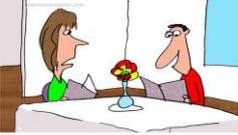


Computer Science 1033 – Week 6

## WEB SITE DESIGN & SETUP



"INSTEAD OF TRYING TO FIGURE HOW THEY COULD HAVE MADE THEIR MENU LOOK BETTER, HOW ABOUT ORDERING OFF IT."

*"What separates design from art is that design is meant to be... functional." — Cameron Moll*

## Overview of This Week's Topics

- Good and bad websites
- Websites and Webpage organization
- index.html → importance of
- HTML

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## Textbook Readings for this Week

- Websites
  - Websites
  - Website Development
  - Design Principles

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## Big Ideas for this Week

- Big Idea 1:
  - Consistency is what transforms average into excellent.
- Big Idea 2: The beauty of HTML is its simplicity
  - Simplicity boils down to two steps:
    - Identify the essential
    - Eliminate the rest

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## What do you think of these sites?

- <http://www.brescia.uwo.ca>
- <https://www.margarethevanderpas.com>
- <http://www.mariasemple.com/>
- <https://wrightwoodfurniture.com/>
- [www.distancetomars.com](http://www.distancetomars.com)
- <https://etch.co/> (hmmm???)
- <https://www.newyorker.com>

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## How about these sites?

- <https://history.aip.org/climate/index.htm>
- <http://www.lingscars.com>
- <http://www.jamilin.com/>
- <http://www.gatesnfences.com/>

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## Good Website Design Tips

- Have something valuable to offer → provide something useful or interesting
- Don't distract with blinking, animated GIFs, autoloading sound, too much scrolling
- No popups!
- Don't use images on the background unless you know what your doing
- Put a lot of thought into the organization of your page
- Minimize clicking (no more than 3 clicks to get to a page)

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## More Tips

- Have a way to get to the home page on every page
- Include a menu on every page (in the same location on every page)
- Compress your images
- Don't let multimedia files bog down your website
- No line of text should be more than 600 pixels wide
- Don't make your page too wide (around 900 to 1000 pixels), user should NEVER have to do horizontal scrolling. Vertical scrolling should be kept to a minimum

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## More Tips

- Use contrasting colors or simple backgrounds to make text easy to read
- Make text large enough to read
- Use ALL CAPITAL LETTERS sparingly,
- Never use more than one exclamation point
- Spell Check
- Never underline words that are not links
- Put contact info or a link to it on every page

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## More Tips

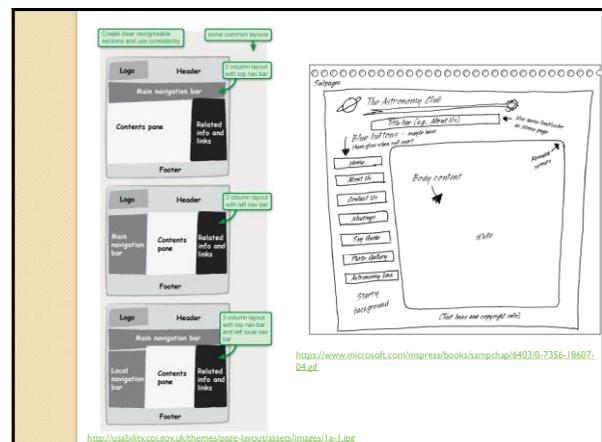
- Test your links
- Remove dead links
- Avoid confusing navigation and having menus in different spots on different pages
- Avoid ugly design: no color continuity
- Don't have text that hard to read
- Include a "Last Modified" date
  - Keep up to date, update your "What's New" section frequently
- Don't steal content (I stole this content is from: <http://websitehelpers.com/design> 😊)

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## More Tips

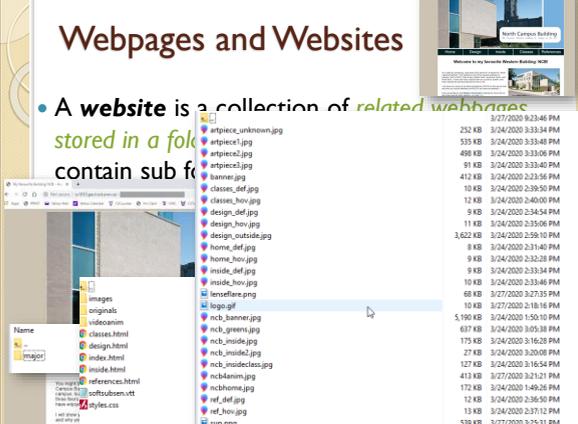
- Think about how the user will navigate through your website and remember the 3-click rule.
- Have a consistency throughout your pages
  - Colours
  - Menu placement
  - Layout
  - Fonts
  - Buttons
- Think about the layout, have white space, clean alignment and balance on your pages

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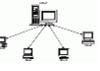
## Webpages and Websites

- A **website** is a collection of *related webpages* stored in a folder that contain sub folders.



## Decide on what webpages you will need.

- Each **webpage** is normally an html file, a file that has the extension **.html** or **.htm**
  - .html .htm**
    - Very basic page, just has clickable links, images, sometimes forms
    - The .html file is just a file with html codes that is displayed in a browser to make it look pretty for the client (Chrome, IE, Safari, Firefox)
    - CS1033 just covers .html & .htm pages
  - Other extensions for webpages include:
    - .php** → extra stuff that is brought in also from the server allows for use of data in a database on the server complex form manipulation
- Store each .html file in the folder (the Website)
- The home page for the website, the “starting page” should have the file name **index.html**



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## Webpages and Websites

- Question:** On panther.uwo.ca, what is the main folder for your:  
<http://publish.uwo.ca/~lreid2>
- Question:** Does that folder contain a file called **index.html**?  
[http://wts.uwo.ca/services/web/activate\\_my\\_personal\\_web\\_space.html](http://wts.uwo.ca/services/web/activate_my_personal_web_space.html)

**CHECK IT OUT USING SECURE FTP (WINSCP, FUGU, FILEZILLA)**

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## Folder Structure for a Simple Site

- Decide on the pages you will need
- Create a top level folder. Use lowercase letters
- Give the home page the name index.html
  - Must be all lowercase!
  - Index.html is invalid
- Give the other pages appropriate lowercase names (no spaces in the file names) with the .html extension
- Create a subfolder called images (lowercase) and put all your images in that folder

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## Example of a simple website

- Assume we are making a website about Polar Bears. The folder structure (folder is called H:\polarbears) might look like this:

Local Files	Size	Type
Site - polarbears (H:\polarbea...)		Folder
images		Folder
babypolarbear.jpg	61KB	JPEG Image
mamatwobabies.jpg	22KB	JPEG Image
polarbearparty.gif	164KB	GIF Image
diet.html		OKB HTML Document
factsandstats.html		OKB HTML Document
habitat.html		OKB HTML Document
index.html		OKB HTML Document
slideshow.html		OKB HTML Document

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## Links for the simple structure

- Assume the domain name for this site is: **ArcticAnimals.org**
- Thus the website would be:
  - <http://www.ArcticAnimals.org>
- To get to the polar bear website, you could type:
  - <http://www.ArcticAnimals.org/polarbears> **OR**
  - <http://www.ArcticAnimals.org/polarbears/index.html>
- To get to the habitat page you would type:
  - <http://www.ArcticAnimals.org/polarbears/habitat.html>

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## Something to try

- Go to your panther page and type each of the following:
  - <http://publish.uwo.ca/~lreid2>
  - <http://publish.uwo.ca/~lreid2/index.html>
  - <http://publish.uwo.ca/~lreid2/posterassign>
- Question:** Why don't we see a webpage when we type the last choice?
- Now go to UWO Computer Science page and type each of the following:
  - <http://www.csd.uwo.ca>
  - <http://www.csd.uwo.ca/index.html>

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## More complicated site

- Sometimes websites have many submenus and have lots of webpages.
- In this case we need a more complicated folder structure
  - BUT** it is NOT really that much more complicated, just one main folder with subfolders that contain "sub websites"
  - Each sub website is a sub folder that contains its own index.html and images subfolder

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## Example of a more complicated site:

- Westerns Computer Science Site might be set up like this →

Local Files	Size	Type
Site - UWO Computer Science...		Folder
whatsnew.html	0KB	HTML Do...
index.html	0KB	HTML Do...
undergraduate		Folder
images		Folder
prospectivestudents		Folder
whywestern.html	0KB	HTML Do...
thejobmarket.html	0KB	HTML Do...
ourstudents.html	0KB	HTML Do...
oursesearch.html	0KB	HTML Do...
ourfaculty.html	0KB	HTML Do...
index.html	0KB	HTML Do...
faq.html	0KB	HTML Do...
images		Folder
2009calendar.html	0KB	HTML Do...
2009calendar.html	0KB	HTML Do...
admissioninfo.html	0KB	HTML Do...
admissioninfo.html	0KB	HTML Do...
checklists.html	0KB	HTML Do...
courses.html	0KB	HTML Do...
currentstudentinfo.html	0KB	HTML Do...
faq.html	0KB	HTML Do...
index.html	0KB	HTML Do...
internship.html	0KB	HTML Do...
priondegreeinfo.html	0KB	HTML Do...
programs.html	0KB	HTML Do...
research		Folder
people		Folder
images		Folder
graduate		Folder
Facilities		Folder
alumni		Folder
aboutcsd		Folder

The screenshot shows the Department of Computer Science website. The navigation menu includes: Home, About Us, People, Courses, Programs, Research, and Locations. The main content area features a 'Prospect Study' banner, a 'Points of Interest' section with photos of James Miller and James Penner, and a '2009 Academic Calendar' section. A search bar and a 'New Items' link are also visible.

## Web Server

- You will likely build your site on your own machine. When the website is completed you will need to move it to a **Web Server**
- Web Server** → the computer that runs software which holds the webpages and serves up (delivers) webpage to the client. This computer must be connected to the Internet. The software delivering the webpages is also called a web server
- Question:** What is the software we use to move the webpages we have built on to the web server?
- Question:** What is the name of the web server machine at Western?

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## Web Browser

- Once you have moved your website onto the web server you **MUST** test your website by opening it in a **Web Browser**
- Web Browser** → software/program that displays formatted webpages to the client.
- Question:** What is the input we give a web browser?
- Question:** What is the output from the web browser program?
- Question:** Can you name 3 web browser programs?
- Question:** Does anyone know how you look at the html that was used to create the page currently displayed in the browser?

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## HTML and Web Browsers

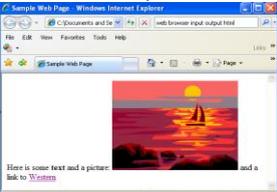
```
<html>
<title>Sample webpage</title>
<body>
Here is some <b>text</b> and a picture: 
and a link to <a href="http://www.uwo.ca">Western</a>
</body>
</html>
```

Above is input to A Web Browser

Stored on the webservice (the SERVER)

Viewed on the CLIENT

Lovely website to the right is output from a Web Browser



## What is HTML?

- History:
  - In the late 1980s, Tim Berners Lee proposed a way of sharing research papers using the Internet and hypertext (immediate links to other documents)
  - In 1990 Berners Lee set the specifications for the HTML language and wrote a browser to read HTML files and output linkable papers
  - He proposed **html tags**
    - Example of some tags → `<html>`, `</html>`, `<b>`, `</b>`, `<ol>`, `</ol>`
    - Tag always start with "<" and end with ">"
    - Most tags come in pairs: opening tag and a closing tag, for example: `<title>This is the title of the webpage</title>`
  - Used to have to make html files (webpages) with simple text editors like Notepad

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## History...

- Tim Berners Lee:
  - Created the first web browser
  - Created URL layout
  - Came up with the World Wide Web and the concept of hyperlinks among pages
  - Created HTML tags (they have changed a bit over time but he came up with the initial ones)
  - [Watch starting at 2 minutes](#)



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## Introduction to HTML

- **Question:** Can you guess some of the tags you think we would need to create a useful and readable webpage?

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## Types of HTML tags

- Section tags
  - `<html>`, `<body>`, `<head>`, ...
- Formatting tags
  - `<b>`, `<ul>`, `<i>`, `<p>`, `<h2>`, `</b>`, `</h2>`, ...
- Link tags
  - `<a href="http://www.msn.com">`, `</a>`, ...
- Placeholder tags (standalone or unpaired tags)
  - ``, `<hr>`

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## Let's make a webpage the **Old Fashioned Way!**

- Open *Notepad*
- Save your file as *myfirstpage.html*
- Type in some tags
- Save the file again
- Close the file
- Double click on it, it should now open in *Chrome*
- In Chrome, from the menu select *View>Source*
- Edit the tags some more and save the file
- Go back to Chrome and hit the refresh button

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It is way to hard to remember all the tags, so...

- **WYSIWYG programs to the rescue!**
  - Eg. Adobe Dreamweaver or html5-editor.net
- They creates the tags for us so that we don't have to remember the syntax for each tag!
- **Question:** Can you still see the tags in <https://editor.csd.uwo.ca/> ? If so, how?

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## Some Tips

- Webpages will NOT format as precisely as something like a MS Word document to be printed because everyone's resolution is different and screen size is different.
- Design a template/layout and then save it and make copies for each page in your site and add the content to the copies
- Don't forget to make an images folder! Put your images in the folder BEFORE you start adding them to your page. ALWAYS ADD THE IMAGE TO THE IMAGES FOLDER BEFORE YOU PUT IT IN YOUR PAGE!
- Try previewing your page in more than one browser
- Always use lower case names with no spaces for all folder and all file names

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## Page Title

- Shows up now at the top of the tab
- Page title is very important when you print a page
- Search engines look at page title
- Title is displayed in the list returned by Google
- Always set the page title on all your pages
- Start with the current page, then the pipe | then the site name
  - Examples:  
Work Experience | Laura K. Reid Online Resume  
Natural Sciences | Western Buildings

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## Canadian Tire Does It Right!

The image shows two screenshots of the Canadian Tire website. The top screenshot shows the page title 'Canadian Tire Tools & Hardware' and the page content. The bottom screenshot shows the page title 'Canadian Tire Automotive' and the page content. Red arrows point to the page titles in both screenshots.

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## Setting the Page Property/Title

- Must set this in Notepad
- Webpage Name | Website  
e.g.  
Sample Work | Laura's Stained Glass

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## HTML vs. CSS vs. JavaScript

- Real World Example → writing a book
- STEPS:
  1. Author writes the book – CREATES THE CONTENT OF BOOK
  2. Author sends book to publisher to make it look nice – SET THE LOOK AND FEEL OF BOOK
  3. Publisher decides to create an audio or an online book and then they need to allow readers to jump to chapters – SET UP THE BEHAVIOUR

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## Another Real World Example

- Birthday cake:
  1. Bake/create cake
  2. Decorate cake
  3. Add trick candles



Always do 3 things:

1. Create content
2. Set look
3. Set behaviour

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## Building a Web Page

- Content → create an HTML file (.html)
- Looks → create a CSS file (.css) (or sometimes add CSS to the .html file)
- Behaviour → create a JavaScript file (.js)

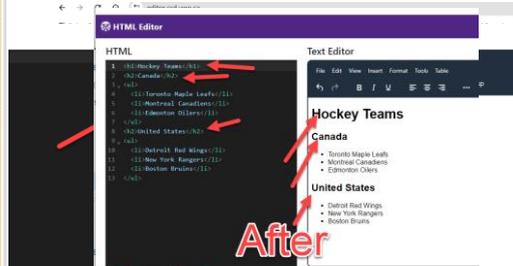
In CS1033, we are just doing .html and .css.

We are just doing minimal .css, if you take CS2033, you will learn even more css and a touch of .js

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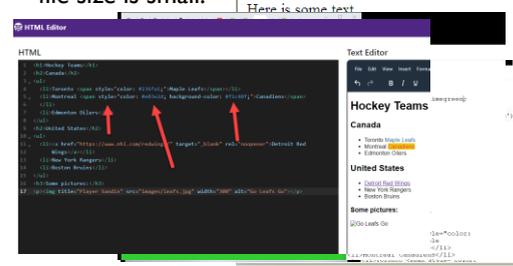
## Formatting Text

- Headers → H1, H2, H3, H4, H5, H6
  - H1 is the largest
  - All are bolded
  - All force a blank line after them



## Changing Background and Link Colours

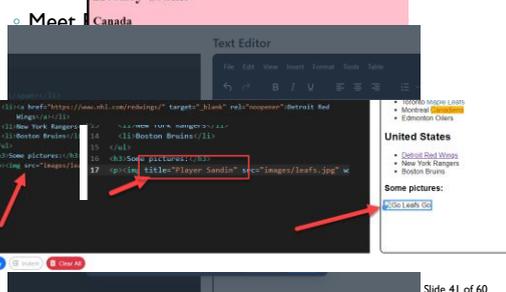
- If you decide to use a background image, make sure it is not too busy and the image file size is small.



## Graphics

- Add your images via html5-editor

• ALWAYS



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## Graphics Continued

- Use common universal formats such as jpg, gif and png files that will work in any browser
- Resize and compress the image as much as possible in Affinity (or other graphics package like Photoshop) BEFORE putting the image file into your images folder.
- Any resizing you do within html5-editor OR with css will not affect the download speed

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• You can do this also to jump to an anchor on a DIFFERENT one of your pages

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Named Anchors used on this page

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## HTML Tables

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e a simple  
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## Tables expressed in terms of Percentage

- Here is an example:  
<http://www.csd.uwo.ca/~lreid/outreach/iveysurveyTables.htm>
- % of the browser, not the entire screen
- Another example:  
<http://www.csd.uwo.ca/~lreid/cs1033/ExamplesForLectures/tableexamples.html>

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## Table expressed in terms of Pixels

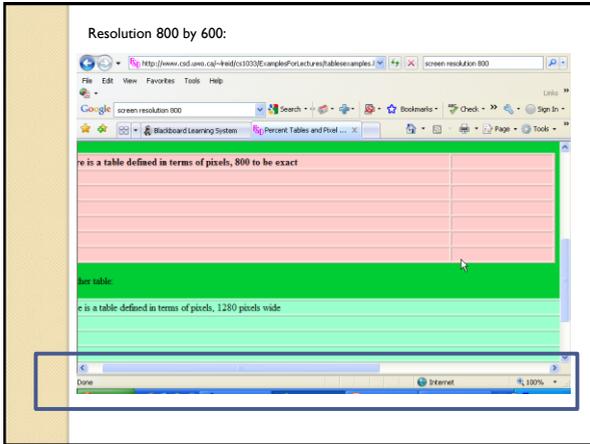
- Resolution affects the way a page is displayed.
- In general, most people do NOT have their resolution below 1024 by 768. Thus if we make our table 1000 pixels wide EVERYONE should be able to view it. If we make our table 1200 pixels wide, some people (the ones whose resolution is still 1024 by 768) will have to scroll horizontally.

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Resolution 1280 by 1024:

Pixel Table:

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### Some hints for using tables to organize your overall appearance:

- Have the border set to 0
- Make sure you give some cell padding so the

Table 1 (1 row x 1 col)
-------------------------

Table 2 (1 row x 1 col)
-------------------------

Table 3 (1 row x 1 col)
-------------------------

Table 1 (1 row x 1 col)
Table 2 (1 row x 2 col)

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### Google Fonts

- Want some cool fonts for your page? Use Google Fonts!  
<http://www.google.com/fonts>
- Click on
  - The Font you like/choose
  - Then + Select this style button
  - Then Embed tab
  - Then select and copy the <link> NOTE: the <link> will look like similar to this:

```
<link href="https://fonts.googleapis.com/css?family=Modak&display=swap" rel="stylesheet">
```

- Then paste the code you just copied into Notepad below the

```
<!DOCTYPE html>
<html>
<head>
<link href="https://fonts.googleapis.com/css?family=Modak&display=swap" rel="stylesheet">
</head>
<body>
background-color: pink;
</body>
```

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### Google Fonts Continued...

- Next...
  - Go back to Google Fonts
  - Copy the CSS Rule
  - Near the top of Notepad, create a <style> rule for the text that you want to have the Google Font, e.g. all your list items:

```
<style>
li {
font-family: 'Modak', cursive;
}
</style>
```

- Save your file and test it:

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### CSS – External CSS File vs. Internal CSS Style Rules

- Internal CSS Style Rules:
  - Either look like this:

```
<style>
body {
background-color: pink;
}
a:link {
color: cyan;
}
a:visited {
color: limegreen;
}
a:hover {
color: yellow;
}
</style>
<title>First Page | Laura's Demo </title>
</head>
<body>
```

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### External CSS to the Rescue!

- We can put all our rules in a separate .css file
- We link each page (.html file) to that .css file
- Then we just change the rule in .css file and it will take affect on ALL the pages!
- And page

```
body {
background-color: #e91e63;
}
table {
background-color: #e91e63;
font-size: 40px;
color: #e91e63;
}
</body>
```

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