Comp 388/424 - Client-side Web Design

Fall Semester 2015 - Week 9

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Contents

- DEV week presentation and demo...
- CSS grid layout
- HTML5, CSS, & JS - example
    - *add grid layout*
    - *organise and style notes*
- Ajax, JSON & jQuery continued
    - *recap - get the data*

HTML5, CSS, & JS - travel notes

a few extras to consider...

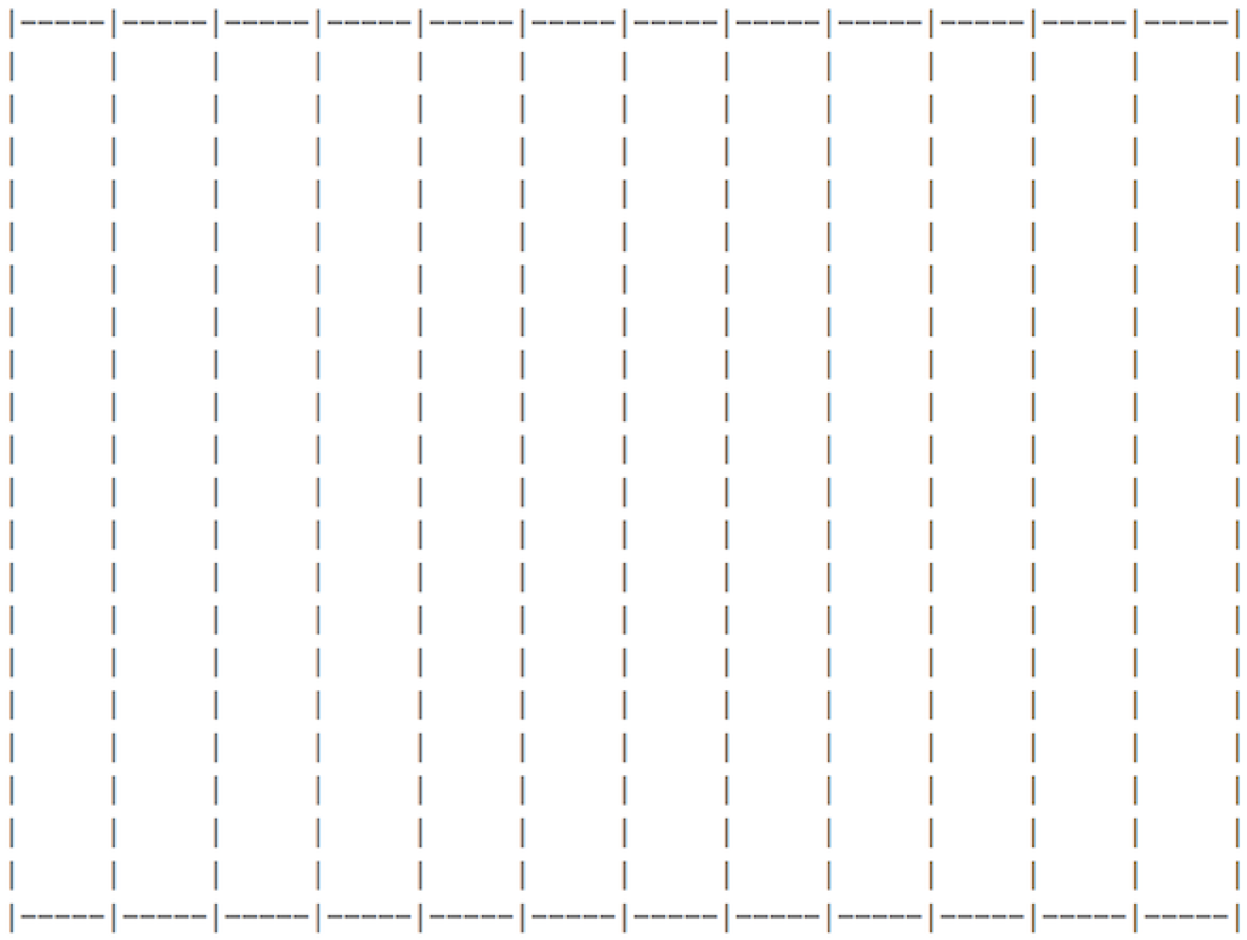
- alternative layouts
    - *grid*
    - *squares*
    - *snippet view*
    - *table*
    - *lists...*
- notifications
- snippets with expansion
- split views
    - *note snippet with contextual/media per note...*
- drag and drop delete
- filters
- sort options
- tags
- much more...

CSS grid layout - part 1

intro

- grid designs for page layout, components...
  - *increasingly popular over the last few years*
  - *useful for creating responsive designs*
- quick and easy to layout a scaffolding framework for our structured content
- create boxes for our content
  - *then position them within our grid layout*
- content can be stacked in a horizontal and vertical manner
  - *creating most efficient layout for needs of a given application*
- another benefit of CSS grids is that they are framework and project agnostic
  - *thereby enabling easy transfer from one to another*
- concept is based upon a set number of columns per page with a width of 100%
- columns will increase and decrease relative to the size of the browser window
- also set break points in our styles
  - *helps to customise a layout relative to screen sizes, devices, aspect ratios...*
  - *helps us differentiate between desktop and mobile viewers*

Image - Grid Layout



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```

Grid Layout - Columns and rows

CSS grid layout - part 2

grid.css

- build a grid based upon 12 columns
  - *other options with fewer columns as well*
- tend to keep our grid CSS separate from the rest of the site
  - *maintain a CSS file just for the grid layout*
- helps abstract the layout from the remaining styles
  - *makes it easier to reuse the grid styles with another site or application*
- add a link to this new stylesheet in the `head` element of our pages

```
<link rel="stylesheet" type="text/css" href="assets/styles/grid.css">
```

- ensure padding and borders are included in total widths and heights for an element
  - *reset `box-sizing` property to include the `border-box`*
  - *resetting box model to ensure padding and borders are included*

```
* {
box-sizing: border-box;
}
```

CSS grid layout - example - part 3

grid.css

- set some widths for our columns, 12 in total
  - *each representing a proportion of the available width of a page*
  - *from a 12th to the full width of the page*

```
.col-1 {width: 8.33%;}
.col-2 {width: 16.66%;}
.col-3 {width: 25%;}
.col-4 {width: 33.33%;}
.col-5 {width: 41.66%;}
.col-6 {width: 50%;}
.col-7 {width: 58.33%;}
.col-8 {width: 66.66%;}
.col-9 {width: 75%;}
.col-10 {width: 83.33%;}
.col-11 {width: 91.66%;}
.col-12 {width: 100%;}
```

- classes allow us to set a column span for a given element
  - *from 1 to 12 in terms of the number of grid columns an element may span*

CSS grid layout - example - part 4

grid.css

- then set some further styling for each abstracted `col-` class

```
[class*="col-"] {
  position: relative;
  float:left;
  padding: 20px;
  border: 1px solid #333;
}
```

- create columns by wrapping our content elements into rows
- each row always needs 12 columns

```
<div class="row">
  <div class="col-6">left column</div>
  <div class="col-6">right column</div>
</div>
```

CSS grid layout - example - part 5

grid.css

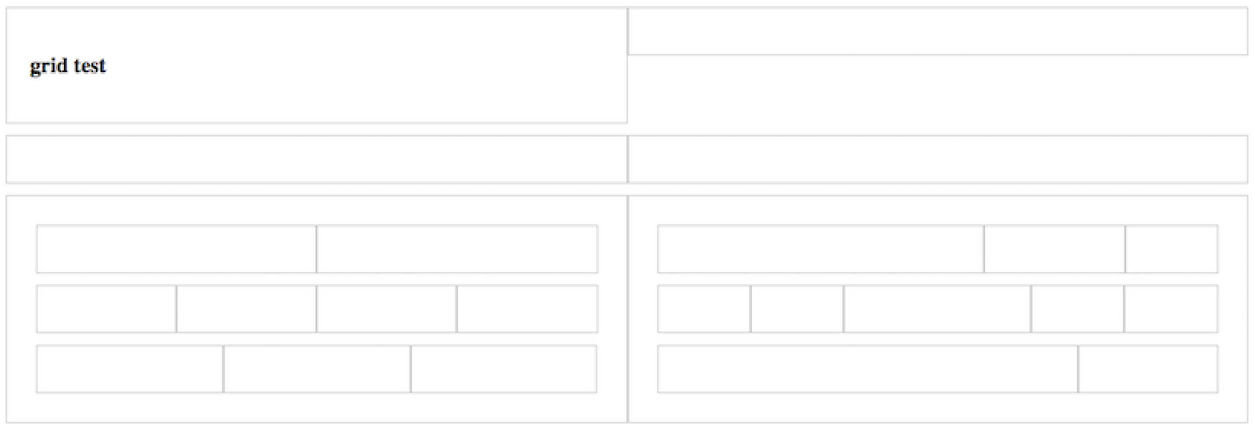
- due to the initial CSS of float left, each column is floated to the left
- columns are interpreted by subsequent elements in the hierarchy as non-existent
  - *initial placement will reflect this design*
- prevent this issue in layout, add the following CSS to grid stylesheet

```css
.row:before, .row:after {
  content: "";
  clear: both;
  display: block;
}
```

- benefit of the clearfix, `clear: both`
  - *make row stretch to include columns it contains*
  - *without the need for additional markup*

DEMO - Grid Layout 1 - no gutters

Image - Grid Layout 1



grid test

Grid Layout - No Gutters

CSS grid layout - example - part 6

grid.css

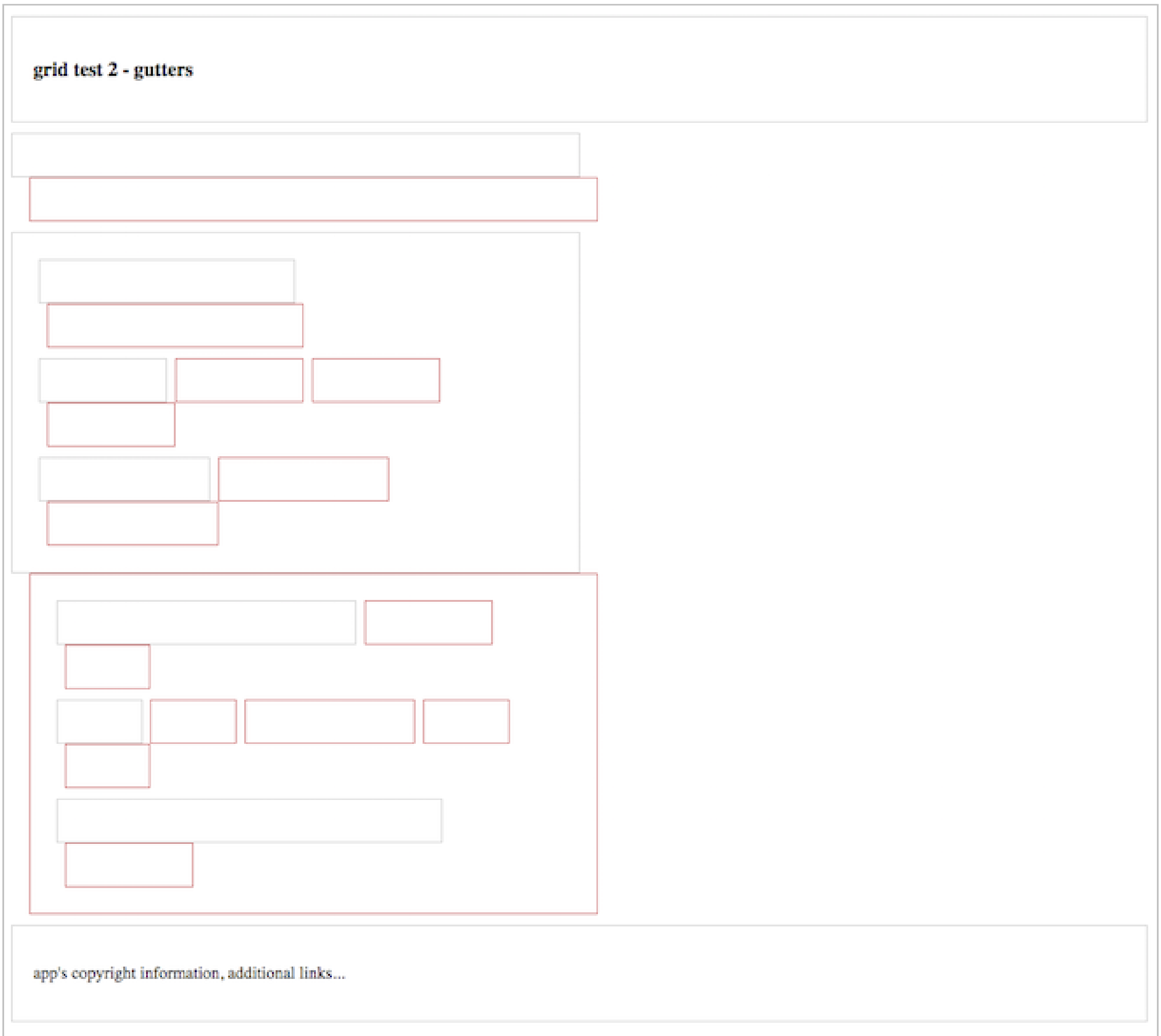
- add gutters to our grid to help create a sense of space and division in the content
- simplest way to add a gutter to the current grid css is to use padding
    - *rows can use padding, for example*

```
.row {
  padding: 5px;
}
```

- issue with simply adding padding to the columns
    - *margins are left in place, next to each other*
    - *column borders next to each with no external column gutter*
- fix this issue by targeting columns that are a sibling to a preceding column
- means we do not need to modify the first column, only subsequent siblings

```
[class*="col-"] + [class*="col-"] {
  margin-left: 1.6%;
}
```

Image - Grid Layout 2



grid test 2 - gutters

app's copyright information, additional links...

Grid Layout - Gutters Overflow

CSS grid layout - part 7

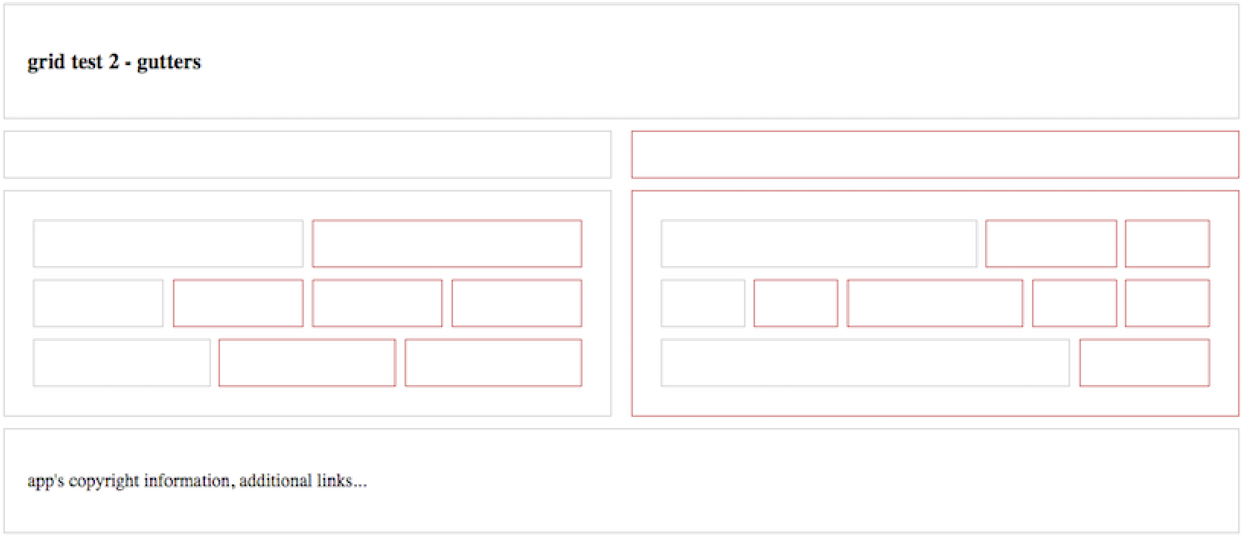
grid.css

- to fix this issue we recalculate permitted % widths for our columns in the CSS
  - *we now have % widths as follows*

```css
.col-1 {width: 6.86%;}
.col-2 {width: 15.33%;}
.col-3 {width: 23.8%;}
.col-4 {width: 32.26%;}
.col-5 {width: 40.73%;}
.col-6 {width: 49.2%;}
.col-7 {width: 57.66%;}
.col-8 {width: 66.13%;}
.col-9 {width: 74.6%;}
.col-10 {width: 83.06%;}
.col-11 {width: 91.53%;}
.col-12 {width: 100%;}
```

DEMO - Grid Layout 2 - gutters

Image - Grid Layout 3



grid test 2 - gutters

app's copyright information, additional links...

Grid Layout - Gutters

CSS grid layout - part 8

media queries

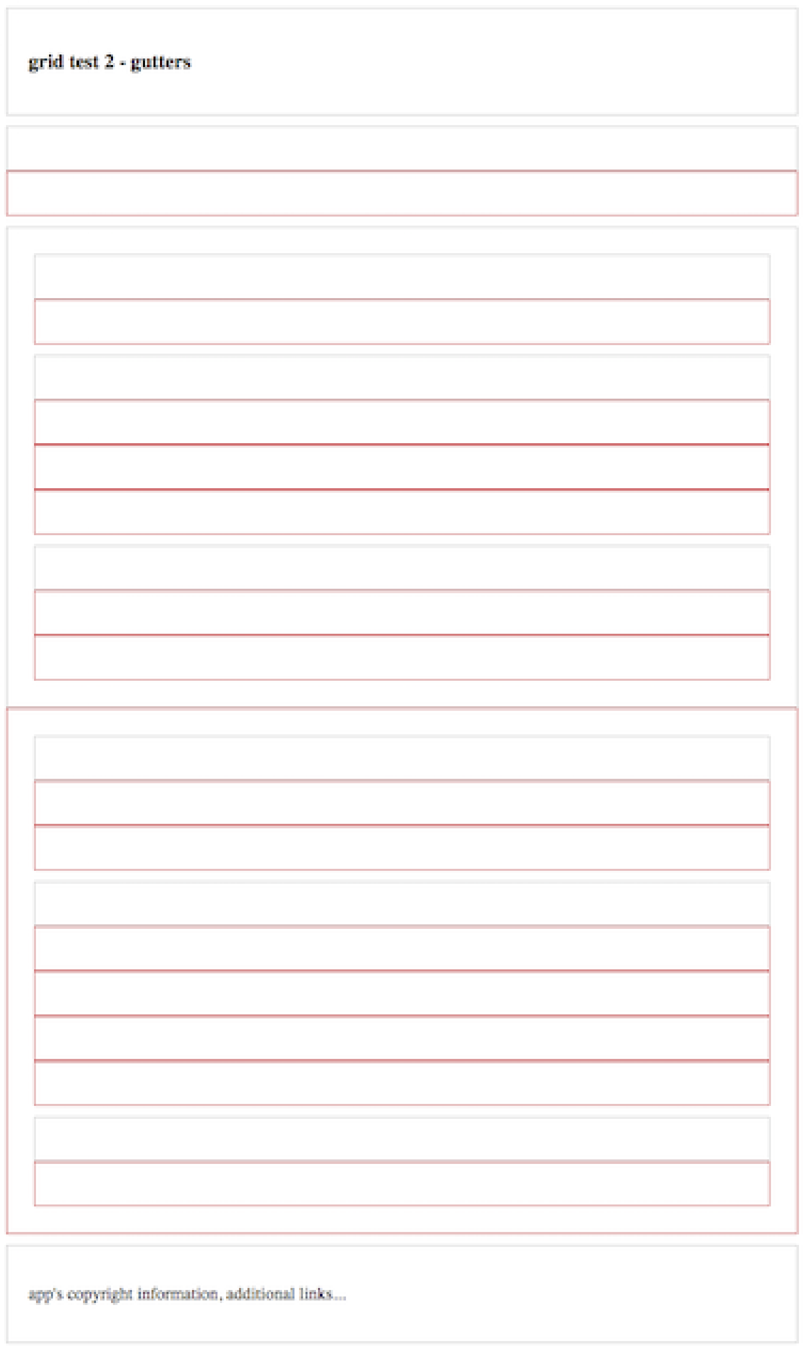
- often need to consider a mobile-first approach
- introduction of CSS3, we can now add **media queries**
- modify specified rulesets relative to a given condition
  - *eg: screen size for a desktop, tablet, and phone device*
- media queries allow us to specify a breakpoint in the width of the viewport
  - *will then trigger a different style for our application*
- could be a simple change in styles
  - *such as colour, font etc*
- could be a modification in the grid layout
  - *effective widths for our columns per screen size etc...*

```
@media only screen and (max-width: 900px) {
  [class*="col-"] {
  width: 100%;
  }
}
```

- gutters need to be removed
  - *specifying widths of 100% for our columns*

```
[class*="col-"] + [class*="col-"] {
  margin-left:0;
}
```

Image - Grid Layout 4



grid test 2 - gutters

app's copyright information, additional links...

Grid Layout - Media Queries

HTML5, CSS, & JS - example - part 1

add grid layout

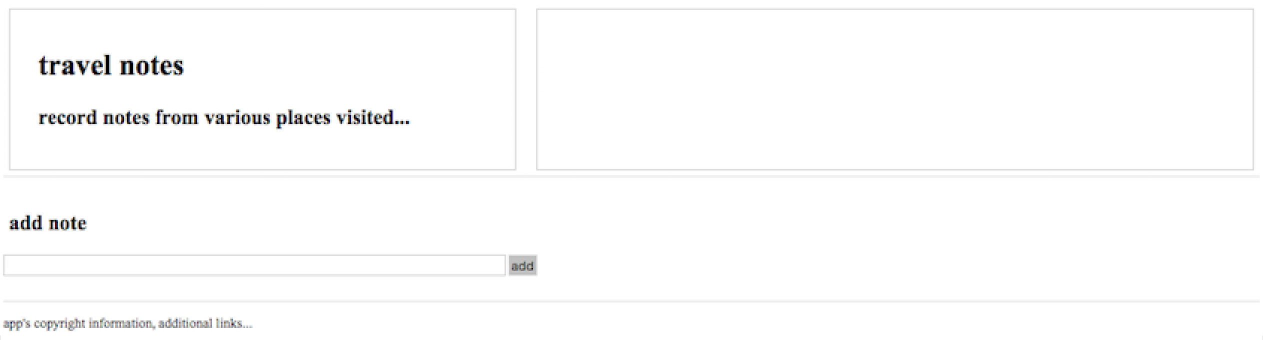
- update the layout of our Travel Notes application to include a grid layout
- apply this grid layout to the overall application
  - *organisation and presentation of the notes*
- remove the centred, fixed width for the body in our style.css stylesheet
- removes centre styling, results in content spanning full width of browser window
- add the grid layout to help us control this layout

```
<link rel="stylesheet" type="text/css" href="assets/styles/grid.css">
```

- then modify content categories, child elements to use new grid css

```
<!-- document header -->
<header>
  <div class="row">
    <div class="col-5">
      <h3>travel notes</h3>
      <h5>record notes from various places visited...</h5>
    </div>
    <div class="col-7"></div>
  </div>
</header>
```

Image - HTML5, CSS, & JS - grid layout



travel notes

record notes from various places visited...

add note

app's copyright information, additional links...

Grid Layout - Updated Header

HTML5, CSS, & JS - example - part 2

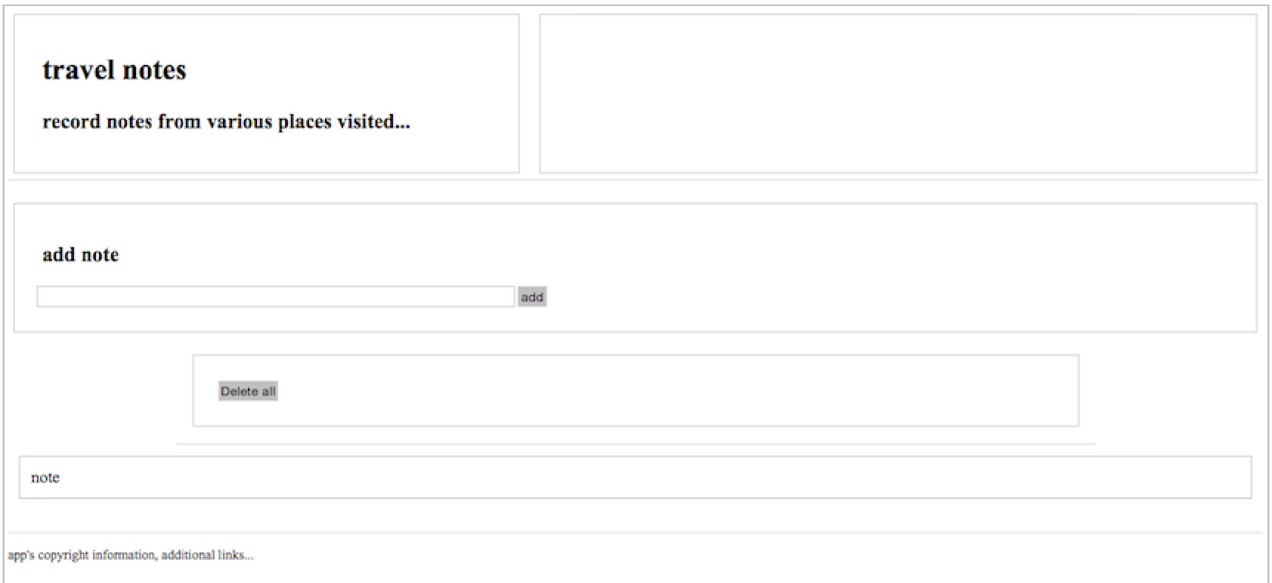
add grid layout

- update our main content to position the `note-input` and `note-controls`

```
<!-- note input -->
<section class="note-input">
  <div class="row">
    <div class="col-12">
      <h5>add note</h5>
      <input><button>add</button>
    </div>
  <div>
</section>
<!-- note controls for delete... -->
<section class="note-controls">
  <div class="row">
    <div class="col-12">
      <button id="notes-delete">Delete all</button>
    </div>
  </div>
</section>
```

- still need to amend style.css to remove additional fixed styling

Image - HTML5, CSS, & JS - grid layout 2



travel notes

record notes from various places visited...

add note

note

app's copyright information, additional links...

Grid Layout - mixed grid and fixed

HTML5, CSS, & JS - example - part 3

add grid layout

- fix mixed rendering by removing width, margin, and padding for `.note-controls`

```
/* note controls */
.note-controls {
  border-bottom: 1px solid #dedede;
  display: none;
}
```

- continue to update Travel Notes app
  - *modify output for notes*
  - *add further options for users*

DEMO - Travel Notes - grid layout with media queries

HTML5, CSS, & JS - example - part 4

add flex to grid layout

- an additional option to consider - flex layouts
  - *a recent W3 working draft*
  - *aims to provide efficient way to align and proportion content*
- known as **Flexbox Layout**
  - *idea is to apportion width and height for content*
  - *proportions relative to container even when their size is unknown or dynamic*
- flex layout could, in theory, replace a full grid layout
  - *considered more a complement to overall grid structure*
- defined flex container expands items to fill the container's available space
  - *can also shrink them to prevent any possible overflow*
- think of a flex layout as supporting multiple directions
  - *direction agnostic*
- many properties available for **flex**
  - *focus upon styling flex container and any flex items*

HTML5, CSS, & JS - example - part 5

add flex to grid layout

- we might specify CSS properties for a flex container

```
.flex-container {
display: flex; /* defines container as flex */
flex-direction: row; /* defines positioning of items added to container */
flex-wrap: wrap; /* defines whether to wrap items to another line */
justify-content: flex-start; /* defines start point and distribution of items */
}
```

- allows us to position our container starting at the left
  - *items contained in a row*
  - *contained items wrapping to additional lines if necessary*
- many additional options available for each property
- also add rulesets for specific styling of items within a flex container
- we could add properties to a flex item such as
  - *specify the order of the flex items*
  - *whether a particular item can grow or shrink relative to content*
  - *default size of an item before any remaining space is distributed*
  - *individual alignment for a given item...*

HTML5, CSS, & JS - example - part 6

add flex to notes

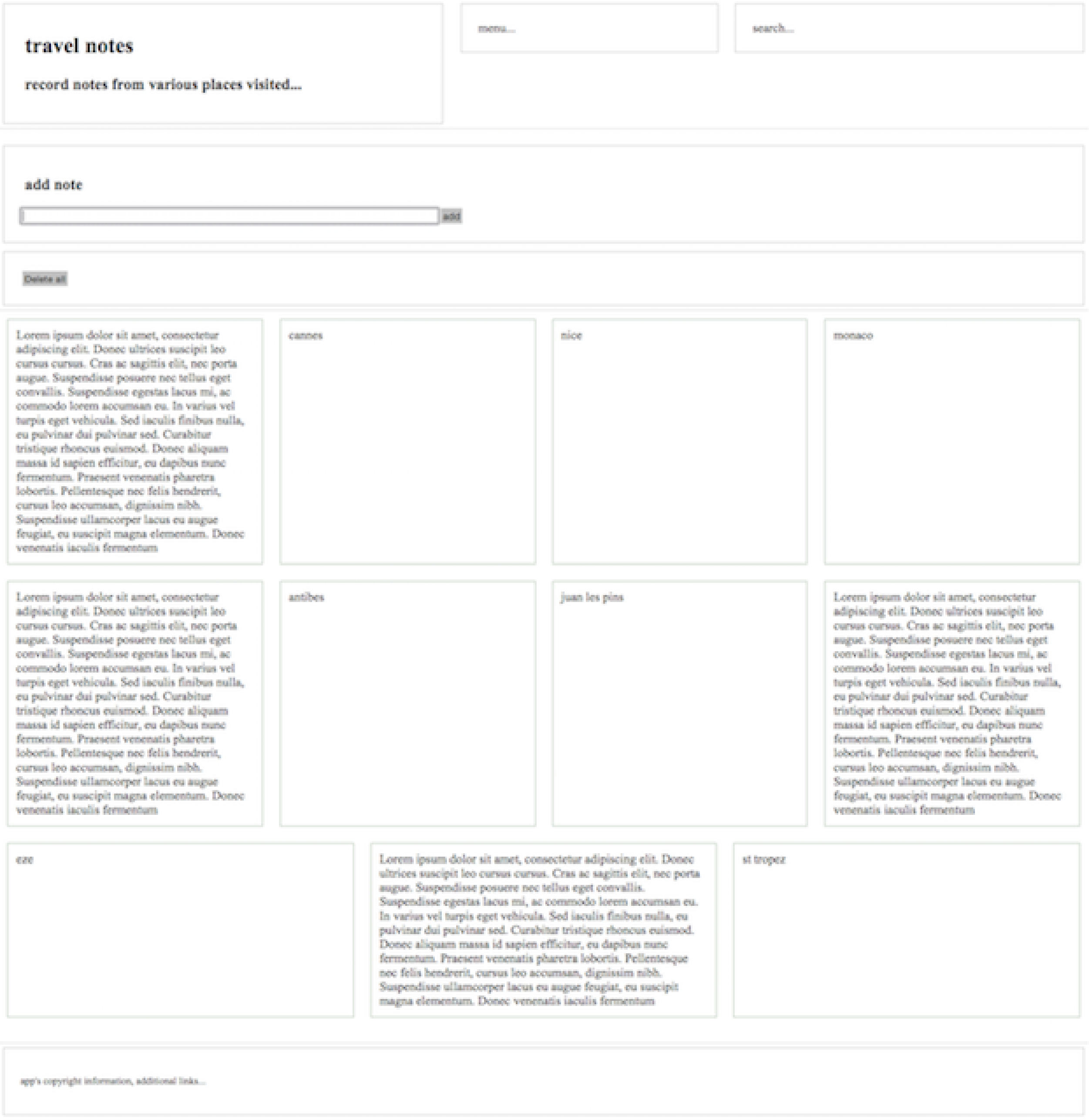
- flex container and items useful for organising and positioning our notes
- due to uncertainty about content, size, and general note requirements
  - *flex positioning and styling removes the need for assumptions or fixed sizes*
- we can start to modify the styling and rendering of our notes using flex

```css
/* flex item */
.flex-item {
  flex-basis: 300px; /* default size before extra */
  flex-grow: 1; /* all items will be equal */
}
```

- gives us a default smallest size for each note
- then the ability for each note to grow to fill the row as required
- also work with responsive layouts
  - *due to the minimum size and the option to grow for each item*
  - *and wrap flex items per flex container*
- modify and update styles as we develop travel notes app

DEMO - Travel Notes - grid layout with flex notes

Image - HTML5, CSS, & JS - Flex Notes



travel notes

record notes from various places visited...

menu...

search...

add note

add

Delete all

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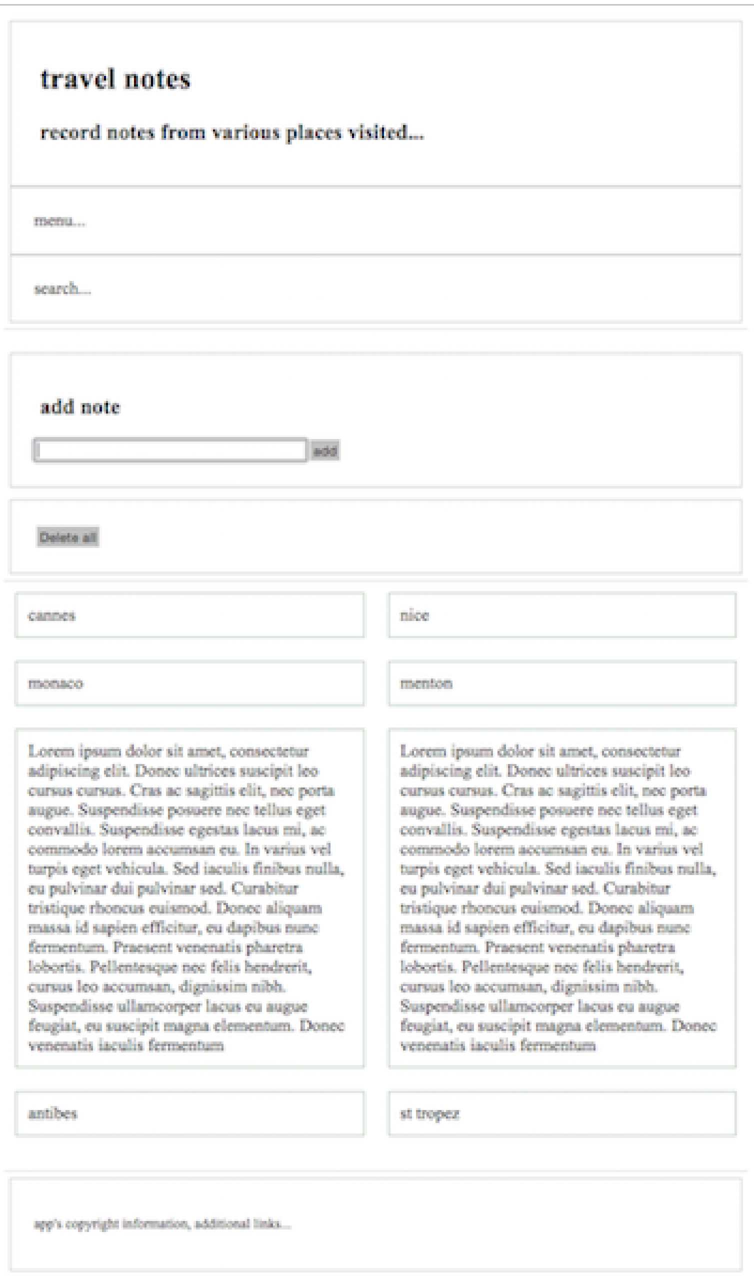
app's copyright information, additional links...

Grid Layout - flex notes

Image - HTML5, CSS, & JS - Flex Notes 2



travel notes

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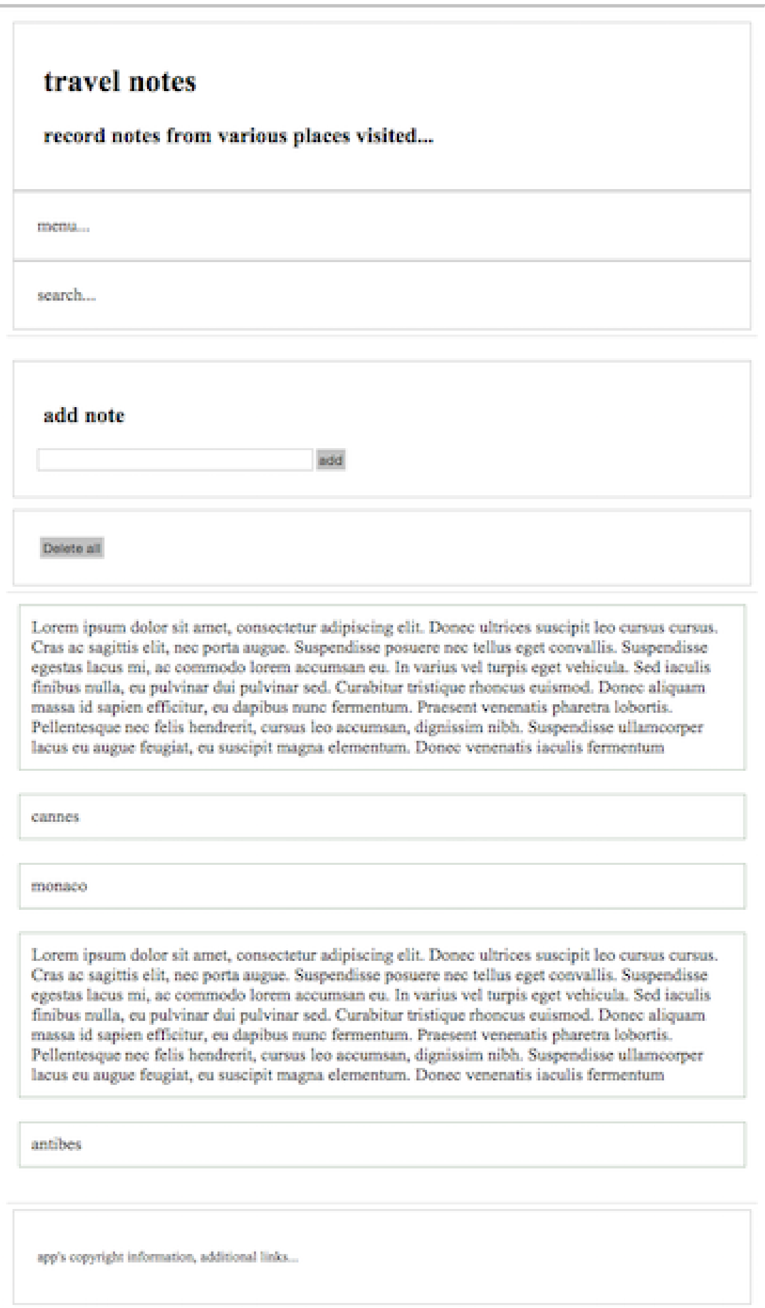
Grid Layout - flex notes - medium

Image - HTML5, CSS, & JS - Flex Notes 3



travel notes

record notes from various places visited...

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add note

add

Delete all

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Grid Layout - flex notes - small

HTML5, CSS, & JS - example - part 7

add flex to notes

Notes with Flex and Media Queries

Ajax, JSON & jQuery - part 1

recap - get the data

- access data from remote servers and APIs using AJAX
- jQuery helps us retrieve data from remote servers and APIs
  - *using a built-in function, `.getJSON()`*

```
$.getJSON("file.json", {format: "json"}, function(data) {
    //do something useful...
  }
);
```

- set format to `JSON` to ensure remote API, for example, returns correct requested format
- some APIs offer more than one format for returned data, including XML
- modify this format request to `jsonp`
  - *requests **JSON with padding***
- often required to ensure that data is returned correctly
  - *not rejected by the remote server due to security restrictions, limitations...*

Ajax, JSON & jQuery - part 2

JSONP

- **JSONP** is a variant of JSON, which is also regular JavaScript
- accepted by the browser as a standard remote JavaScript file
- then loaded and processed as standard JavaScript
- URL submitted to a remote API will often need to include additional parameters
  - *required to successfully process the JSONP response*
  - *standard example might be the addition of `?callback=?`*
- issue with JSONP is error notification
  - *server is now unable to indicate or return an error for the request*
  - *JSONP may require additional testing an debugging*

Ajax, JSON & jQuery - part 3

.getJSON()

- our simple example for the `.getJSON()` function

```
$.getJSON("file.json", {format: "json"}, function(data) {
    //do something useful...
  }
);
```

- defines a callback function, which works fine for simple calls
- add extra code, and then some more code...
  - *our code quickly becomes a spaghetti mess of code, callbacks, and data*

Demos

- Grids
  - *Grids 1 - Grid*
  - *Grids 2 - Grid 2 with gutters*
- Travel Notes app
  - *DEMO 1 - Travel Notes - Week 9 - demo1*
  - *DEMO 2 - Travel Notes - Week 9 - demo2*

References

- jQuery
  - *jQuery - getJSON*
- JSONP
- W3 - CSS Flexible Box Layout Module 1