

CSS Extensions for a Round Display

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Background


- New devices with a round screen are emerging.
 - LG G Watch R, Moto 360, LG G3 (when the cover is closed), etc.
- The web was designed for a rectangular screen.
 - Especially CSS.

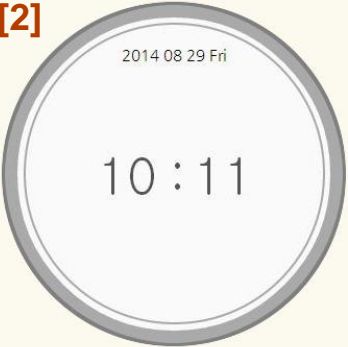


1. Detecting a Round Screen (Media Query)

- “**device-radius**” property
 - Inspired by “border-radius”
 - Supports many shapes include rectangle, circle, ellipse, rectangle with round corners, etc.

[1] 
 <Rectangle display>


 <Round display>
 UA not supporting *device-radius*

[2] 
 <Round display>
 UA supporting *device-radius*

[1]: `<link media="screen and (device-radius: 0%)" rel="stylesheet" href="rectangle_clock.css" />`

[2]: `<link media="screen and (device-radius: 50%)" rel="stylesheet" href="round_clock.css" />`

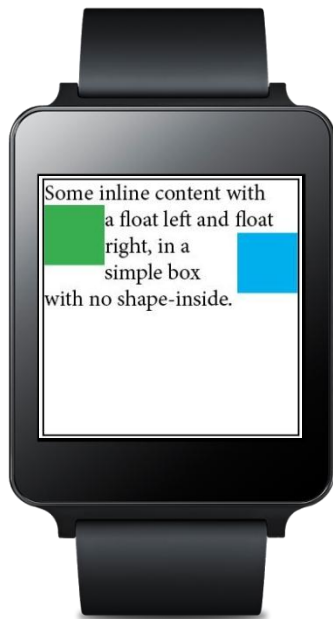
1. Detecting a Round Screen (JavaScript)

- New property of the **Screen** object
 - **radius**: {1000px | 50%}
- (New) property of the **body** element
 - document.body.**border-radius**: {1000px | 50%}

```
▼ Screen {orientation: "landscape-primary", availWidth: 1600, availHeight: 870, availTop: 0, availLeft: 0...} ⓘ  
  availHeight: 870  
  availLeft: 0  
  availTop: 0  
  availWidth: 1600  
  colorDepth: 24  
  height: 900  
  orientation: "landscape-primary"  
  pixelDepth: 24  
  width: 1600  
  ▶ __proto__: Screen
```

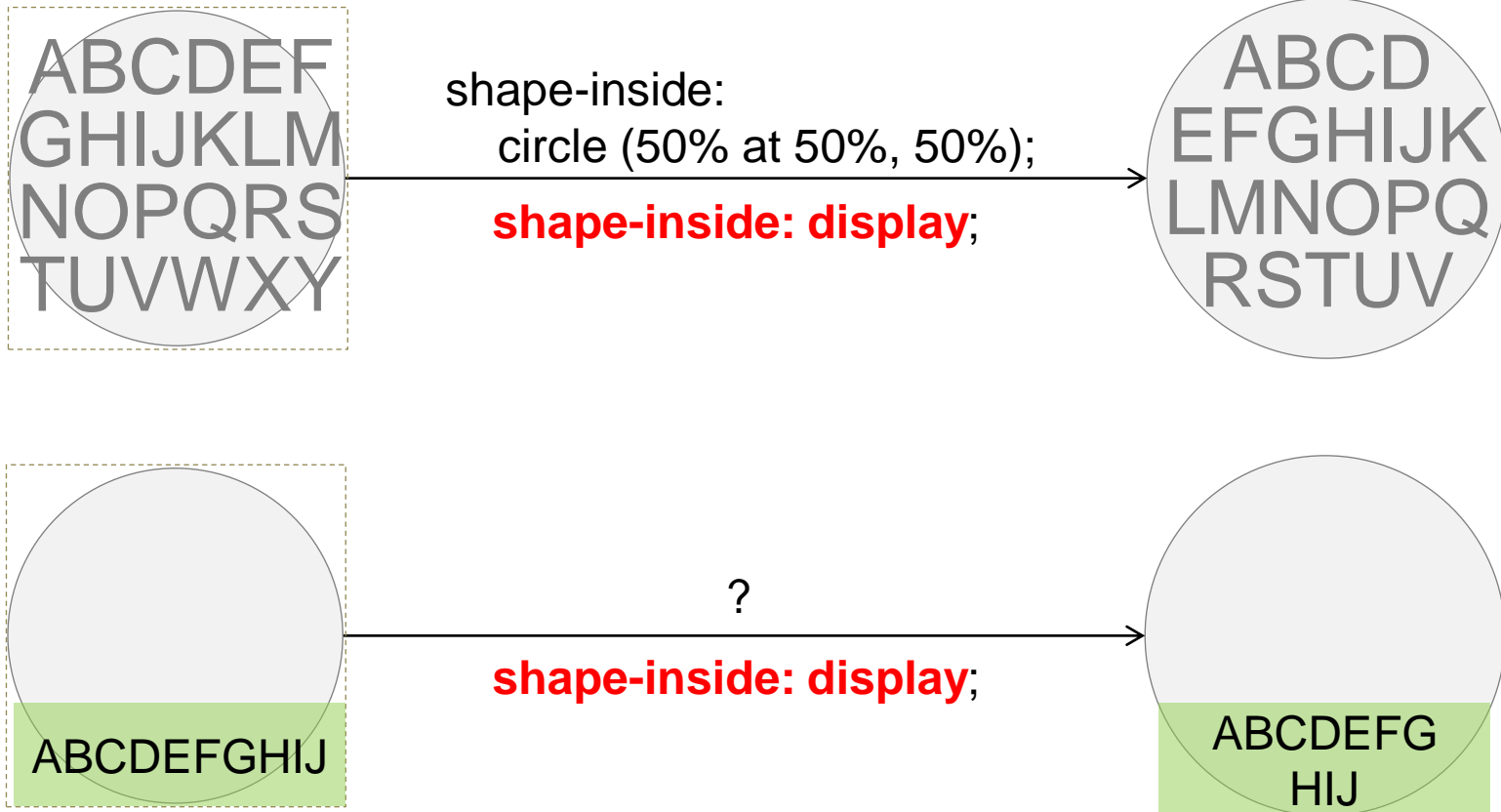
2. Content Alignment

- Fitting contents inside the screen.



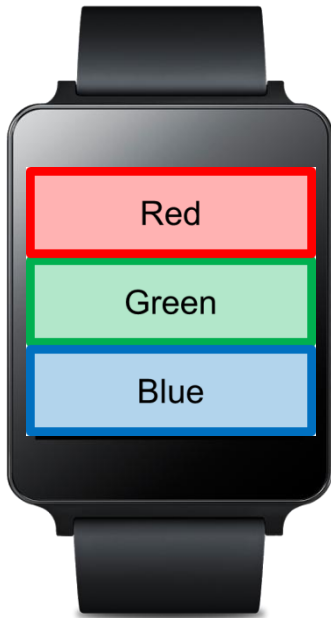
2. Content Alignment

- Extend the “shape-inside” property
 - Add a value “**display**”



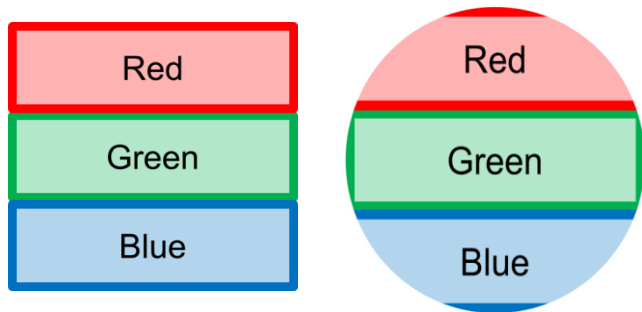
3. Border

- Broken border at the display edge.

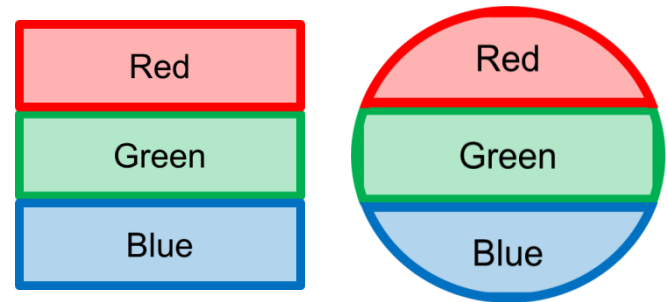


3. Border

- New “border-shape” property
 - “display” or “nodisplay” (default)



border-shape: nodisplay;



border-shape: display;

4. Layout

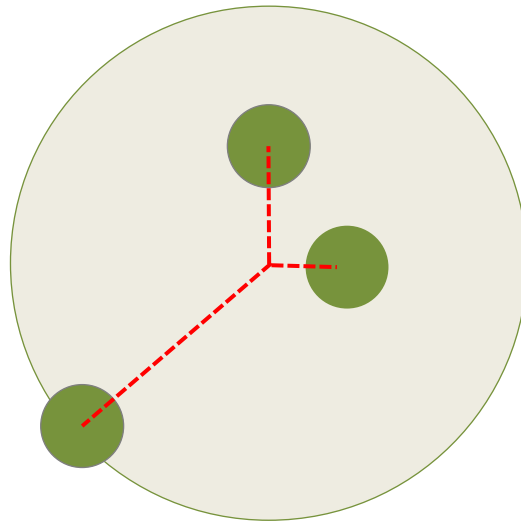
- Elements are often placed along a circle (or concentric circles).
- Polar coordinates are useful.



4. Layout

- Polar coordinates
 - “**polar-angle**” and “**polar-distance**”
 - With “**position: polar**”

```
<body style="position: polar;">  
  <div id="circle1" style="polar-angle: 0deg; polar-distance: 20%"></div>  
  <div id="circle1" style="polar-angle: 90deg; polar-distance: 50%"></div>  
  <div id="circle1" style="polar-angle: 225deg; polar-distance: 100%"></div>  
</body>
```



Summary

- Minimal extensions to CSS to support a round display.
- Detecting a round display
- Alignment
- Border
- Layout: polar coordinates