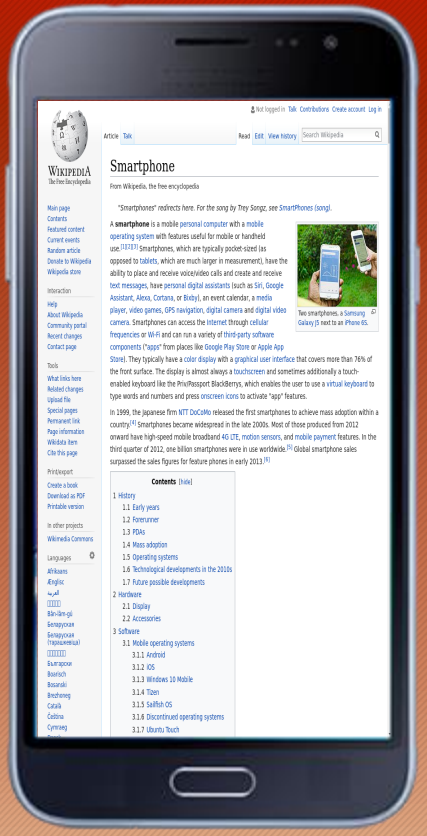
CS-1520
RESPONSIVE WEB DESIGN

The reasoning behind Responsive Web Design

VIEWING A WEBPAGE IN A SMALL WINDOW

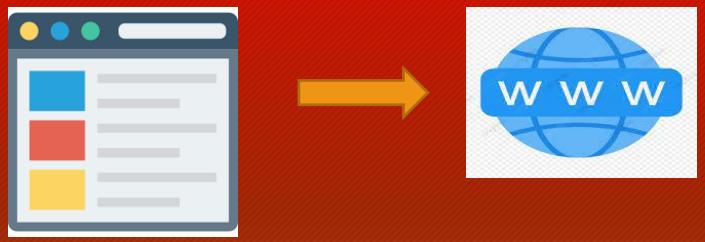
VIEWING A WEBPAGE ON A SMARTPHONE



Main Issues:

- Text gets hard to read
- links gets hard to be clicked on
- Too small images

WEBPAGES AND DEVICES



- Different screen sizes (e.g., 5”, 15”, 35”)
- Different pixel resolutions (actual pixels on the screen, e.g., 1080x800 pixels)
- Different pixel density resolutions (pixels per inch, e.g., 300 ppi)

VIEWPORTS

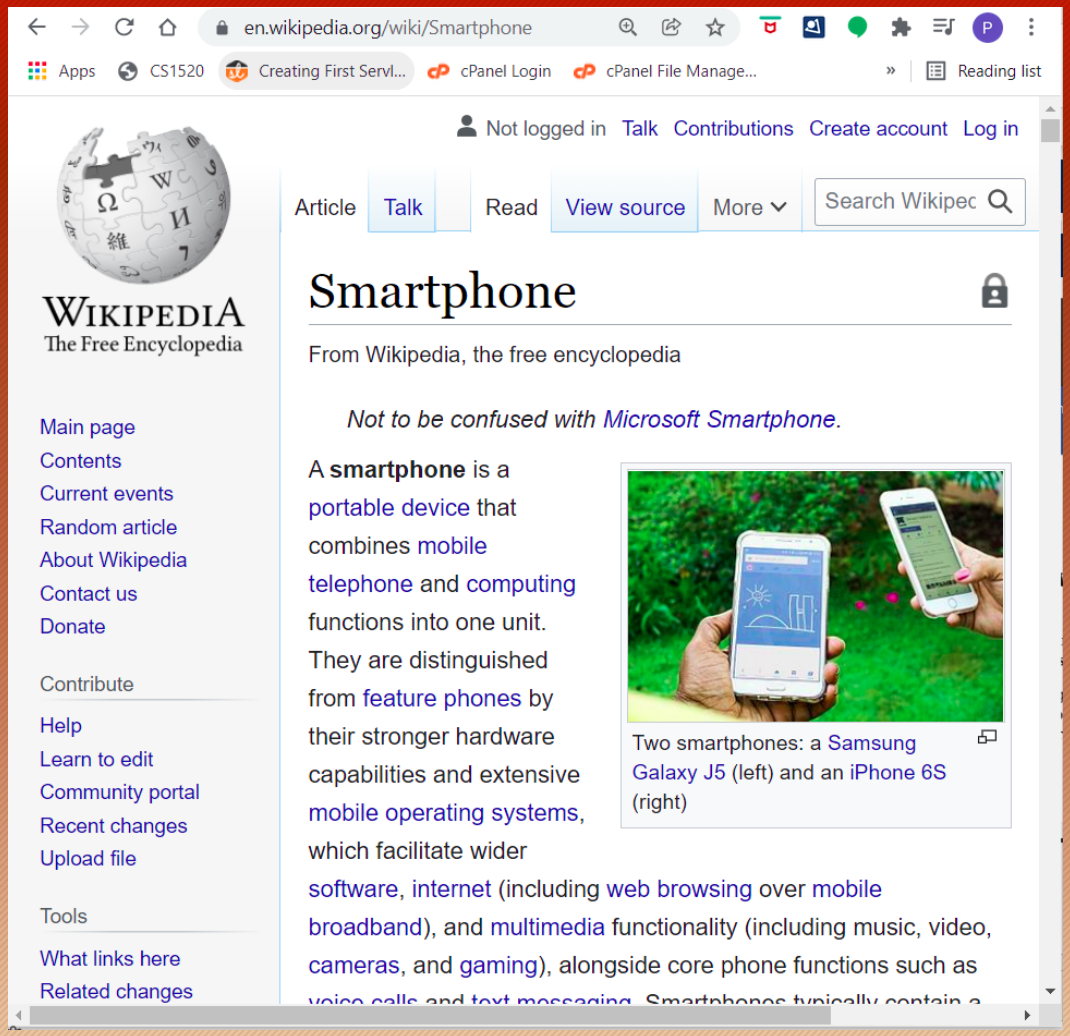
Visual viewport

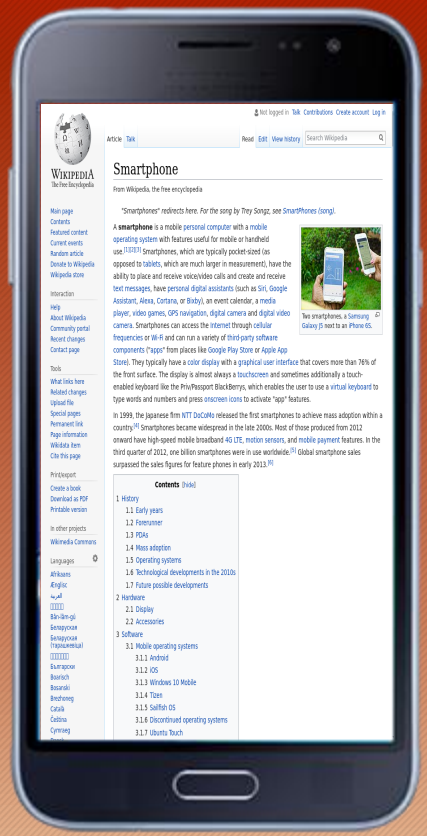
Layout viewport

BY DEFAULT…

- Mobile browsers attempt to show the entire layout viewport in the browser window
  - The first tiny wikipedia page on the next slide
- How do we size the layout viewport appropriately?
  - We want to ensure that our webpage isn't rendered at the default layout viewport size and then "zoomed out" to fit

VIEWING A WEBPAGE ON A SMARTPHONE





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An example of when Responsive web design is important

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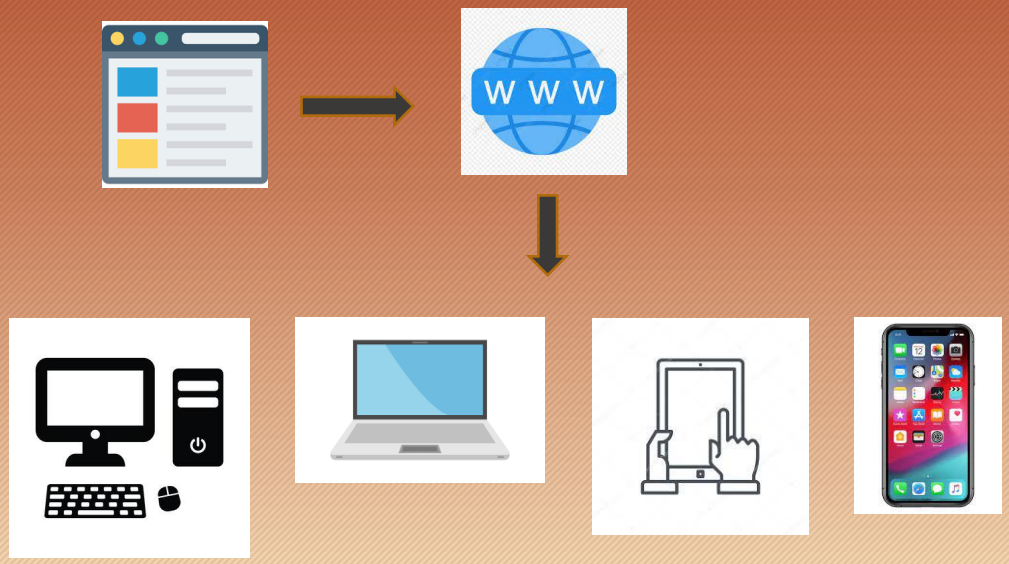
RESPONSIVE WEB DESIGN

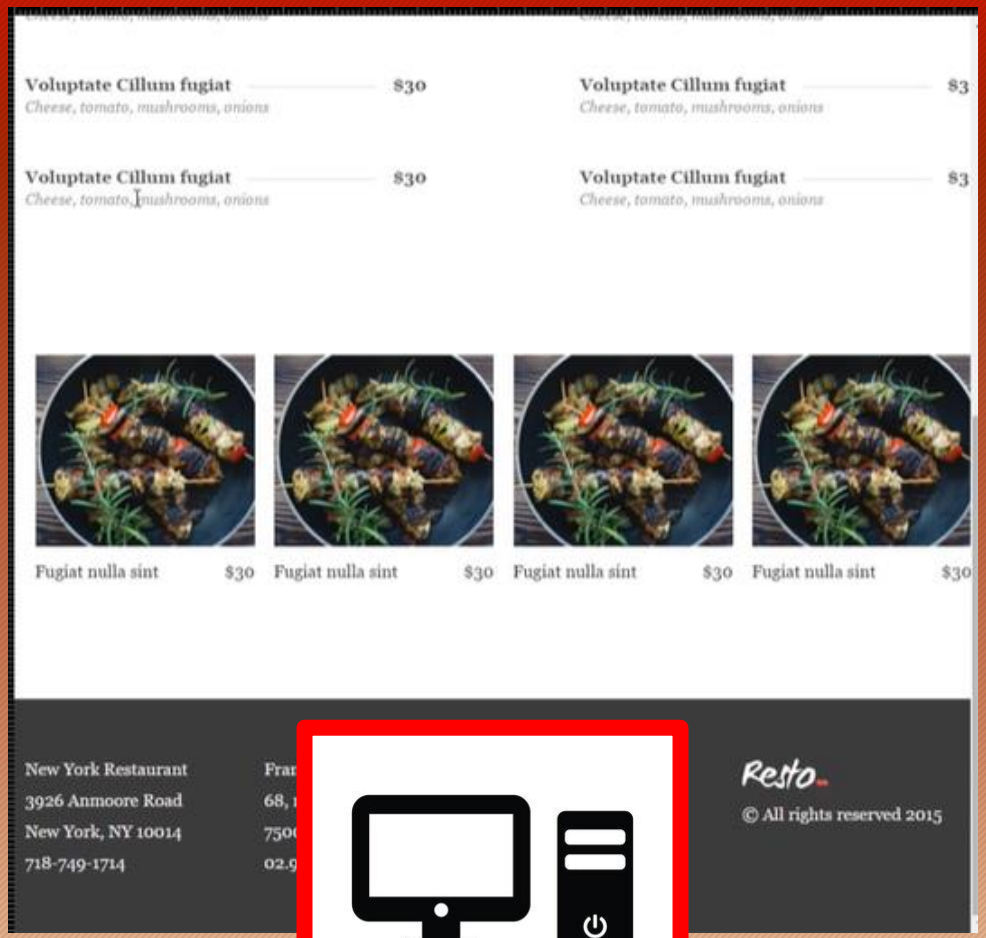
The solution: The Responsive Web Design

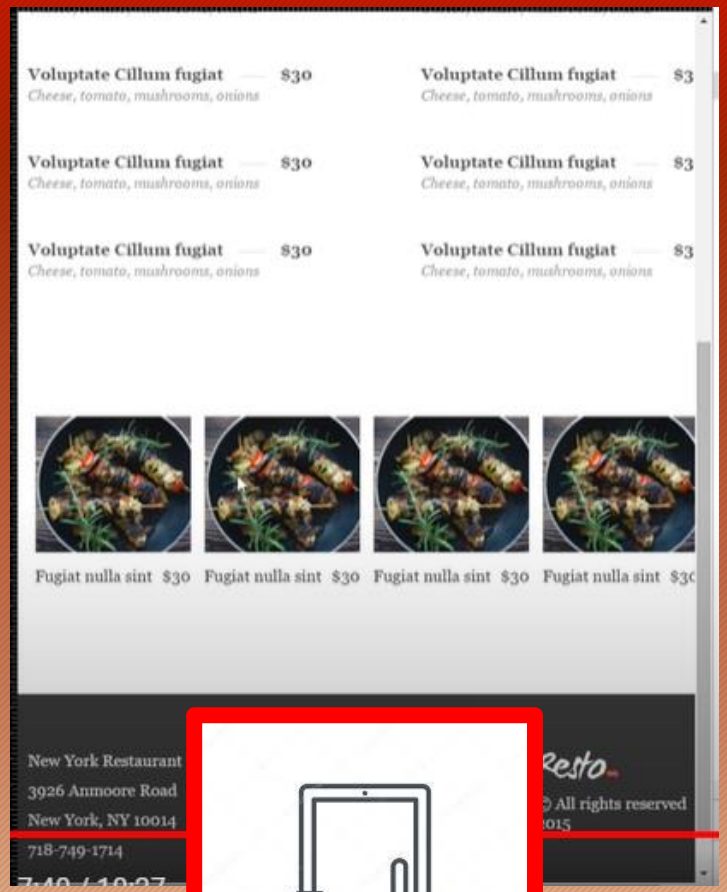
RESPONSIVE WEB DESIGN

- **Responsive web design** (**RWD**) or **responsive design** is an approach to web design that aims to make web pages render well on a variety of devices and window or screen sizes from minimum to maximum display size to ensure usability and satisfaction



RESPONSIVE WEB DESIGN





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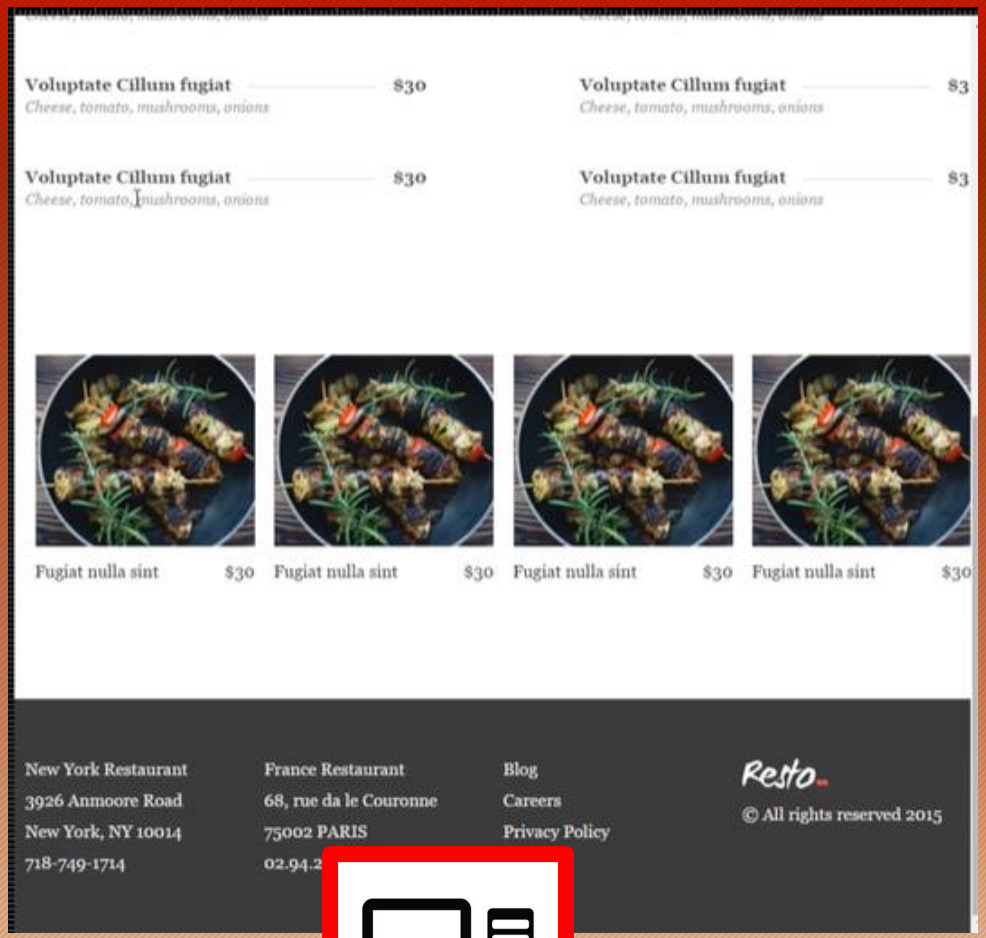
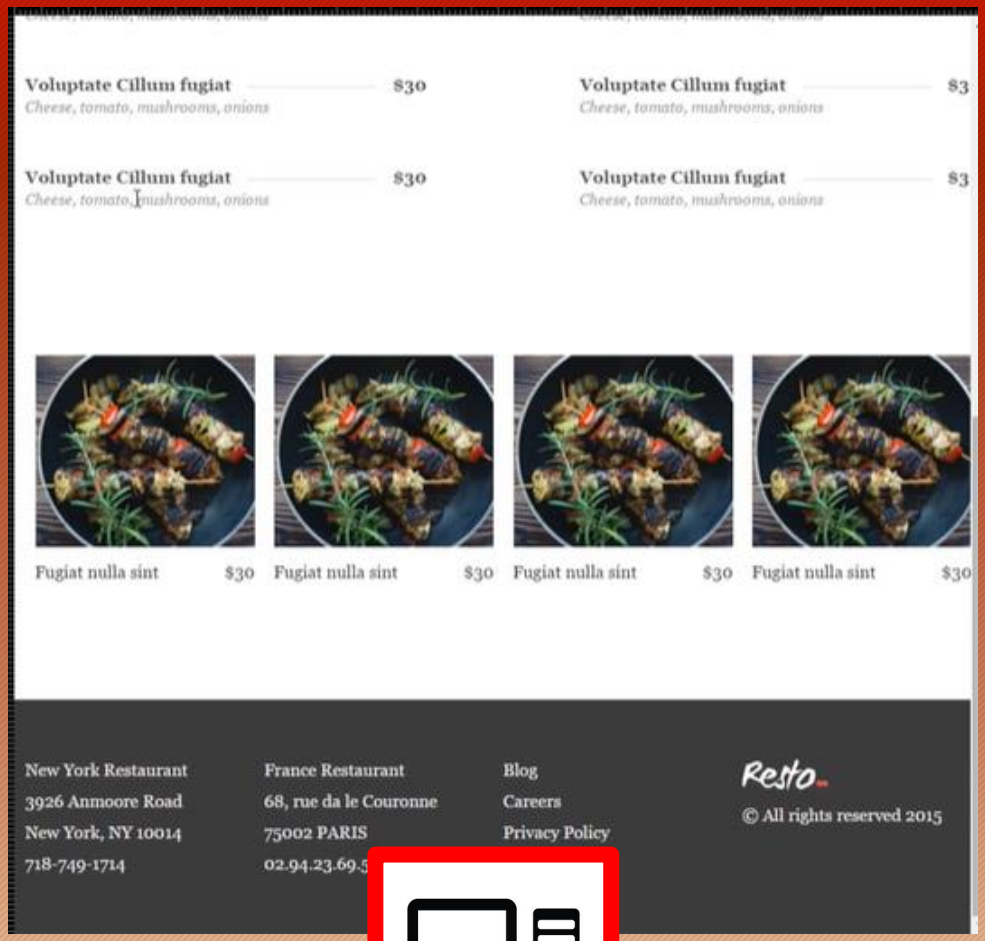


RESPONSIVE WEB DESIGN



Implementing a Responsive Web Design

The media query

CSS3 MEDIA QUERIES

- A responsive design adapts the web-page layout to the viewing environment by using techniques such as CSS3 media queries
- Media queries allow the page to use different CSS style rules based on characteristics of the device the site is being displayed on, e.g., width of the rendering surface

META VIEWPORT TAGS

- HTML `<meta>` tags are used to specify metadata that cannot be encoded in other tags
- With the development of their Retina displays, Apple started using the `<meta name="viewport" …>` tag to instruct the browser on sizing the layout viewport to properly display webpages formatted for mobile
- E.g.:

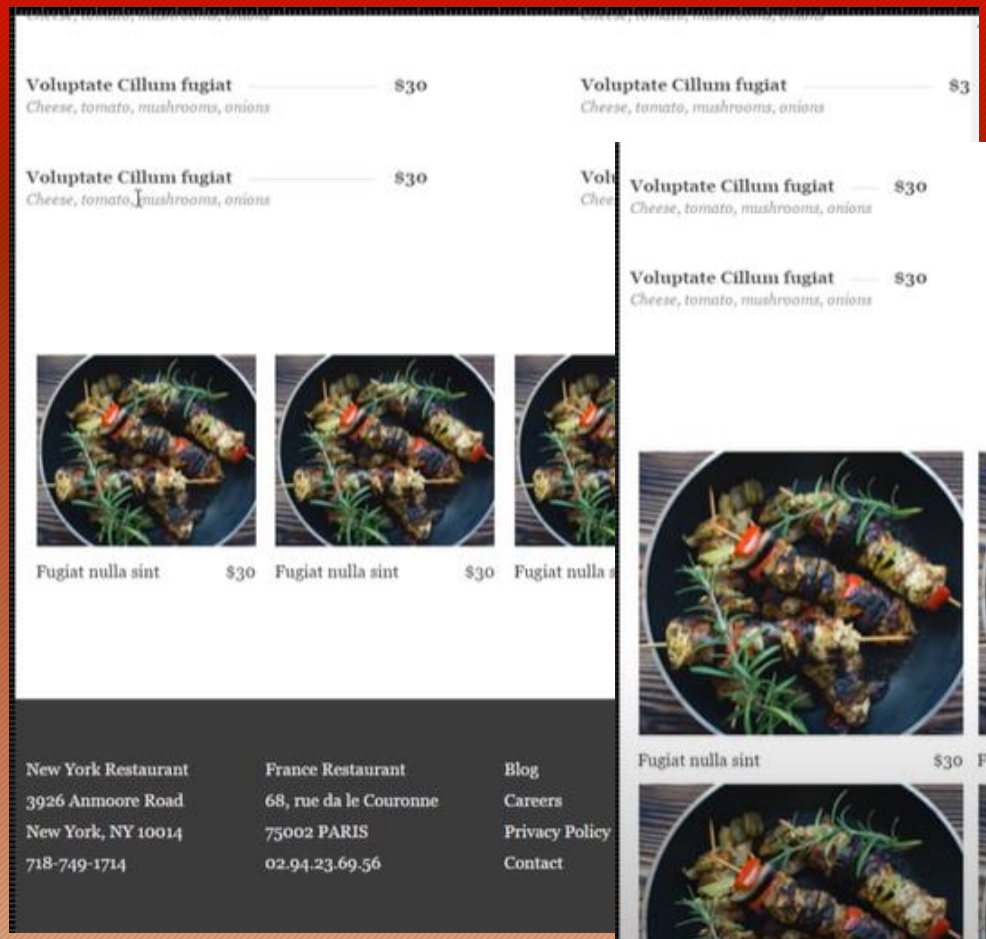
```
<meta name="viewport" content="width=device-width, initial-scale=1">
```

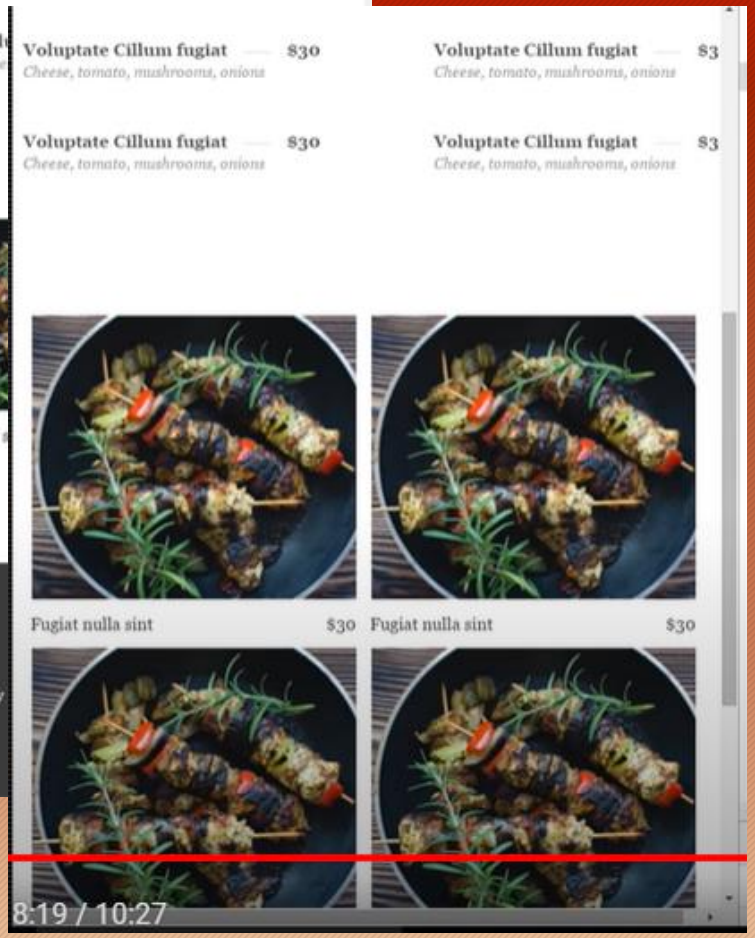
CSS MEDIA QUERIES

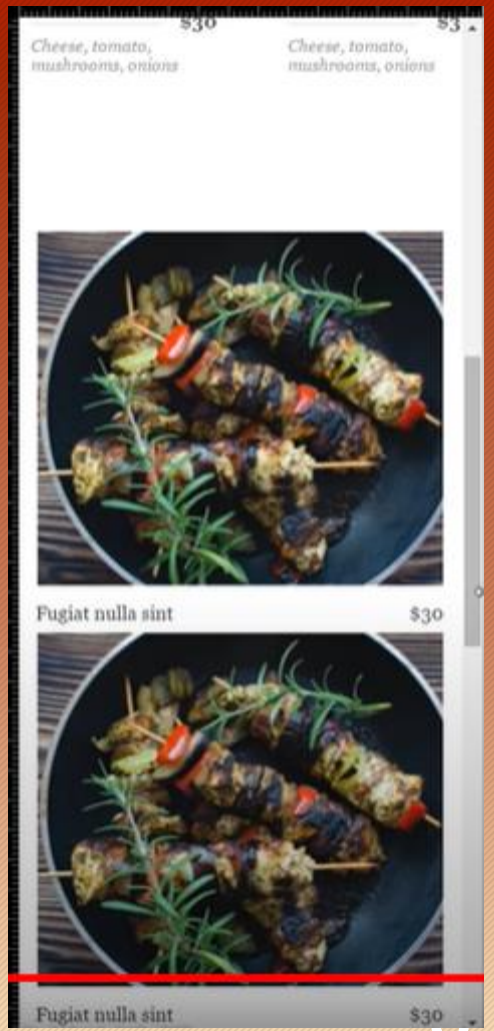
CSS media queries

- Allow the developer to tailor the site to presentation on a variety of output media without changing the content
- Relevant for our case:
  - `max-width: 600px`
  - `min-width: 500px`
  - `orientation: landscape`
    - `orientation: portrait`

RESPONSIVE WEB DESIGN







CSS3 MEDIA QUERIES EXAMPLES

```
<body>
    <div>
        <h1> Hello World </h1>
    </div>
</body>

@media (min-width: 501px) and (max-width: 600px) {
  div {
     background-color: blue;
  }

  h1 {
     color: black;
     font-size: 3.0em;
  }
}

@media (min-width: 601px) {
   /* other style definitions here… /*
```

CSS3 MEDIA QUERIES EXAMPLES

- Media queries can be included in `<link>` tags to stylesheets, `@import` statements, or directly in css via `@media` tags
  - See examples

BACK TO RESPONSIVE DESIGN

A couple of guidelines:

- Use relative sizes
  - E.g., define the width of divs as a percentage of the page instead of a fixed pixel size
- Start with the smallest needed size and define "breakpoints" as necessary

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The Restaurant Menu:
An overview of its structure