



**COMP 307**  
Principles  
of Web  
Development

MCGILL UNIVERSITY

# COMP 307

## Principles of Web Development

### Lecture 9

#### Unit 3 – Frontend Design

#### Interactive Multi-paged Design

#### Contents

Multi-page  
Interactive Design



# Class Outline

- What are multi-paged websites
  - Static vs Fixed page design
- What is interactive design
  - Techniques
  - Some popular things
  - Webkit

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Multi-page  
Interactive Design



# Readings

- Internet Resources

- <https://www.w3schools.com/howto/default.asp>
  - This resource contains categorized interactive and responsive sample programs
- <https://www.simplilearn.com/tutorials/css-tutorial/webkit-css>
- <https://www.indeed.com/career-advice/career-development/types-of-website-design>

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Multi-page  
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# Multi-paged websites

Interactive Multi-paged Design

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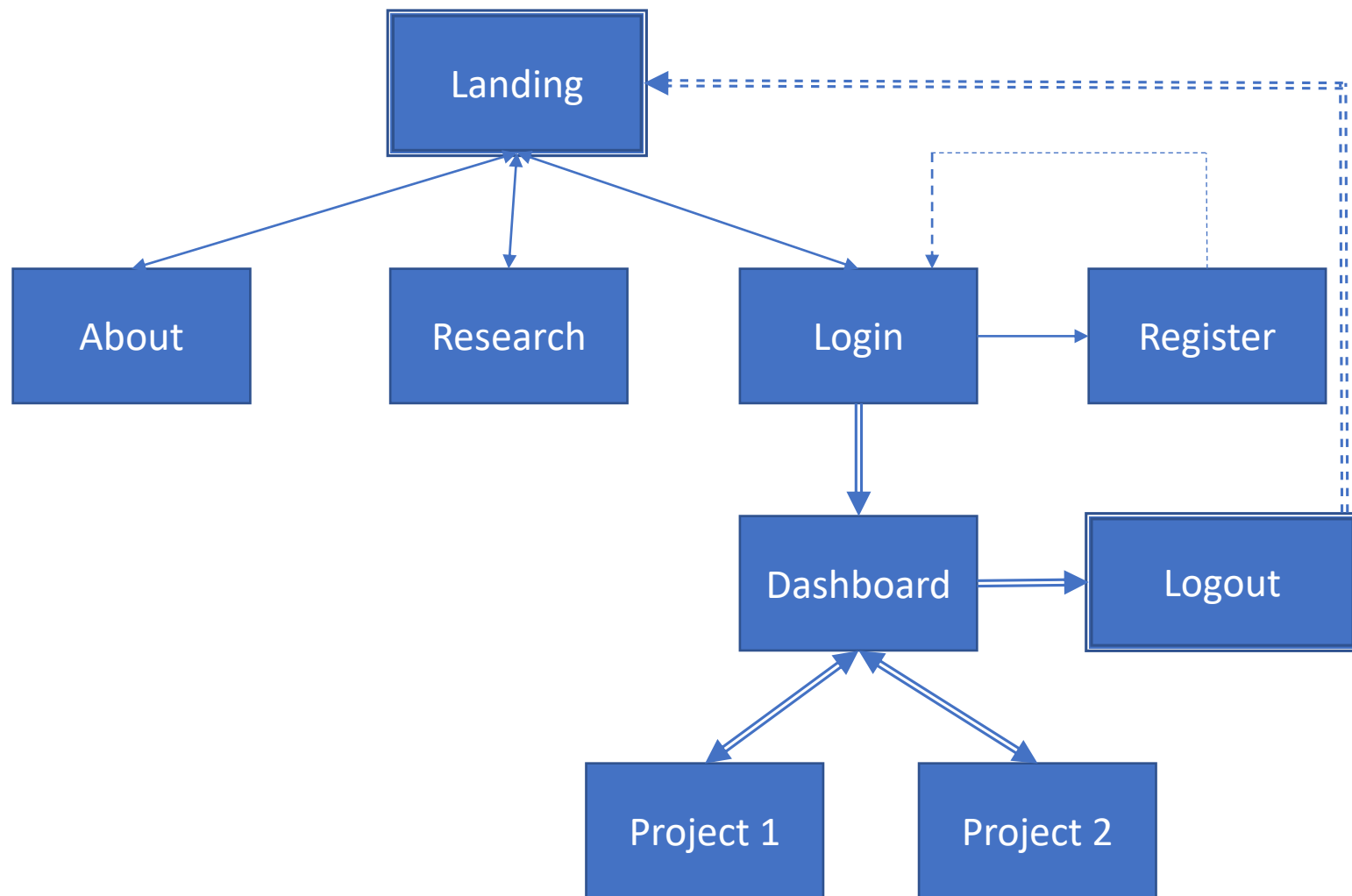


# Multi-Paged Website

- Webpages that hyperlink to other webpages within the same website.
- All the pages are designed to follow a common style and/or theme.
- The website has a single purpose.
- Types of pages we will explore:
  - Static ← today
  - Fixed ← today
  - Interactive ← today
  - Responsive ← next class
  - Liquid ← next class
  - Generated/Dynamic ← later



# Example Multi-Paged Website





# Static Pages

- Pages that only display information with **no interactive elements** (but could be responsive or liquid), **other than hyperlinks to other pages.**
- Useful as informational pages. Not useful for selling goods and services.
- Simple to build, **only HTML and CSS.**
- Cost effective, **low effort to plan and program.**

*Scales well*



# Fixed Pages

- A webpage that **does not change in size.**
  - The website uses a strict resolution and size measurement with no resizing options.
  - If the screen is too small, then scrollbars appear both horizontally and vertically.
  - If the screen is too big, then the information is either centered with large margins on the left and right or justified left with a large margin to the right.
- Easier to build website given the **design is always the same on all devices.**
  - Only one design is needed
  - Problematic on smaller screens





# Fixed Page Example

```
<html>

  <body>

    <table width="800px" border = "1px">

      <tr>

        <td width="400px">

<p>1111111111111111 1111111111111111 111111111111 111111111111 111111111111
1111111111111111 111111111111 1111111111111111 111111111111 11111111111 11111111111
111111111111 111111111111111111 </p>

          </td>

          <td width="400px"></td>

        </tr>

      </table>

    </body>

  </html>
```

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# Interactive Pages

- Refers to a webpage where the **user can interact with artifacts on the page:**
  - Mouse over
  - Submit buttons
  - Content can be expanded
  - Content can be hidden and revealed
  - Etc.
- This does not include hyperlinks.
- Once there is interactivity on the page, then it can no longer be called a static webpage.
- → Interactivity **does not mean** responsive, liquid, generated, nor dynamic.



# Other Page Types

- Next class we will talk about pages that **automatically adjust the elements** on the webpage w.r.t. the screen size:
  - **Responsive pages**
  - **Liquid pages**
- Later we will talk about pages that are **automatically populated by information** that was not present in the initial page loaded onto the user's browser:
  - **Generated pages**
  - **Dynamic pages**



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# Interactive Design

Interactive Multi-paged Design

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# What is interactive design?

- **Static design** are those elements on your screen that never change.
- **Responsive design** is the automatic rearrangement of elements on the screen in response to different screen sizes.
- **Interactive design**
  - When elements on the screen change due to human interaction with the webpage. No server communication.
  - Examples: mouseovers, mouse clicks, keyboard tab, keyboard text input, scrolling.
  - Note: resizing of screen means responsive design.



# Basic Techniques

- **Hover effects**
  - Esthetic – changes make user's think website attending to them
  - Practical – indicating “you can click on this” or “hints”
- **Hide/Show effects**
  - Esthetic – removes clutter from webpage
  - Practical – user sees only what interests them
- **Menu dropdown & hamburger dropdown**
  - Esthetic – removes clutter
  - Practical – categorize user's options
- **Frames**
  - Esthetic – Combining a static and dynamic style
  - Practical – Reduces “motion noise”, “too much interactive”
- **Accordion**
  - Esthetic – screen real-estate solution
  - Practical – user controls the clutter

*changes  
content  
on  
same  
page*



# Example 1

- Webpage with:
  - Hover effects
  - Hide/Show effects
  - Menu hamburger

See lecture-9-example-code attachment



# Example 2

- **Menu dropdown**
  - See example Dropdown code for Lecture 9
- **Accordion**
  - See example Accordion code for Lecture 9





# Example 3

- **Frames**
  - iFrames

See lecture-9-example-code-iframe attachment

**Not all** pages can be added to an iFrame. When a developer creates a webpage, they can decide if the page cannot be part of an iFrame.

Check for HTTP response header **X-Frame-Options** on those sites. If its value is “DENY” or “SAMEORIGIN”, then you can not load those pages into your iframes.

**DENY** = No one can load the website in iframe. Even the same domain page won't be able to load. **SAMEORIGIN** = only a page which is in the same domain can load this website in iframe.



# Popular Techniques

- <https://www.w3schools.com/howto/default.asp>
  - Full Page Tabs
  - Search Bar
  - Breadcrumbs (how can we add JS to make it change?)

DOM: `"/" + <a onclick=update(this) href=URL target="frame">link1</a> +  
"/" + <a onclick=update(this) href=URL target="frame">link1</a>`

DOM `addNode` naturally forms a list.

OnClick, will delete the list on the right, before moving to href. The target preserves the webpage.



# Popular Techniques - Webkit

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- Apple-development Safari browser + iOS
  - Because Apple wanted even better UI features
  - Also: BlackBerry, PlayStation (PS3), Tizen, Amazon Kindle
- Allows HTML components look more like native UI
- Uses the **–webkit** prefix (a proprietary CSS extension)
  - CSS3 contains its own appearance property equal to –webkit
  - IE has –ms
  - Firefox has –moz
  - Opera has –o

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# Popular Techniques - Webkit

- Example:

```
<style>
    h2 {
        /* WebKit */
        -webkit-appearance: button !important;

        /* Mozilla */
        -moz-appearance: button;

        /* Opera */
        -o-appearance: button;

        /* Internet Explorer */
        -ms-appearance: button;

        /* CSS3 */
        appearance: button;

        /* the rest for h2 */
        width: 300px;
        padding: 5em;
        color: red;
    }
</style>
```

Remember: if browser  
does not support it,  
then ignored.



# Popular Techniques - Webkit

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- Example 2: (login form with webkit)
  - [https://www.w3schools.com/howto/tryit.asp?filename=tryhow\\_css\\_login\\_form\\_modal](https://www.w3schools.com/howto/tryit.asp?filename=tryhow_css_login_form_modal)

Let's break this down

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Multi-page  
Interactive Design



# Prepare for Next Class

- Assignments
  - Mini 4 – how's it going?
- No labs this week
- Do on your own
  - Code some of the techniques described in today's class.
  - Look at the w3schools "HowTo" page for interactive ideas