Session 3

Understanding Responsive Web Design



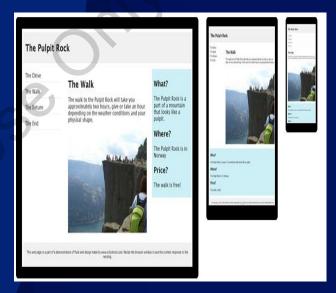
Learning Objectives

- Define Responsive UI design
- Describe the evolution of RWD
- Describe the importance of Progressive Enhancement
- Outline the differences between Graceful Degradation and Progressive Enhancement
- Explain the RWD Workflow
- Describe the significance of RWD



What is Responsive User Interface Design?

- Responsive Web Design (RWD) implies the formatting of Website design in a way for optimal viewing and exploring a wide range of devices, including traditional PCs, smartphones, and tablet devices.
- Responsive Web Design offers:
 - Smooth navigation
 - Easy reading
 - Minimum pinching
 - Reduces scrolling and zooming
 - Excellent user experience



Example of RWD

Image Courtesy: http://www.w3schools.com/



Advantages to the Users

- A responsive Website is flexible to use
- It shuffles content, resizes images, and adjusts font size
- Allows users to read information as per their choice and requirements
- Helps in finding fast and intelligent sites
- Saves time for users while browsing the site
- Helps to increase user's experience





Advantages to the Web Designers

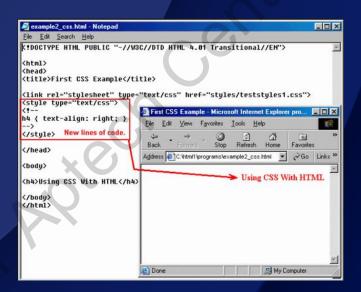
- Streamline the designing process
- Saves time and effort
- Cut down capital employed
- Eliminates the use to maintain multiple Websites
- Reduce maintenance and development cost
- Expand Return on Investment in long run
- Enhance SEO rank
- Better performance means better sales.
- Higher conversion rates
- Increasing market share







- Responsive Web Design (RWD) is a way of laying-out and coding a Website so that the Website can provide an excellent viewing experience.
- Cascading Style Sheets (CSS) helps the developer to point out when a certain style takes effect and provides printer-friendly style sheets if required.





Example of a CSS

Evolution of RWD

- Cameron Adams in 2004 was the first to demonstrate a site layout example that adapts to browser viewport width.
- In May 2010, Ethan Marcotte's article coined the term Responsive Web Design and defined fluid grid/flexible images/media queries.
- In 2011, a book titled Responsive Web Design described the theory and practice of Responsive Web Design.



Example of a Responsive Web Design

Image Courtesy: http://www.smashingmagazine.com/





- Fluid, Proportion-based Grids:
 Arrange the grid columns in proportion based on page element sizing.
- Flexible images: Displays within the size available.
- CSS3 Media Queries and Screen Resolutions: Enable the Websites pages to utilize diverse CSS styles sheet based on media rule.



Navigation Appears on the Left

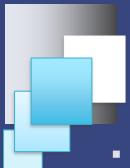


In an 800x600 Resized Window, Navigation Switches to the Top



Same site on a Windows Phone





What is Progressive Enhancement?

- Allows Web developers to apply on building the best possible Websites while adjusting the issues inbuilt in those Websites being accessed by multiple unknown user-agents.
- Three different layers of Progressive enhancement used to enhance experience of interacting with Website:

First layer: HTML

Second layer:

CSS

Third layer:

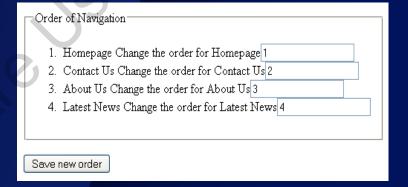
JavaScript

A Practical Example: The ultimate goal for users is to have a drag-and-drop experience that saves the menu order via AJAX. All user-agents should enable user to interact with our list in the way most appropriate to them.

Practical Example - First Layer - HTML

In the first layer, semantic mark-up of navigation is shown in navigation-1.html.

```
<form action="record.php" method="post">
  <fieldset>
  <legend>record of Navigation</legend>
     Homepage <label</pre>
for="menu-id-12">Change the order for
Homepage</label><input type="text"</pre>
name="homepage-12" id="menu-id-12"
value="1" />
       id="contact-23">Contact Us
<label for="menu-id-23">Change the order
for Contact Us</label><input type="text"</pre>
name="contact-23" id="menu-id-23"
value="2" />
      About Us <label</pre>
for="menu-id-16">Change the order for About
Us</label><input type="text" name="about-
16" id="menu-id-16" value="3" />
       id="latest-14">Latest News
<label for="menu-id-14">Change the order
for Latest News</label><input type="text"</pre>
name="latest-14" id="menu-id-14" value="4"
/>
   </fieldset>
   <input type="acknowledge"
value="record new order" />
</form>
```



navigation-1.html



Practical Example - Second Layer - CSS

The second layer is added to give the form a bit of visual

elegance.

```
name="code">
<style type="text/css">
form {width: 50%;margin: 0 auto;}
fieldset {background: #555555;padding:
1em; }
legend {border:1px #513939
solid;background: #FAFAFA;}
label {position: absolute;margin-left:
999em;}
ol {list-style: none;position: relative;}
body {font: 100% serif;}
ol li {border: 1px #FFF solid;background:
#FAFAFA;padding: 0.7em;}
olli:hover {border: 1px #513939 solid;}
input[type='text'] {width: 2em;text-align:
center;position: absolute;left: 40%;}
</style>
```



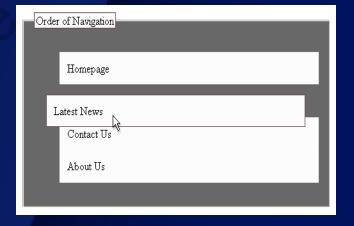
navigation-2.html



Practical Example - Third Layer - JavaScript

 JavaScript layer is added that allows user to simply drag-and-drop navigation items according to the way they require. Use jQuery to make the process as painless as possible.

```
<script type="text/javascript">
$(document).ready(function(){
$('input').hide();
$('ol').sortable({items: 'li',
update: function(event, ui) {
varnew_order=$('ol').sortable('toArray');
$.each(new_order, function(i, element) {
$('input[name='+element+']').attr('value', i+1);
});$.post("record.php", {
'new_order': $('form').serialize()
})
}
});
});
</script>
```



navigation-3.html



Difference Between Graceful Degradation and Progressive Enhancement

Graceful Degradation is used in fields other than Web design, such as fault tolerant, mechanical, and electrical system.

- The basis for Graceful Degradation is to first build for the latest device and then, for less capable devices.
 - Example: A universal drop-down or fly-out menu.
- Progressive Enhancement starts with the basic version and then adds enhancements for those browsers which can handle them.
- Example: An unobtrusive script is avoided by user agents that do not support it, but is applied by modern and adequate devices.



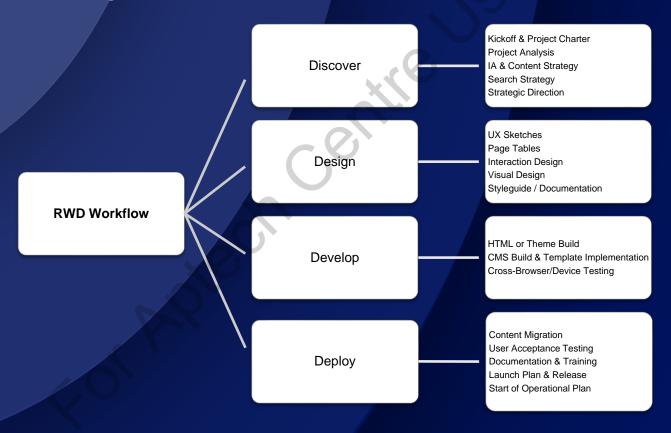
Difference Between Graceful Degradation and Progressive Enhancement

Image Courtesy: http://bradfrost.com/blog/web/mobile-firstresponsive-web-design/



Responsive Work Design Workflow

Responsive Work Design workflow consists of four main processes: Discover, Design, Develop, and Deploy.





RWD Workflow - Discover

Kick-off and Project Charter

 Helps in establishing communication protocols, milestones, and timelines, deliverables and scope, and roles and expectations.

Project Analysis

 Helps in determining the requirements of the project, from a technical, creative, and organizational perspective.

Content and Search Strategy

• Helps in creating a site map for a project and show where everything belongs. It also helps to develop a document summarizing best practices for Search Engine Optimization.

Strategic Direction and Planning

 Helps all of the information found during the discovery phase compiled into a concise document that outlines the search, content, technical, and creative strategies.





RWD Workflow - Design

UX Planning and Design

Helps in working through a constant process to create rough wireframes, or UX sketches, for key views.

Page Table:

Keep content independent from design or presentation, analyze each content area in priority order, and identify the most important messages to communicate in each area.

Interaction Design:

Helps in creating rough greybox HTML prototypes to demonstrate responsive interaction patterns.

Visual Design:

Helps to create static visual mock-ups, browser-based prototypes, color palettes, and typography that give each site a unique look and feel.

Guidelines and Documentation:

Helps in creating a style guide that will document the design system so that they can be properly implemented.





RWD Workflow - Develop

HTML or Theme Build

Creates
HTML/CSS/JavaScript
themes that are functional,
browser-tested, and HTML
pages are ready for testing
to make sure all content is
governed by CSS and
meets W3C standards.

Cross-Browser/Device Testing

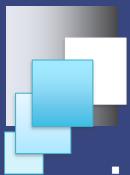
Helps in testing and demonstrating how page templates render in major Web browsers and mobile devices.





- Content Migration: Helps clients to create and maintain useful and usable content.
- User Acceptance Testing: Helps to confirm that a new site meets the objectives and requirements as defined early in the project.
- Documentation and Training: Helps to prepare text and video documentation to help understand and use new CMS and site.
- Launch Plan and Release: Helps in creating a launch plan to archive the current Website and release the new Website to the public and also quality checklist to make sure that all project requirements are met.
- Start of Operational Plan: Helps in achieving a milestone of changing a Website when a development is required.





Significance of RWD

 Web designers are required to keep the same look and feel of their Websites in various computer browsers before the reproduction of mobile devices with advanced Web-browsing capability.



- Time and Money
- Pervasion of Mobile Devices
- User Experience
- Device Agnostic
- Way Ahead





Summary

- Responsive Websites has changed the entire outlook of Web industry. It offers significant benefits to Web designers and online businesses.
- Responsive Web Design involves using CSS and HTML to resize, hide, shrink, enlarge, or move the content to make it look good on any screen.
- Using CSS makes it easy to develop sites that can be viewed in a device of any size, such as desktop, laptop, tablet, or smartphone.
- Progressive Enhancement (PE) is the principle of starting with a strong foundation and then adding enhancements to it if you know certain visiting user-agents can handle the improved experience.
- The concept of Progressive Enhancement is applied by breaking different layers to improve the experience of interacting with the Website.
- The concept of Graceful Degradation and Progressive Enhancement are applied in order to make a Website available to any user agent.
- Using responsive design will help create a Website that will not only look good and work efficiently on the devices that are on the market now, but are also likely to do the same on any devices that may be available in the future.

