different devices are available on different domains. This increases the website’s performance as only that code/template/css is sent by the server which the device needs rather than the entire responsive codebase.* | *In RWD, the Web page loads slowly compared to AWD, because the website is available on the same domain name and the device is loaded with the entire responsive codebase, which may make it heavy.* |

1. What does RWD architecture consist of?

Ans. The architecture of RWD consists of the following layers:

* Content layer that comprises rich semantic Hyper Text Markup Language (HTML)
* Presentation layer that comprises Cascading Style Sheets (CSS) for styling
* Client-side scripting layer that comprises JavaScript or jQuery

1. Write a short note on client-side scripting layer.

Ans. The client-side scripting layer is the third layer of architecture of RWD. It consists of jQuery or JavaScript. By incorporating JavaScript or jQuery, designers can add interactivity to a Web page. jQuery is used frequently in Web designing because it eliminates the need of writing large lines of JavaScript code. By implementing JQuery, designers can perform various tasks, such as adding animations and visual effects to a Web page or adding various events, such as the click event or the mouse hover event.

1. Name the three building blocks of RWD.

Ans. The three building blocks of RWD are fluid grids, flexible images, and media queries.

1. Explain media queries with the help of an example.

Ans. Media queries are the styling capabilities introduced in CSS3. This capability allows designers to specify different media, such as screen, and their attributes, such as height or width. Thus, using media queries, designers can set varied style rules for both the media and its attributes. For example, for desktop screens, the three-column layout is considered, but for a smartphone, which has a 320-pixel wide screen, each column will become small to use. Therefore, if a media query is specified then, it will get triggered and check whether the window or screen is below or above the specified width. If the window or screen is below or equal to the specified width, which in this case is 320 pixels, then the media query will override the styling and apply the specified style for this screen.

1. “The websites created using RWD technique need minimal maintenance.” Justify the statement.

Ans. The websites created using RWD technique need minimal maintenance. This statement is true. Once a website is created using the RWD technique, there is no need to create separate websites for other devices. RWD uses Cascading Style Sheet (CSS) code. Using CSS, Web designers can write code to switch out from the current view and change the view according to different screen dimensions. Once loaded, CSS resizes the browser and automatically adjusts the content available on the website. Thus, implementing RWD not only saves time and money, but it also minimizes the Web designers’ effort as they are creating one site, which can be automatically accommodated in varied devices.

1. How does developing a website using RWD technique save time and cost?

Ans. Developing a website using RWD technique saves time and cost. It takes lesser time to create a RWD site than creating standalone mobile sites. This reduces the testing costs, as the number of sites to be tested is reduced to only one.

1. How does RWD provide good Search Engine Optimization (SEO)?

Ans. RWD helps in SEO as it uses the One Web approach. SEO gives better ranking to websites that have a single URL. In RWD, as there is only one URL to access a website on various devices, SEO ranking of the website improves.

1. How does RWD increase the SEO ranking of a website?

Ans. RWD-based mobile sites increase social sharing. If users frequently use websites on mobile devices, they will be encouraged for social sharing, which will alternativelyincrease the bounce rate and average time spent on a website. This undoubtedly increases the SEO rank of a website. List eight advantages of RWD.

Ans. RWD provides the following advantages:

* Minimal maintenance
* Better viewing experience to users
* Social sharing
* Easy adaptation according to new devices
* Ease of tracking the website
* Saving in time and cost of development
* Saving in time and cost of site management
* Search Engine Optimization (SEO)

1. Sam and Paul have created two websites, one using the AWD technique, and the other using the RWD technique. Which one of the websites will load slowly and why?

Ans. The website created using the RWD technique loads slowly because the website is available in the same domain name. The device is loaded with the entire responsive codebase which may make it heavy for fast performance.

1. Joseph needs to design a website on Hotel Management using RWD technique. What points should he consider while designing the website?

Ans. While designing the website, Joseph should keep the following points in mind:

* **Design**: As the website design needs to be adjusted for a variety of devices, designers have to design the website in such a way that it looks similar on all devices and environment.
* **Image size and screen layout**: As adding images makes the website heavy and slows down its performance, it is important to have images of different sizes, so that they can be accommodated as per the screen size.
* **Mobile first**: To optimize a website as per the device, it is advised to first present the content best suited for the small screens, and then enhance it for the large screens.
* **Website navigation**: Due to the small screen size of portable devices, navigation from one screen to another can be difficult for users. Therefore, it is important to keep navigation easy and simple. Always consider those navigation patterns that are applicable for small screen devices.

1. Write a short note on the content layer of RWD architecture.

Ans. Content layer consists of the rich semantic HTML language that helps to specify the way to display text and graphics on a Web page. In other words, HTML tags convey the structure of the website. HTML5 provides semantic tags to define the structure of a website. A few examples of good semantic HTML markup are:

* Using the new elements introduced in HTML5, such as:
* <nav>
* <footer>
* <article>
* <aside>

These elements will replace the use of generic blocks, such as <div> and inline <span>.

* Use of new multimedia tags, such as <audio> and <video>. These tags replace the use of the generic <object> tag.

1. Write a short note on the presentation layer of RWD architecture.

Ans. The presentation layer consists of CSS3, which is used with HTML5 to enhance the look of a Web page by adding colors, backgrounds, and text effects. It also helps to specify the media types. Most websites consist of multiple style sheets that separate specific styles, such as color for every element and layout for every element. When CSS3 is incorporated in the Web page, it gets visually enhanced.

1. How do RWD websites save time and cost on site management?

Ans. RWD websites are easy to maintain, as they follow the one-web approach. One website has all the contents. This saves time and cost on site management and maintenance. In addition, the web interface can be easily modified by using automated layout and workflow tools, such as Twitter Bootstrap, that enables automatic generation of site templates, thus making managing the content easier. Further, business logics can be applied to these tools to enhance the overall website experience.

1. What do you mean by one-web approach?

Ans. One web approach means a site can be accessed on various devices through a single URL.

1. How is grid layout implemented practically?

Ans. Practically, grid layout is implemented by replacing fixed-sized elements with a percentage, making the dimensions of the elements relative to parent element and ultimately modifying the display size of the element.

1. What are flexible images? How are they implemented?

Ans. Flexible images refer to the application of fluid grids to images that are used within a Web page. This can be done by specifying the image size as a percentage of their parent container. In other words, designers need to explicitly state the relative size of every image within the Web page by using style rules for an image or a parent container.

1. What are fluid grids?

Ans. Fluid grids mean replacing any fixed-sized element on the page with a percentage, making its dimensions relative to its parent element.

1. What is AWD technique?

Ans. AWD technique is the method of representing the same website by using separate URLs on different devices.

1. Why is it difficult to implement AWD technique?

Ans. Due to the availability of different screen sizes and devices, it becomes difficult to create different layouts for each one of them, hence the difficulty in implementing the AWD technique.

1. Explain the major differences between a regular desktop Web page and a Web page accessed via mobile devices.

Ans. The following table explains some major differences between a regular desktop Web page and a Web page accessed via mobile devices.

|  |  |
| --- | --- |
| ***Factor*** | ***Description*** |
| ***Screen size*** | *The screen size of a tablet or a smartphone differs in width and height compared to the screen of a regular desktop. Usually, the size of a tablet is 10 inches, that of a smartphone is 4-to-6 inches, and that of a desktop is 24 inches, where the screen size is a measure of the screen’s diagonal. Due to this variation in screen sizes, a Web page that appears in a desirable manner on a desktop may not appear properly on a mobile device. Thus, website designers have to change their approach of designing the entire Web page layout according to the screen size of the device on which it is rendered.* |
| ***Ergonomics or touch capability*** | *In the case of mobile devices, finger tapping is not as precise as mouse clicking in the case of non-portable devices. Therefore, when Web pages are created for mobile devices, the number of text-based hyperlinks is minimized. Moreover, menus are replaced with buttons or tabs to accommodate imprecision of finger tapping. Further, as the screen of mobile devices is small, scrollbars are not provided in Web pages created for mobile devices. Instead, scrolling is done through various gestures, such as slide and flick.* |
| ***Navigation and widgets*** | *In mobile friendly Web pages, some navigation links are removed or replaced with collapsible or expandable menu widgets. On the other hand, websites created for desktops have complete navigational menus hosted on the top or left side of the Web page. Moreover, these Web pages are open for the use of all widgets (small or large), such as Web translator.* |
| ***Content, blank spaces, and whitespaces*** | *As there is less space to display a Web page on the screen of a mobile device, the blank spaces are removed from both sides of the content. In addition, whitespaces are also minimized to fit-in the content that is to be displayed on the screen. Moreover, the content length is reduced, which provides only precise information. However, no such adjustments need to be made for Web pages to be viewed on the screen of a desktop.* |
| ***Images*** | *In Web pages created for mobile devices, images are either removed or replaced with smaller-sized images. This helps save space and allows images to render faster on the screen. However, in the Web pages created for desktops, you can use big images as screen size is not a limitation. In addition, the images can be heavier in size because desktops have access to higher bandwidth compared to mobile devices.* |
| ***Advertising*** | *In Web pages created for desktop, large ad banners are displayed. However, due to reduced screen size, sponsored links and large ad banners are replaced with pop-ups on the Web pages created for mobile devices.* |

1. How do RWD sites provide better viewing experience to users?

Ans. Websites created using RWD provide same viewing experience on different browsers and devices. Once a website is customized according to a device, it becomes easy for users to access and consume information from them. In addition, this customization enhances the users’ involvement with the site.

1. RWD sites adapt to new upcoming techniques and mobile devices. Explain.

Ans. RWD sites can be accessed on all devices. The launch of new devices by manufacturers has no impact on the website. This is because designers are not worried about creating a whole new site.