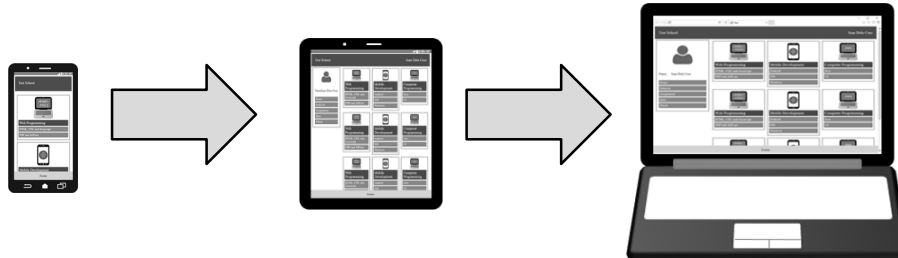## Responsive Web Design

Responsive Web Design – It is an approach to web design that makes a website or web page look as good as possible on different devices.
– The web page responds when the size of the browser was changed.

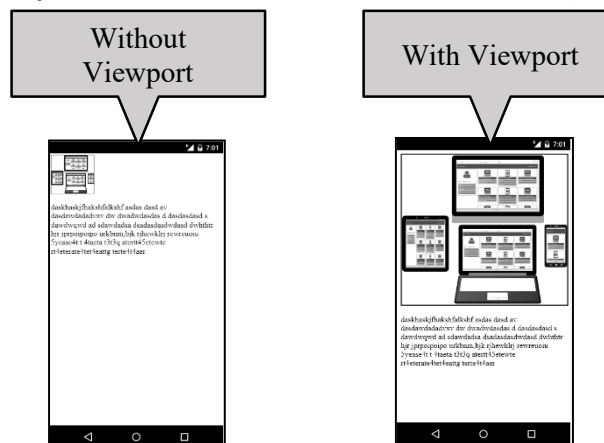**Mobile First** – Mobile First started building websites that fit on mobile devices.
– The styles are applied first in mobile before designing on desktop.

Viewport

Viewport - It is the visible area or the rectangular shape that a web browser displays.

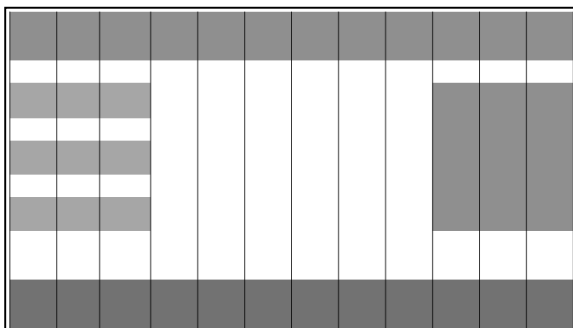- In mobile devices, the viewport is the full screen of a device, while on a desktop, it is the width and height of a browser window.
- Syntax:
  o **`<meta name="viewport" content="width=device-width, initial-scale=1.0">`**

Grid View

Grid View – It is a structure that most of the web page follows. It has 12 columns and a width of 100%.
- It helps to design a web page and easier to place an element on the page.


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

.row::after – This inserts any selected elements after the content in each row.
content – This property is used to insert a generated content.

clear – It is a property that is used to specify which side of an element is not allowed to float.
- o It is used by clearing the left or right float without canceling at the same time.
- o **both** – means that elements are not allowed to float on both sides.

display – It is a property that is used to change the behavior of an element.
- o **table** – This value is used to have a display like a table element.

```css
.row::after {
    content: "";
    clear: both;
    display: table;
}
```

[class*="column-"] – An attribute selector that is used to match any element whose class attribute contains a value of "column-".

float – This property is used to indicate that the element will be placed in the left or right of the page.
- o **left** – The element will be placed in the left part of the page.

```css
[class*="column-"] {
    float: left;
    padding: 2px;
}
```

box-sizing – This property is used to control the element boxes to shrink the content area to have a space for padding and borders.
- o **border-box** – The width of the box will remain at the given measurement. The content area will be decreased, and the padding and border will be included.

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

Example output of columns:

Media Query

Media Query – A media query contains both media types and optional expressions. Using a media query, you will see the capabilities of mobile devices.

@media – used to include styles in different media types.

Logic in media query:
- - **only** – This is used if both conditions are true.
- - **not** – It reverts the output or the media query. If true, then the output will return false.
- - **and** – It is used to combine media type or media features.

Media Type – This is used to determine whether it is for the screen or allow all devices in media query.

- **all** – This media type allows all media devices.
- **print** – It is a print preview mode of a document or web page.
- **speech** – It is used for speech synthesizers -- an artificial human speech that uses text as input and audio as an output.
- **screen** – It is a computer screen display of a web page.

Media Features – These are the specific characteristics of the output of a device or the display area in a web page.
- Commonly used media features:
  o **color** – This is the number of bits per color.
  o **width** – It is the width of the viewport or the display area.
  o **max-width** – The maximum width of the viewport that will be displayed on a web page, from 0 to the given maximum width.
  o **min-width** – The minimum width of the viewport that will be displayed on a web page, from the given minimum width and so on.
  o **height** – The height of the viewport or the display area.
  o **max-height** – The maximum height of the viewport or the display area.
  o **min-height** – The minimum height of the viewport or the display area.

Example:
- Syntax 1
  o In this example, a <u>media</u> attribute is declared in a link tag. It is the other way of declaring a media query in CSS.

```html
<head>
    <title>
        Media Query
    </title>
    <!-- Web View CSS -->
    <link rel="stylesheet"
        media="screen and (min-width: 1025px)"
        href="css/desktopview.css"/>

    <!-- Tablet View CSS -->
    <link rel="stylesheet"
        media="screen and (max-width: 1024px)"
        href="css/tabletview.css"/>

    <!-- Mobile View CSS -->
    <link rel="stylesheet"
        media="screen and (max-width: 767px)"
        href="css/mobileview.css"/>
</head>
```

- Syntax 2
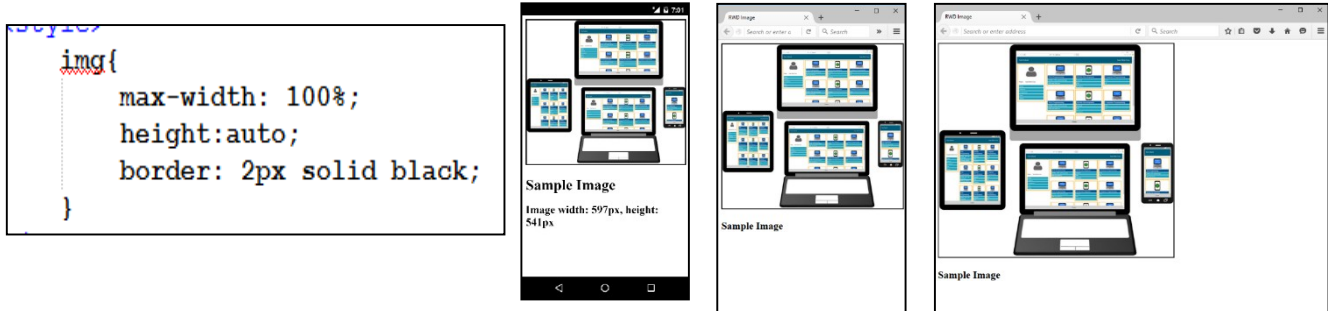 o In this example, the media query is declared in a CSS file.

```css
@media only screen and (max-width: 600px){
    body{
```

```css
@media only screen and (min-width: 1000px){
    body{
```

Responsive Image

Responsive Image – A flexible image that can be viewed on small-screen to large-screen devices.
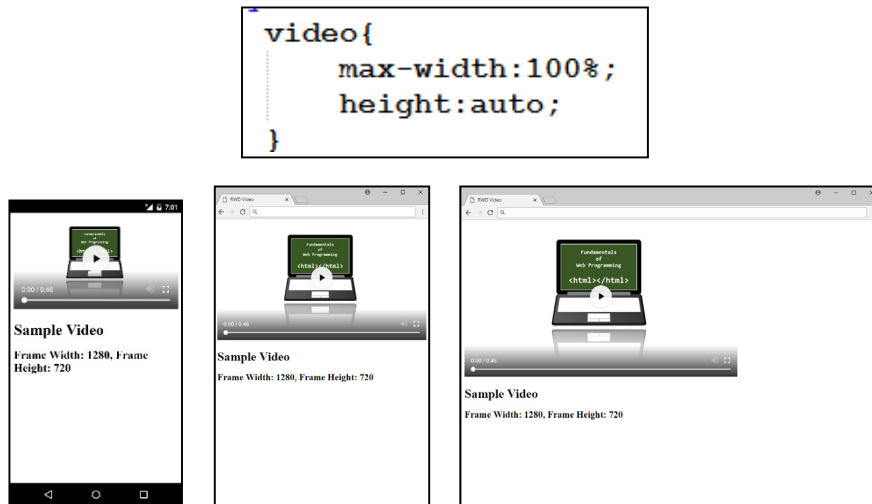- If we use the <u>width</u> and set to 100%, the image will be responsive, and it will scale up or scale down.
- If we use the <u>max-width</u> and set to 100%, the image will not be scaled up on its original size, but it will scale down based on the screen's size.
- The <u>max-width</u> property is the best solution since it will not scale up the size to its limit. For example, if we set the <u>max-width</u> to 100% and set the <u>width</u> to 320px, the maximum width of an image will only scale up to 320px.

```
<style>
img{
    max-width: 100%;
    height:auto;
    border: 2px solid black;

}
```


Sample Image
Image width: 597px, height: 541px

Sample Image

Sample Image

Responsive Video

Responsive Video – A video player that can be viewed on small-screen to large-screen devices.
- If we use the <u>width</u> and set to 100%, the video player can be scaled up and scaled down.
- If we use the max-width and set to 100%, the video player will not scale up from its default size but can be scale down if the browser is resized or viewed on small devices.

```
video{
    max-width:100%;
    height:auto;
}
```


Sample Video
Frame Width: 1280, Frame Height: 720

Sample Video
Frame Width: 1280, Frame Height: 720

Sample Video
Frame Width: 1280, Frame Height: 720

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