School of Infocomm

C219 Front-end Web Development

Lesson 5

Responsive Web Design

Recap

Lesson 4

What is Responsive Web Design?

Responsive web design (RWD) is an approach to web design that makes web pages render well on a variety of devices or screen sizes. Content, design and performance are necessary across all devices to ensure usability and satisfaction.

A site designed with RWD adapts the layout to the viewing environment by using fluid, proportion-based grids, flexible images, and CSS3 media queries.

Ultimately, RWD is about creating web pages that look good on all devices.

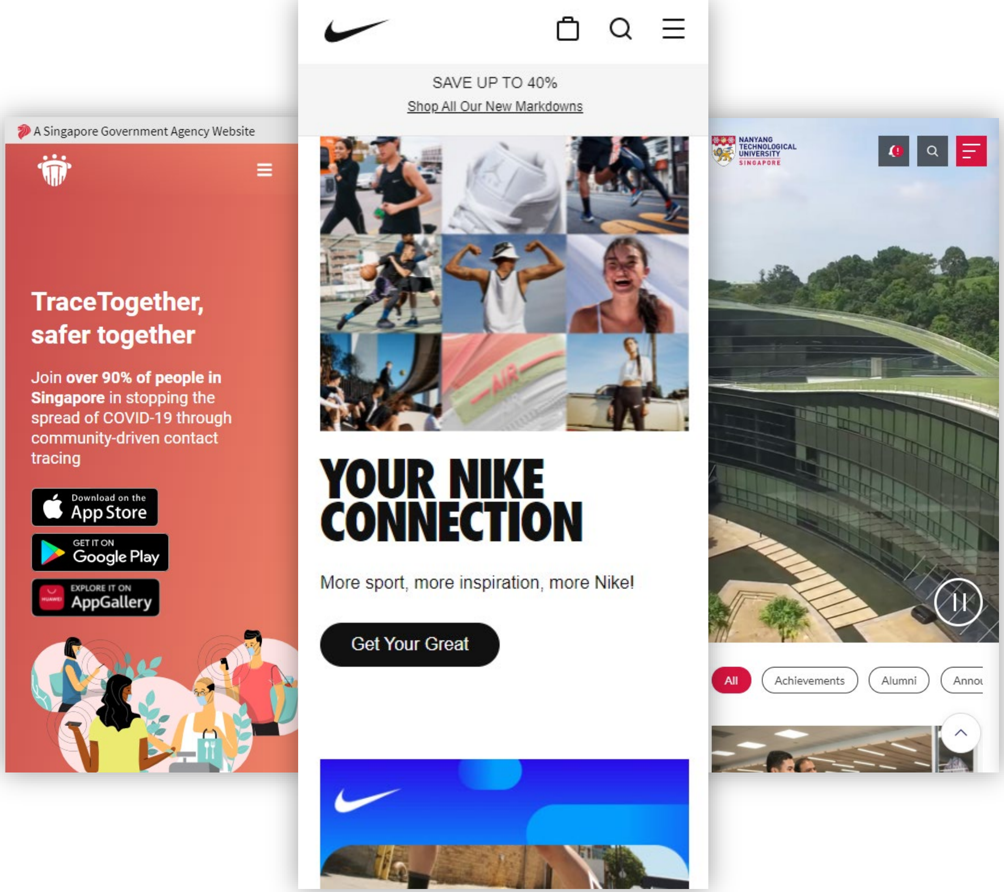
RWD Advantages

- Attract a wider audience
- Easier to monitor analytics
- Easier to maintain
- Consistency in design and brand
- Lower bounce rates
- Improved conversion rates
- Boost for SEO

RWD Examples

Here are some examples of effective RWD:

- https://www.tracetogether.gov.sg
- https://www.ntu.edu.sg
- https://www.adidas.com.sg
- https://www.audi.com
- https://www.tilde.io
- https://www.nike.com



A Singapore Government Agency Website

TraceTogether, safer together

Join over **90% of people in Singapore** in stopping the spread of COVID-19 through community-driven contact tracing

SAVE UP TO 40%

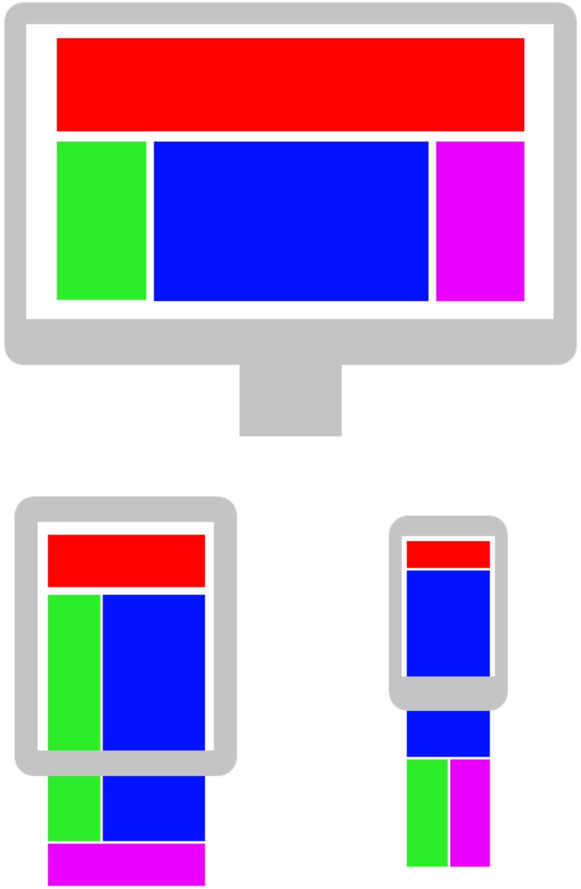
Shop All Our New Markdowns

YOUR NIKE CONNECTION

More sport, more inspiration, more Nike!

RWD Elements

These images show an example of how various elements of a web page adapt to the screen size of different devices such as the display of a desktop computer, tablet PC and a smartphone.



RWD Techniques

There are a few basic steps that you need to know in order to create a responsive website:

1. Defining the viewport
2. Using viewport units for CSS properties
3. Defining widths for responsive images
4. Using CSS media queries

The Viewport

The first step in creating a responsive website is to add the viewport meta tag to your web page.

```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```

The browser's viewport is the area of the window in which web content can be seen. The device-width value is the width of the screen in CSS pixels at a scale of 100%. The initial-scale property controls the zoom level when the page is first loaded.

Viewport Units

To ensure optimum font-size, margin, padding, and other CSS properties for all devices, you can set it using the vw or vh units, which means viewport width or height.

```
<h1 style="font-size:10vw; padding:2vw">Hello World</h1>
```

The viewport is the browser window size. 1vw = 1% of the viewport width. If the viewport is 50cm wide, 1vw is 0.5cm. For use with font-size, a letter takes around that size, but since letter widths are different, you need to tweak the values to get to how you want it to be.

Responsive Images

Responsive images are images that scale nicely to fit any browser size.

```
<img src="guitar.jpg" style="width:100%;">
```

Set the CSS width property of the image using percentage, and the image will be responsive and scale up and down accordingly.

CSS Media Queries

A CSS media query uses the @media rule to run CSS code only if a certain condition is true.

If you have a three-column box layout in a desktop view, you can have the boxes stacked in one column when viewed in mobile devices using the max-width property in a media query.

You can add multiple media queries to cater for multiple devices.

```
@media only screen and (max-width: 600px) {
  .box {
    width: 100%;
  }
}
```

CSS Media Queries

You can also hide and show elements using media queries.

For instance, if you have a horizontal navigation bar when your web page is viewed in desktop screens, you can replace it with a hamburger menu for mobile devices.

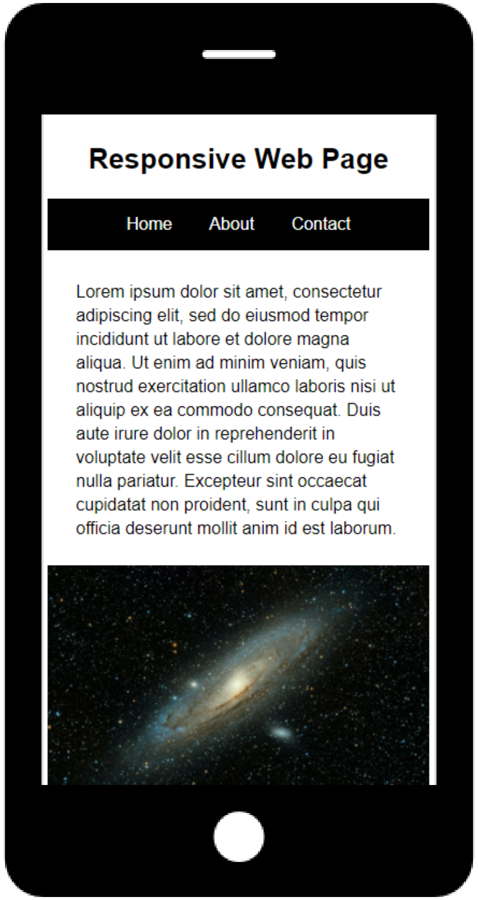
```css
@media only screen and (max-width: 600px) {
  nav {
    display: none;
  }
  .hamburger-menu {
    display: block;
  }
}
```

Exercise 1

Apply responsive web design techniques to the given web page so that it looks appealing on mobile devices.

Requirements:

- Use exercise1.html in your Resources folder
- Refer to the to-dos in the file
- Test your web page using Chrome DevTools (see next slide)



Responsive Web Page

Home About Contact

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Using Chrome DevTools

Chrome DevTools is a set of web developer tools built directly into the Google Chrome browser. DevTools can help you edit pages on-the-fly and diagnose problems quickly, which ultimately helps you build better websites, faster.

To open the DevTools panel, right-click an element on the page and select Inspect to jump into the Elements panel or press Control+Shift+C (Windows) or Command+Option+C (Mac).

Complete these interactive tutorials to learn the basics of viewing and changing a page's CSS using Chrome DevTools.

Using Chrome DevTools

Use Device Mode to approximate how your page looks and performs on a mobile device.

- Activate Device Mode: https://developer.chrome.com/docs/devtools/device-mode/#viewport
- Device list: https://developer.chrome.com/docs/devtools/device-mode/#device

Using GitHub Pages to Host your Website

1. Go to GitHub and create a new public repository named username.github.io, where username is your username on GitHub. If the first part of the repository doesn’t exactly match your username, it won’t work, so make sure to get it right.
2. Install GitHub Desktop if you haven’t done so
3. In your new repository that you just created on Github.com, click Code > Open with GitHub Desktop > Clone
4. In Github Desktop, click Open in Visual Studio Code and write some codes in your index.html file
5. Click Commit to main, then Push origin
6. You’re done! You can now add more files to your GitHub repository.

Official Github Pages Tutorial

Note: If the changes don’t take effect, wait a few minutes, click Ctrl + F5 or clear your browser cache.

Using W3Schools Spaces

You can also host your website for free using W3Schools Spaces.

It is very quick and easy to setup, but offers lesser data storage and request limits than Github.

Sign up here - https://www.w3schools.com/spaces

Deliverables

Individual Submission:

- One low fidelity wireframe for a mobile device
- World Xplore responsive website
  - Background video must change into an image in smaller devices
  - All text must be readable in smaller devices
  - Layout of elements must change appropriately in smaller devices
  - Any additional enhancements

Submit all deliverables by 2359 today

Others:

- Reflection Journal
- Quiz 3:30 to 4:00pm

Go Further! Change the navigation to a hamburger menu in smaller devices.