

HTML 2 deo

Putanje

Path	Description
<code></code>	The "picture.jpg" file is located in the same folder as the current page
<code></code>	The "picture.jpg" file is located in the images folder in the current folder
<code></code>	The "picture.jpg" file is located in the images folder at the root of the current web
<code></code>	The "picture.jpg" file is located in the folder one level up from the current folder

Putanje

- Web stranice
- Fotografija i medijski sadržaji
- Style sheets
- JavaScripts



Apsolutna putanja

```

```

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h2>Using a Full URL File Path</h2>
```

```

```

```
</body>
```

```
</html>
```

Using a Full URL File Path



Relativna putanja

```

```

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h2>Using a Relative File Path</h2>
```

```

```

```
</body>
```

```
</html>
```

Using a Relative File Path



HTML Layout Techniques

- CSS framework
- CSS float property
- CSS flexbox
- CSS grid



CSS Float Layout



```
<header>
  <h2>Cities</h2>
</header>
```

```
<section>
  <nav>
    <ul>
      <li><a href="#">London</a></li>
      <li><a href="#">Paris</a></li>
      <li><a href="#">Tokyo</a></li>
    </ul>
  </nav>
```

```
<article>
  <h1>London</h1>
  <p>London is the capital city of England. It is the most
populous city in the United Kingdom, with a metropolitan area
of over 13 million inhabitants.</p>
  <p>Standing on the River Thames, London has been a major
settlement for two millennia, its history going back to its
founding by the Romans, who named it Londinium.</p>
</article>
</section>
```

CSS Layout Flexbox

In this example, we have created a header, two columns/boxes and a footer. On smaller screens, the columns will stack on top of each other.

Resize the browser window to see the responsive effect.

Note: Flexbox is not supported in Internet Explorer 10 and earlier versions.



Show all



```
<section>
```

```
<nav>
```

```
<ul>
```

```
<li><a href="#">London</a></li>
```

```
<li><a href="#">Paris</a></li>
```

```
<li><a href="#">Tokyo</a></li>
```

```
</ul>
```

```
</nav>
```

```
<article>
```

```
<h1>London</h1>
```

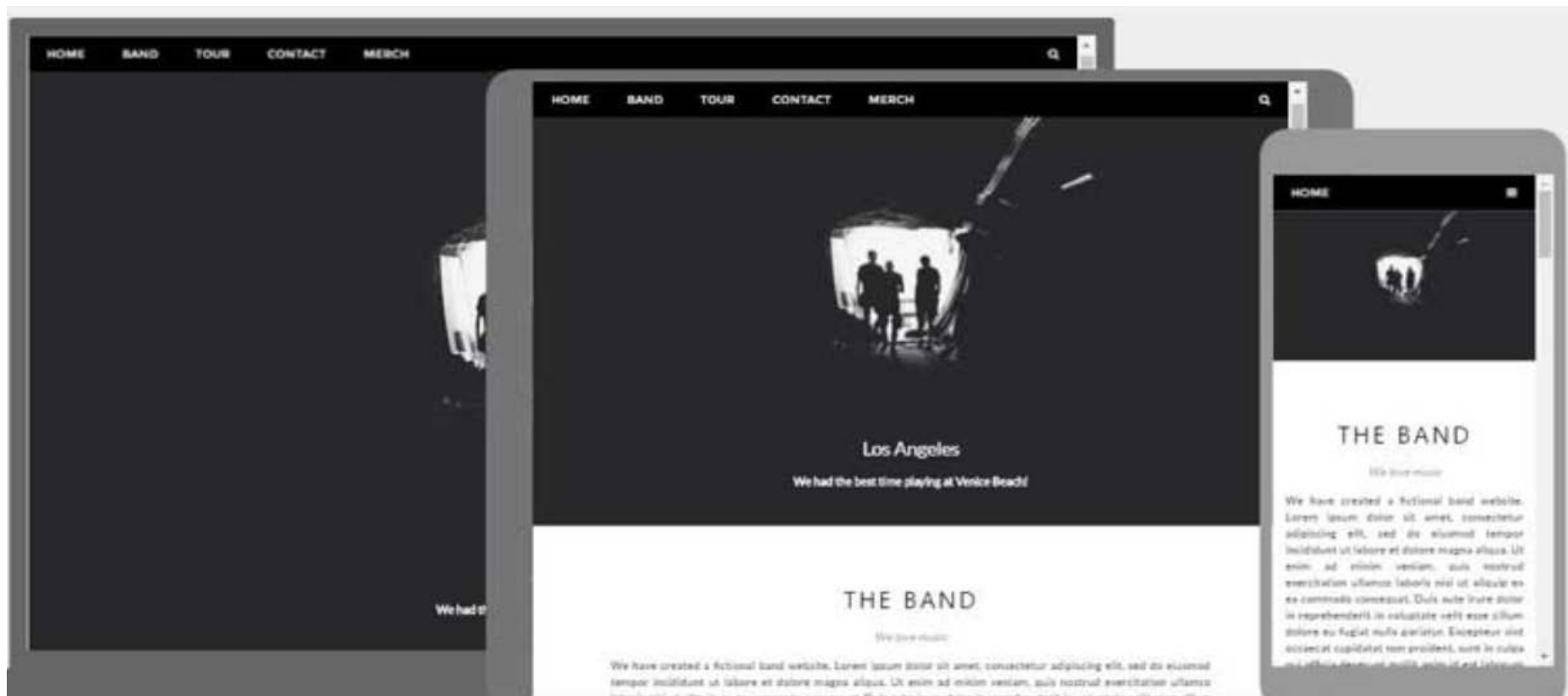
```
<p>London is the capital city of England. It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.</p>
```

```
<p>Standing on the River Thames, London has been a major settlement for two millennia, its history going back to its founding by the Romans, who named it Londinium.</p>
```

```
</article>
```

```
</section>
```

HTML Responsive Web Design



Responsive dizajn se odnosi na sajt dizajniran da se prilagodi svakom uređaju koji korisnik koristi. Responsive sajt pruža lakoću prilikom čitanja i navigacije, sa minimalnim umanjivanjem. Jedan sajt - Responsive dizajn dozvoljava sajtu da se adaptira na ekran bez umanjenja funkcionalnosti ili izgleda.

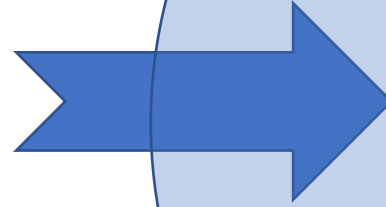
Tačke „preloma,,

Responzivne tačke preloma (*responsive breakpoints*) su zadate veličine na kojima menjamo dizajn. Tačke preloma se obično zasnivaju na širini pregledača

```
meta name="viewport" content="width=device-width, initial-scale=1.0">
```

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
<style>
_____
_____
_____
_____

-----
</body>
</html>
```

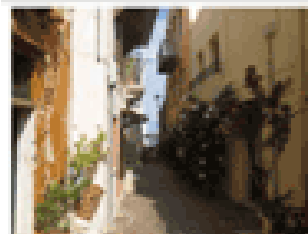


```
@media only screen and (max-width:800px) {
  /* For tablets: */
  .main {
    width: 80%;
    padding: 0;
  }
  .right {
    width: 100%;
  }
}

@media only screen and (max-width:500px) {
  /* For mobile phones: */
  .menu, .main, .right {
    width: 100%;
  }
}
```



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend orion congue nihil imperdiet domo



Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat. Duis autem vel eum iriure dolor in hendrerit in vulputate velit esse molestie consequat, vel illum dolore eu feugiat nulla facilisis at vero eros et accumsan et iusto odio dignissim qui blandit praesent luptatum zzril delenit augue dui dolore te feugait nulla facilisi. Nam liber tempor cum soluta nobis eleifend orion congue nihil imperdiet domo

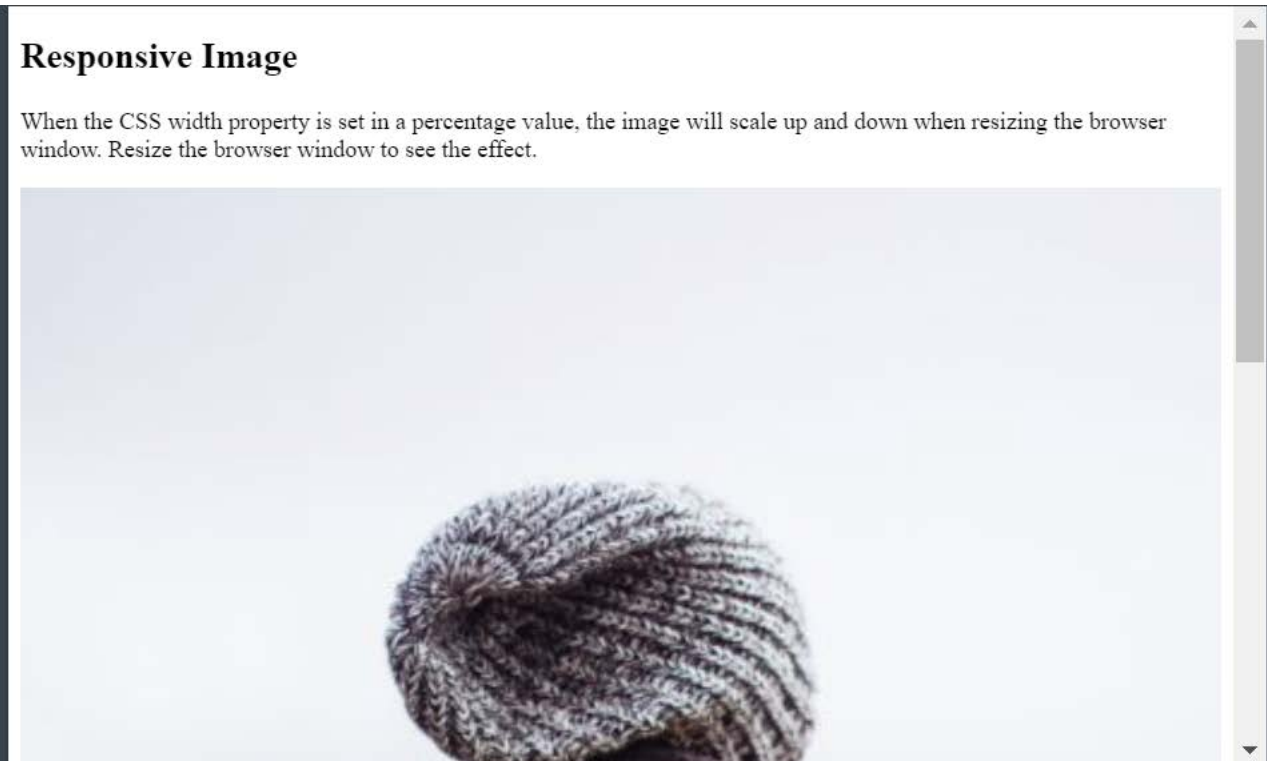
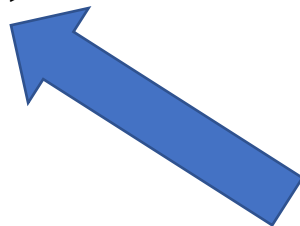
Repsonsive medijski sadržaj-fotografija

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
</head>
<body>

<h2>Responsive Image</h2>
<p>When the CSS width property is set in a percentage
value, the image will scale up and down when resizing
the browser window. Resize the browser window to see
the effect.</p>



</body>
</html>
```



width Property

max-width Property

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
</head>
<body>

<h2>Responsive Image</h2>
<p>"max-width:100%" prevents the image from getting bigger
than its original size. However, if you make the browser
window smaller, the image will still scale down.</p>
<p>Resize the browser window to see the effect.</p>



</body>
</html>
```

Responsive Image

"max-width:100%" prevents the image from getting bigger than its original size. However, if you make the browser window smaller, the image will still scale down.
Resize the browser window to see the effect.



``

<picture> element

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>

<h2>Show Different Images Depending on Browser Width</h2>
<p>Resize the browser width and the image will change at 600px and
1500px.</p>

<picture>
  <source srcset="img_smallflower.jpg" media="(max-width: 600px)">
  <source srcset="img_flowers.jpg" media="(max-width: 1500px)">
  <source srcset="flowers.jpg">
  
</picture>

</body>
</html>
```

Show Different Images Depending on Browser Width

Resize the browser width and the image will change at 600px and 1500px.



Responsive veličinaText

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport" content="width=device-width, initial-
scale=1.0">
</head>
<body>

<h1 style="font-size:10vw;">Responsive Text</h1>

<p style="font-size:5vw;">Resize the browser window to see
how the text size scales.</p>

<p style="font-size:5vw;">Use the "vw" unit when sizing the
text. 10vw will set the size to 10% of the viewport width.</p>

<p>Viewport is the browser window size. 1vw = 1% of viewport
width. If the viewport is 50cm wide, 1vw is 0.5cm.</p>

</body>
</html>
```

```
<h1 style="font-size:10vw">Hello World</h1>
```

Responsive Text

Resize the browser window to see how the text size scales.

Use the "vw" unit when sizing the text. 10vw will set the size to 10% of the viewport width.

Viewport is the browser window size. 1vw = 1% of viewport width. If the viewport is 50cm wide, 1vw is 0.5cm.

Viewport je veličina prozora pretraživača. 1vw = 1% širine prozora za prikaz. Ako je okvir za prikaz širok 50 cm, 1vwje 0,5 cm.

Responsive Web Page -

```
<!DOCTYPE html>
<html>
<head>
<meta name="viewport"
content="width=device-width, initial-
scale=1.0">
<style>
```

```
}
```

```
@media only screen and (max-width:
620px) {
/* For mobile phones: */
.menu, .main, .right {
width: 100%;
}
```



Responsive Web Design - Frameworks

W3.CSS

```
<!DOCTYPE html>
<html>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="https://www.w3schools.com/w3css/4/w3.css">
<body>
```

W3Schools Demo

Resize this responsive page!

London

London is the capital city of England.

It is the most populous city in the United Kingdom, with a metropolitan area of over 13 million inhabitants.

Paris

Paris is the capital of France.

The Paris area is one of the largest population centers in Europe, with more than 12 million inhabitants.

Tokyo

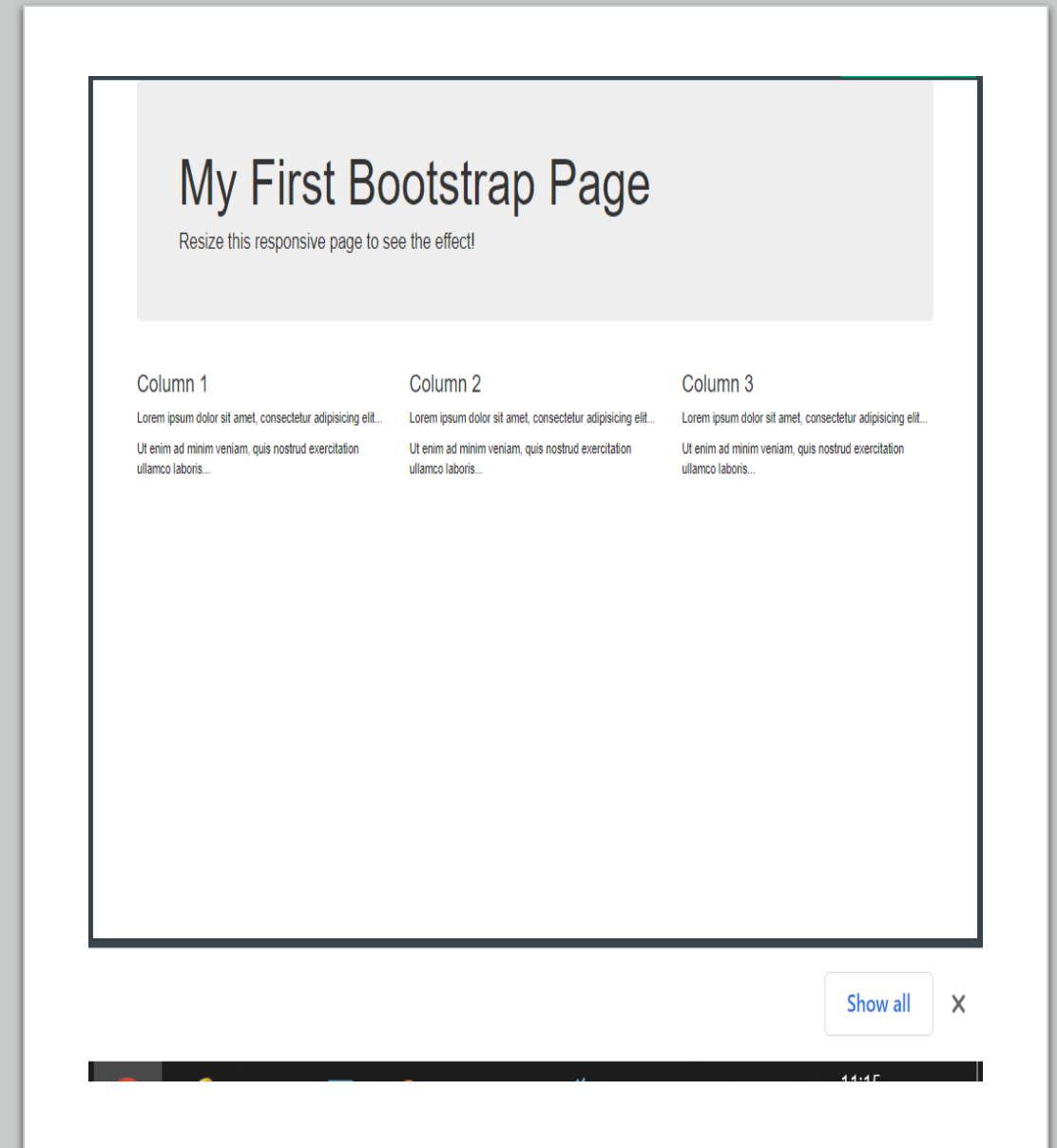
Tokyo is the capital of Japan.

It is the center of the Greater Tokyo Area, and the most populous metropolitan area in the world.

Bootstrap

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Bootstrap Example</title>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width,
initial-scale=1">
<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
<script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
<script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>
<body>

<div class="container">
  <div class="jumbotron">
    <h1>My First Bootstrap Page</h1>
  </div>
  <div class="row">
    <div class="col-sm-4">
```



HTML <code>

- Definise delova programskih izvrsnih kodova!!!!

```
<!DOCTYPE html>
<html>
<body>

<h2>The code Element</h2>
<p>Programming code example:</p>

<code>
x = 5;
y = 6;
z = x + y;
</code>

</body>
</html>
```

The code Element

Programming code example:

```
x = 5; y = 6; z = x + y;
```

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<p>The code element does not preserve whitespace and line-  
breaks.</p>
```

```
<p>To fix this, you can put the code element inside a pre  
element:</p>
```

```
<pre>
```

```
<code>
```

```
x = 5;
```

```
y = 6;
```

```
z = x + y;
```

```
</code>
```

```
</pre>
```

```
</body>
```

```
</html>
```

The code element does not preserve whitespace and line-breaks.

To fix this, you can put the code element inside a pre element:

```
x = 5; y = 6; z = x + y;
```

HTML <kbd> Keyboard Input

<kbd> element koristi se definisanje unosa sa tastature

<p> Save the document by pressing <kbd>Ctrl + S </kbd> </p>

```
<!DOCTYPE html>
<html>
<body>

<h2>The kbd Element</h2>

<p>The kbd element is used to define keyboard input:</p>

<p>Save the document by pressing <kbd>Ctrl + S</kbd></p>

</body>
</html>
```

HTML <samp> za izlazna dokumenta

```
<!DOCTYPE html>
<html>
<body>

<h2>The samp Element</h2>

<p>The samp element is used to define sample output from a
computer program.</p>

<p>Message from my computer:</p>
<p><samp>File not found.<br>Press F1 to
continue</samp></p>

</body>
</html>
```

The samp Element

The samp element is used to define sample output from a computer program.

Message from my computer:

File not found.

Press F1 to continue

HTML `<var>` za promenljive

- `<p>The area of a triangle is:  $1/2 \times \text{<var>b</var>} \times \text{<var>h</var>}$ , where <var>b</var> is the base, and <var>h</var> is the vertical height.</p>`

```
<!DOCTYPE html>
<html>
<body>

<h2>The var Element</h2>

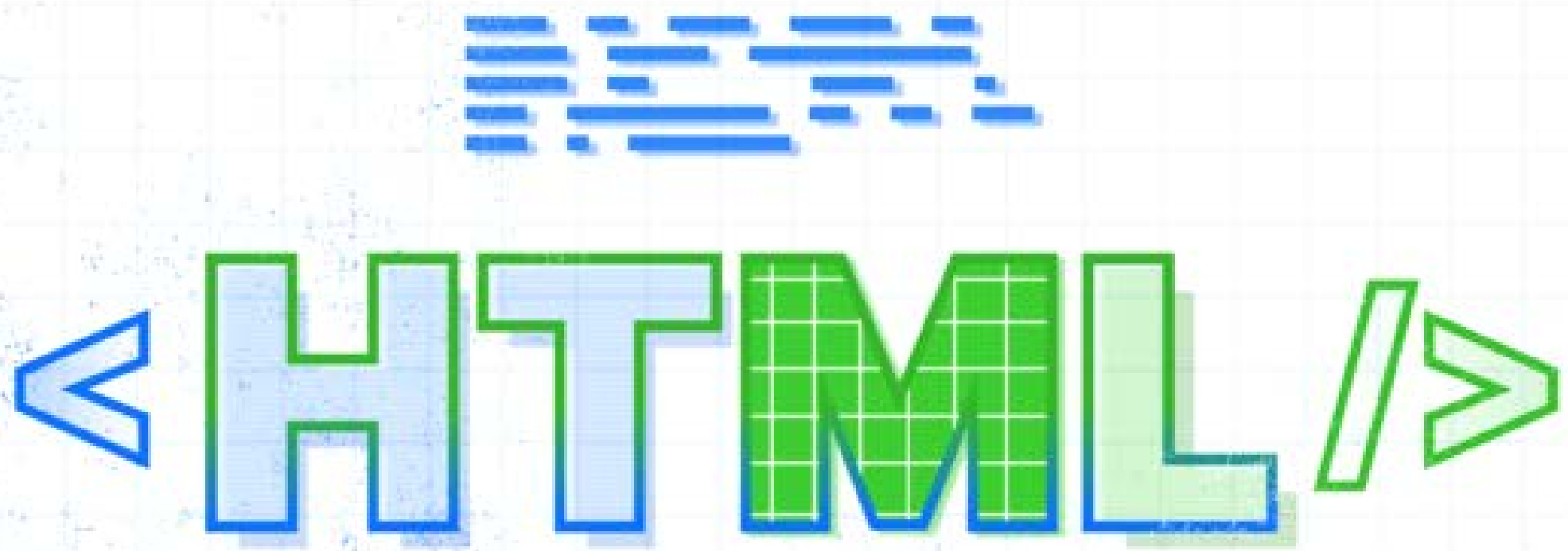
<p>The area of a triangle is:  $1/2 \times \text{<var>b</var>} \times \text{<var>h</var>}$ ,
where <var>b</var> is the base, and <var>h</var> is the
vertical height.</p>

</body>
</html>
```

The var Element

The area of a triangle is: $1/2 \times b \times h$, where b is the base, and h is the vertical height.

ag	Description
<u><code></u>	Defines programming code
<u><kbd></u>	Defines keyboard input
<u><samp></u>	Defines computer output
<u><var></u>	Defines a variable
<u><pre></u>	Defines preformatted text



HTML grafika

```
<!doctypeTYPE html>
```

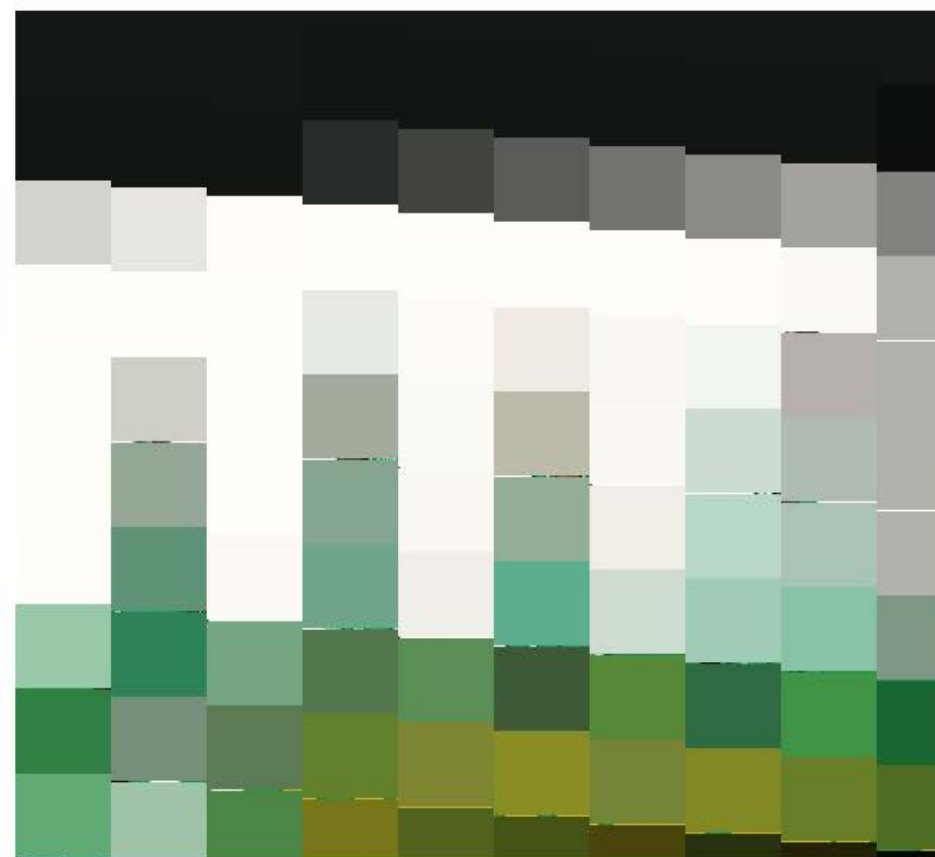
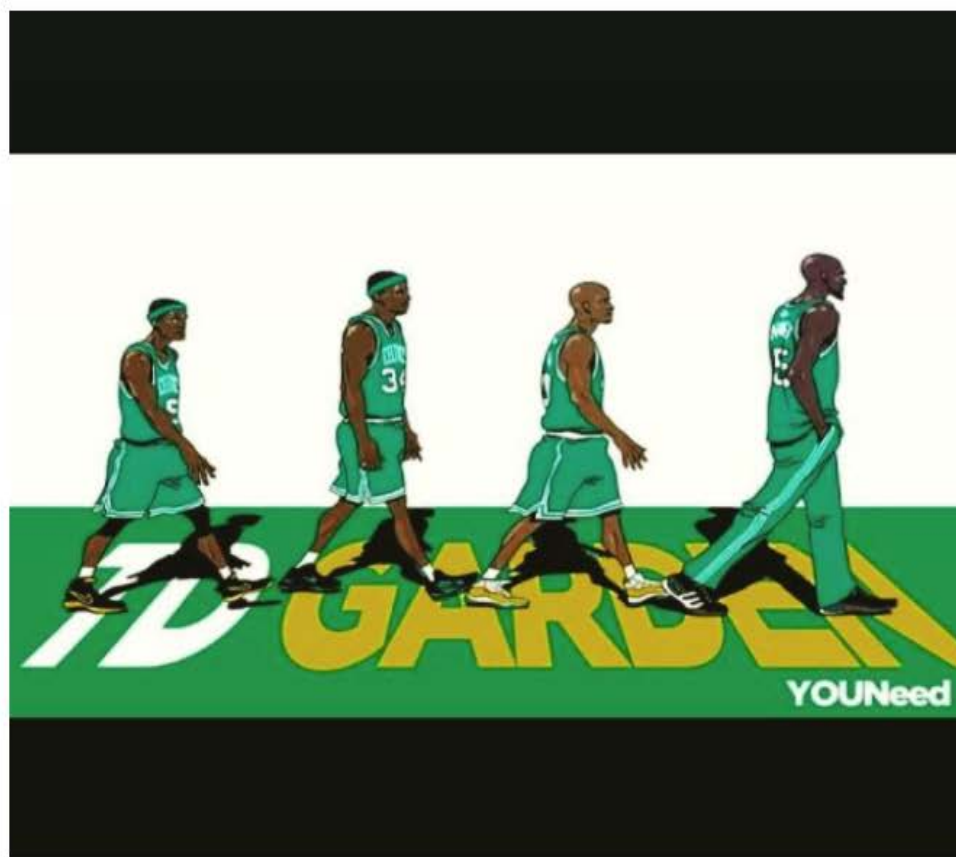
CANVAS

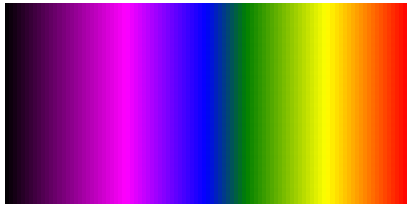
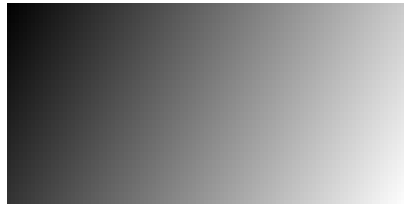
HTML



CANVAS element jednostavno pretvara „čistu,, web stranicu u dinamičnu web aplikaciju, a zatim tu aplikaciju u mobilnu aplikaciju za korišćenje na pametnim telefonima i tabletima.

HTML5 CANVAS element se koristi za razvoj
dinamičke grafike
online i offline igrice
animacije
interaktivnog video i audio sadržaja





Smile!

```
<canvas id="myCanvas" width="200" height="100"></canvas>
```

```
<canvas id="myCanvas" width="200" height="100" style="border:1px solid #000000;">  
</canvas>
```

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<canvas id="myCanvas" width="200" height="100"  
style="border:1px solid #000000;">
```

Your browser does not support the HTML canvas tag.

```
</canvas>
```

```
</body>
```

```
</html>
```



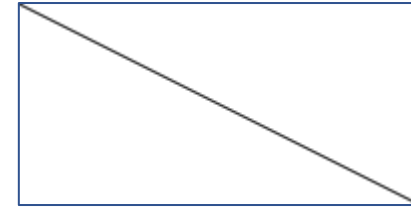
CANVAS +JAVA

```
<!DOCTYPE html>
<html>
<body>

<canvas id="myCanvas" width="200" height="100"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML canvas tag.</canvas>

<script>
var c = document.getElementById("myCanvas");
var ctx = c.getContext("2d");
ctx.moveTo(0,0);
ctx.lineTo(200,100);
ctx.stroke();
</script>

</body>
</html>
```



```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<canvas id="myCanvas" width="200" height="100"  
style="border:1px solid #d3d3d3;">
```

```
Your browser does not support the HTML canvas tag.</canvas>
```

```
<script>
```

```
var c = document.getElementById("myCanvas");
```

```
var ctx = c.getContext("2d");
```

```
ctx.beginPath();
```

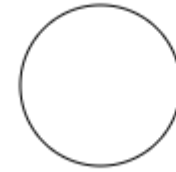
```
ctx.arc(95,50,40,0,2*Math.PI);
```

```
ctx.stroke();
```

```
</script>
```

```
</body>
```

```
</html>
```

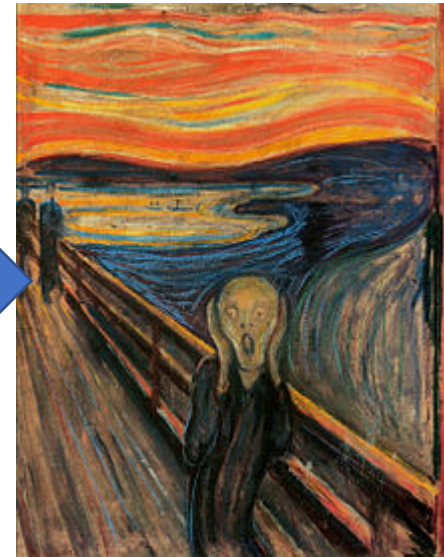


```
<!DOCTYPE html>
<html>
<body>
<p>Image to use:</p>
<im id="scream" src="img_the_scream.jpg" alt="The Scream" width="220"
height="277">
<p>Canvas to fill:</p>
<canvas id="myCanvas" width="250" height="300"
style="border:1px solid #d3d3d3;">
Your browser does not support the HTML canvas tag.</canvas>
```

```
<p><button onclick="myCanvas()">Try it</button></p>
<script>
function myCanvas() {
  var c = document.getElementById("myCanvas");
  var ctx = c.getContext("2d");
  var img = document.getElementById("scream");
  ctx.drawImage(img,10,10);
}
</script>
</body>
</html>
```



Canvas to fill:



HTML SVG Graphics

skalabilna vektorska grafika

`<svg>`

Element	CHROME	EDGE	Firefox	Safari	Opera
<code><svg></code>	4.0	9.0	3.0	3.2	10.1

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<svg width="100" height="100">
```

```
<circle cx="50" cy="50" r="40"
```

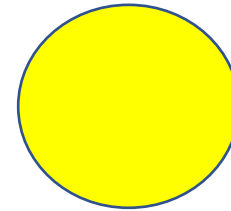
```
stroke="green" stroke-width="4" fill="yellow" />
```

Sorry, your browser does not support inline SVG.

```
</svg>
```

```
</body>
```

```
</html>
```



```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<svg width="300" height="200">
```

```
  <polygon points="100,10 40,198 190,78 10,78  
160,198"
```

```
  style="fill:lime;stroke:purple;stroke-width:5;fill-  
rule:evenodd;" />
```

Sorry, your browser does not support inline SVG.

```
</svg>
```

```
</body>
```

```
</html>
```



```
<!DOCTYPE html>
<html>
<body>

<svg height="130" width="500">
  <defs>
    <linearGradient id="grad1" x1="0%" y1="0%" x2="100%"
y2="0%">
      <stop offset="0%"
style="stop-color:rgb(255,255,0);stop-opacity:1" />
      <stop offset="100%"
style="stop-color:rgb(255,0,0);stop-opacity:1" />
    </linearGradient>
  </defs>
  <ellipse cx="100" cy="70" rx="85" ry="55" fill="url(#grad1)" />
  <text fill="#ffffff" font-size="45" font-family="Verdana"
x="50" y="86">SVG</text>
  Sorry, your browser does not support inline SVG.
</svg>

</body>
</html>
```



CANVAS v.s. SVG

Canvas

- Rezolucijska zavisnost
- No support for event handlers
- Problemi sa renderovanjem teksta
- Izlazni formati .png or .jpg
- pogodan graphic-intensive games

SVG

- Rezolucijska nezavisnost
- Support for event handlers
- Pogodan za aplikacije koje zahtevaju velike renderovane površine (Google Maps)
- Spro renderovanje u slučajevima kao kad se koristi DOM
- Nije pogodan za game applications

HTML Medija

- [HTML Media](#)
- [HTML Video](#)
- [HTML Audio](#)
- [HTML Plug-ins](#)
- [HTML YouTube](#)

HTML <video>

```
<!DOCTYPE html>
<html>
<body>

<video width="400" controls>
  <source src="mov_bbb.mp4" type="video/mp4">
  <source src="mov_bbb.ogg" type="video/ogg">
  Your browser does not support HTML video.
</video>

<p>
Video courtesy of
<a href="https://www.bigbuckbunny.org/" target="_blank">Big
Buck Bunny</a>.
</p>

</body>
</html>
```



Video courtesy of [Big Buck Bunny](https://www.bigbuckbunny.org/).

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<video width="320" height="240" controls>
```

```
  <source src="movie.mp4" type="video/mp4">
```

```
  <source src="movie.ogg" type="video/ogg">
```

Your browser does not support the video tag.

```
</video>
```

```
</body>
```

```
</html>
```



HTML <video> Autoplay

```
<!DOCTYPE html>
<html>
<body>

<video width="320" height="240" autoplay>
  <source src="movie.mp4" type="video/mp4">
  <source src="movie.ogg" type="video/ogg">
  Your browser does not support the video tag.
</video>

</body>
</html>
```



<https://www.w3schools.com/html/movie.mp4>

Browser	MP4	WebM	Ogg
Edge	YES	YES	YES
Chrome	YES	YES	YES
Firefox	YES	YES	YES
Safari	YES	YES	NO
Opera	YES	YES	YES

File Format	Media Type
MP4	video/mp4
WebM	video/webm
Ogg	video/ogg

Tag

opis

<video>

Definise tip dokumenta

<source>

Definiše izvore dokumenta za <video> and <audio>

<track>

Definise tekst koji prati sadržaj

HTML audio

- The HTML <audio> Element
- <audio>

```
<!DOCTYPE html>
<html>
<body>

<audio controls autoplay>
  <source src="horse.ogg" type="audio/ogg">
  <source src="horse.mp3" type="audio/mpeg">
  Your browser does not support the audio element.
</audio>

</body>
</html>
```



<https://www.w3schools.com/html/horse.ogg>

HTML <audio> Autoplay

```
<!DOCTYPE html>
<html>
<body>

<audio controls autoplay>
  <source src="horse.ogg" type="audio/ogg">
  <source src="horse.mp3" type="audio/mpeg">
  Your browser does not support the audio element.
</audio>

</body>
</html>
```



<https://www.w3schools.com/html/horse.ogg>

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<audio controls autoplay muted>
```

```
  <source src="horse.ogg" type="audio/ogg">
```

```
  <source src="horse.mp3" type="audio/mpeg">
```

```
Your browser does not support the audio element.
```

```
</audio>
```

```
</body>
```

```
</html>
```



Element	Chorme	EDGE	FIREFOX	SAFARI	OPERA
<audio>	4.0	9.0	3.5	4.0	10.5

HTML Audio Formats

Browser	MP3	WAV	OGG
Edge/IE	YES	YES*	YES*
Chrome	YES	YES	YES
Firefox	YES	YES	YES
Safari	YES	YES	NO
Opera	YES	YES	YES

HTML Audio - Media Types

File Format	Media Type
MP3	audio/mpeg
OGG	audio/ogg
WAV	audio/wav

HTML Plug-in

- Plug-ins programi koji proširuju standardnu funkcionalnost pregledača

- Pokretanje Java applets
- Pokretanje Microsoft ActiveX controls
- Prikaz Flash movies
- Prikaz mapa
- Scan za viruse
- Verifikacije ID i sl.

```
<!DOCTYPE html>
<html>
<body>

<object width="100%" height="500px"
data="snippet.html"></object>

</body>
</html>
```

<object> Element

Alfreds Futterkiste	Berlin	Germany
Berglunds snabbköp	Luleå	Sweden
Centro comercial Moctezuma	México D.F.	Mexico
Ernst Handel	Graz	Austria
FISSA Fabrica Inter. Salchichas S.A.	Madrid	Spain
Galería del gastrónomo	Barcelona	Spain
Island Trading	Cowes	UK
Königlich Essen	Brandenburg	Germany
Laughing Bacchus Wine Cellars	Vancouver	Canada
Magazzini Alimentari Riuniti	Bergamo	Italy
North/South	London	UK
Paris spécialités	Paris	France
Rattlesnake Canyon Grocery	Albuquerque	USA
Simons bistro	København	Denmark
The Big Cheese	Portland	USA
Vaffeljernet	Århus	Denmark
Wolski Zajazd	Warszawa	Poland

```
<!DOCTYPE html>
<html>
<body>

<embed src="audi.jpeg">

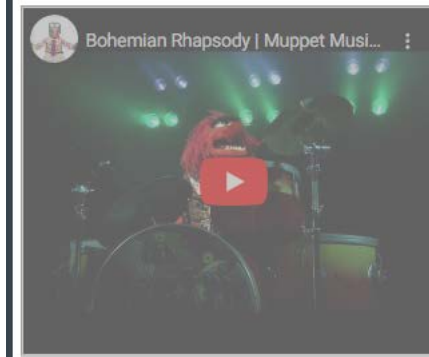
</body>
</html>
```

<embed> Element



HTML YouTube Videos

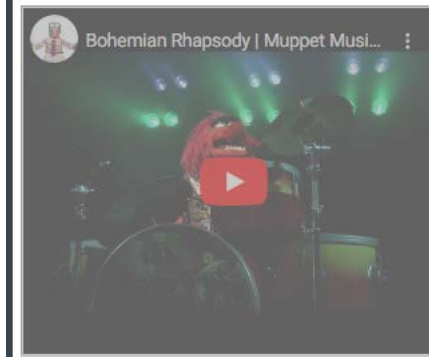
- <!DOCTYPE html>
- <html>
- <body>
- <iframe width="420" height="345" src="https://www.youtube.com/embed/tgbNymZ7vqY">
- </iframe>
- </body>
- </html>



https://www.youtube.com/channel/UCB0ABGbdSggBXLFOUdN4d5A?feature=emb_ch_name_ex

YouTube Autoplay + Mute

- <!DOCTYPE html>
- <html>
- <body>
-
- <iframe width="420" height="345" src="https://www.youtube.com/embed/tgbNymZ7vqY?autoplay=1&mute=1">
- </iframe>
-
- </body>
- </html>



https://www.youtube.com/channel/UCB0ABGbdSggBXLFOUdN4d5A?feature=emb_ch_name_ex

YouTube Loop

- `<!DOCTYPE html>`
- `<html>`
- `<body>`
-
- `<iframe width="420" height="345" src="https://www.youtube.com/embed/tgbNymZ7vqY?playlist=tgbNymZ7vqY&loop=1">`
- `</iframe>`
-
- `</body>`
- `</html>`



YouTube Controls

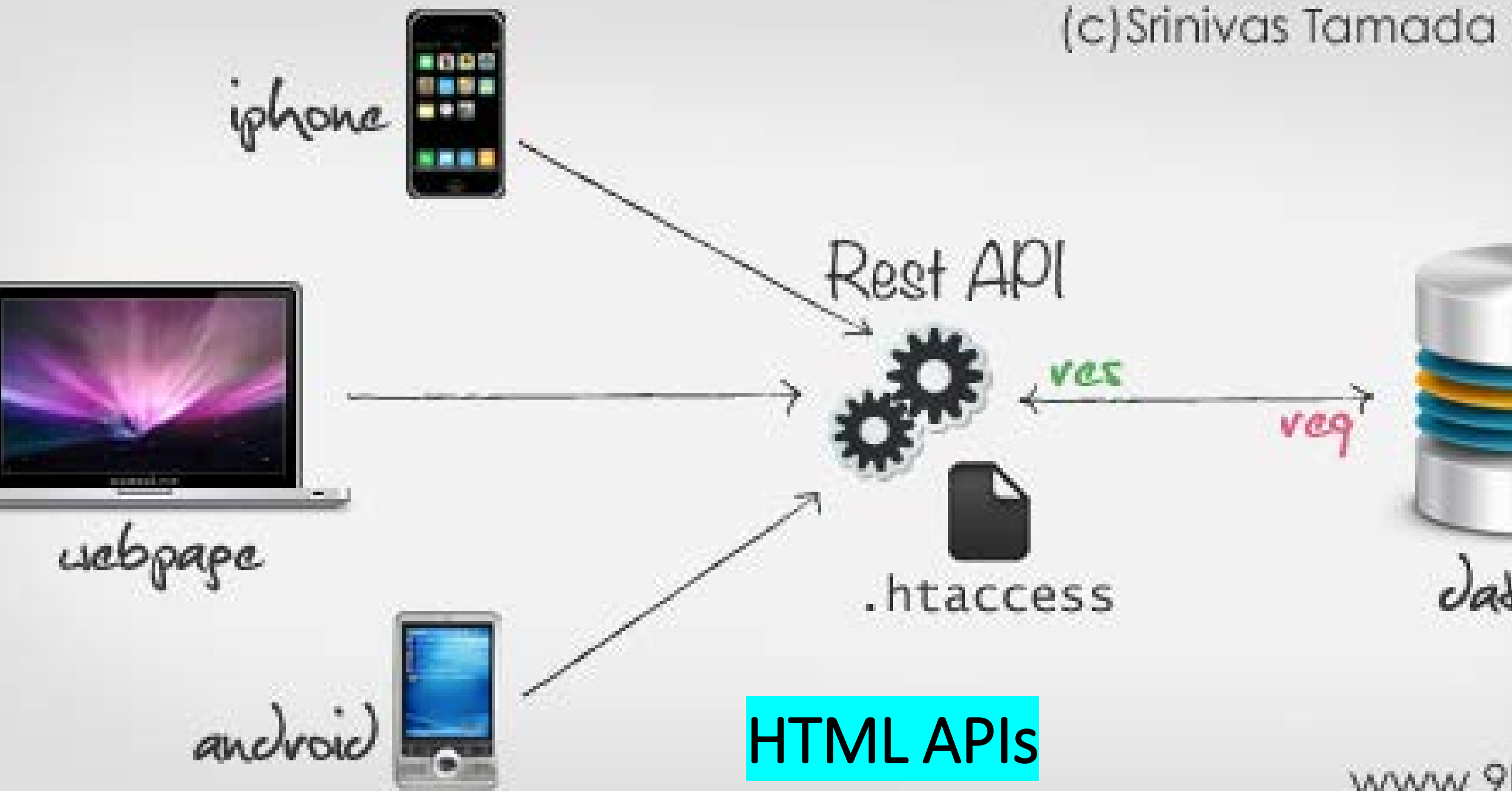
- `<!DOCTYPE html>`
- `<html>`
- `<body>`
- `<iframe width="420" height="345" src="https://www.youtube.com/embed/tgbNymZ7vqY?controls=0">`
- `</iframe>`
- `</body>`
- `</html>`



<https://youtu.be/tgbNymZ7vqY>

Pokretanje YouTube sadržaja u HTML-u

- Postaviti sadržaj na youtube kanal!!!
- Preuizeti ID sadržaja
- Definistati `<iframe>` element
- Definsati atribute za širinu i visinu kojima definišemo okvire playera
- Dodati URL za mm sadržaj koji će se priakzivati





APPLICATION PROGRAM INTERFACE

API je softverski posrednik koji omogućava dvema aplikacijama da razmenjuju informacije.

Poslovanje u API okruženju je bilo dosta brže i efikasnije.

API je zasnovan na klijentskom serveru i omogućava proširenje funkcionalnosti aplikacije. Slojevi su raspoređeni linijski hijerarhijski i svaki sloj ima svoj zadatak koji treba da izvrši.

HTML Geolocation API

- **Lociranje korisničke lokacije**
- Verzije

API	Chrome	EDGE	FIREFOX	OPERA	OPERA
Geolocation	5.0 - 49.0 (http) 50.0 (https)	9.0	3.5	5.0	16.0

HTML Geolocation

- ```
<script>
var x = document.getElementById("demo");
function getLocation() {
 if (navigator.geolocation) {
 navigator.geolocation.getCurrentPosition(showPosition);
 } else {
 x.innerHTML = "Geolocation is not supported by this browser.";
 }
}

function showPosition(position) {
 x.innerHTML = "Latitude: " +
 position.coords.latitude +
 "
Longitude: " + position.coords.longitude;
}
</script>
```

Click the button to get your coordinates.

Try It



Latitude: 43.319296

Longitude: 21.8464256

# HTML Drag and Drop API

- ```
<!DOCTYPE HTML>
<html>
<head>
<script>
function allowDrop(ev) {
    ev.preventDefault();
}

function drag(ev) {
    ev.dataTransfer.setData("text", ev.target.id);
}

function drop(ev) {
    ev.preventDefault();
    var data = ev.dataTransfer.getData("text");
    ev.target.appendChild(document.getElementById(data));
}
</script>
</head>
<body>

<div id="div1" ondrop="drop(event)" ondragover="allowDrop(event)"></div>



</body>
</html>
```

draggable

img draggable="true"

What to Drag

```
function drag(ev) {  
    ev.dataTransfer.setData("text", ev.target.id);  
}
```

Where to Drop

event preventDefault

Do the Drop - ondrop

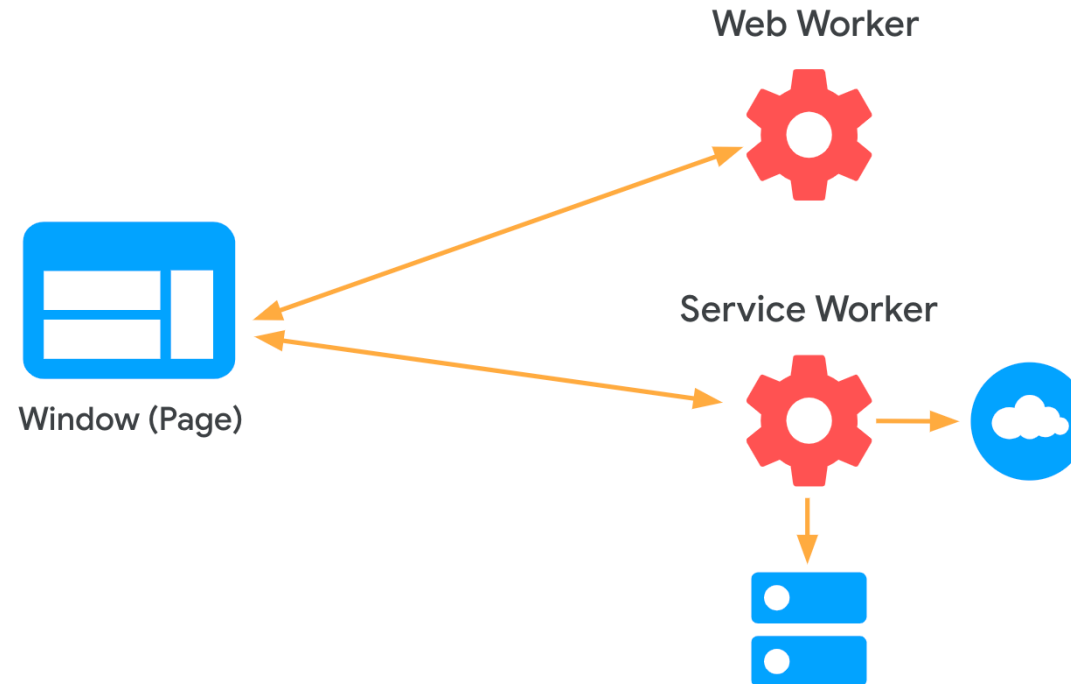
```
function drop(ev) {  
    ev.preventDefault();  
    var data = ev.dataTransfer.getData("text");  
    ev.target.appendChild(document.getElementById  
(data));
```

Drag the W3Schools image into the rectangle:



HTML Web Workers API

- Kada se izvršava neki script dokument stranica je neresponsibilna dok se scrpta ne izvrši.
- Webworker je JavaScript koji radi u pozadini, nezavisno od drugih skripti, bez uticaja na performanse stranice



```
html>
<body>
<p>Count numbers: <output id="result"></output></p>
<button onclick="startWorker()">Start Worker</button>
<button onclick="stopWorker()">Stop Worker</button>
<p><strong>Note:</strong> Internet Explorer 9 and earlier versions do not support Web Workers.</p>
<script>
var w;
function startWorker() {
  if(typeof(Worker) !== "undefined") {
    if(typeof(w) == "undefined") {
      w = new Worker("demo_workers.js"); }
    w.onmessage = function(event) {
      document.getElementById("result").innerHTML = event.data;};
  } else {
    document.getElementById("result").innerHTML = "Sorry, your browser does not support Web Workers...";}
  }
function stopWorker() {
  w.terminate();
  w = undefined;
}
</script>
</body>
</html>
```

Count numbers:

Note: Internet Explorer 9 and earlier versions do not support Web Workers.

HTML SSE API

Server-Sent Events

- **Server-sent events (SSE)** je tehnologija u kojoj Internet pregledač prima automatska ažuriranja od servera preko HTTP veze. Server-sent events EvenSource API je standardizovan kao deo HTML5 od strane W3C.
- Server-sent events je standard koji opisuje kako serveri mogu pokrenuti prenos podataka prema klijentima nakon što je uspostavljena inicijalna konekcija prema klijentima

API	CHROME	EDGE	FIREFOX	SAFARI	OPERA
SSE	6.0	79.0	6.0	5.0	11.5

```
<!DOCTYPE html>
<html>
<body>

<h1>Getting server updates</h1>
<div id="result"></div>

<script>
if(typeof(EventSource) !== "undefined") {
  var source = new EventSource("demo_sse.php");
  source.onmessage = function(event) {
    document.getElementById("result").innerHTML +=
event.data + "<br>";
  };
} else {
  document.getElementById("result").innerHTML = "Sorry, your
browser does not support server-sent events...";
}
</script>

</body>
</html>
```

Getting server updates

The server time is: Sat, 05 Nov 2022 18:51:56 +0000
The server time is: Sat, 05 Nov 2022 18:52:00 +0000
The server time is: Sat, 05 Nov 2022 18:52:03 +0000
The server time is: Sat, 05 Nov 2022 18:52:06 +0000
The server time is: Sat, 05 Nov 2022 18:52:10 +0000
The server time is: Sat, 05 Nov 2022 18:52:13 +0000
The server time is: Sat, 05 Nov 2022 18:52:16 +0000
The server time is: Sat, 05 Nov 2022 18:52:20 +0000
The server time is: Sat, 05 Nov 2022 18:52:23 +0000
The server time is: Sat, 05 Nov 2022 18:52:26 +0000
The server time is: Sat, 05 Nov 2022 18:52:29 +0000
The server time is: Sat, 05 Nov 2022 18:52:33 +0000
The server time is: Sat, 05 Nov 2022 18:52:36 +0000
The server time is: Sat, 05 Nov 2022 18:52:39 +0000

HTML 5 osvrt

Trendovi u HTML5 se brzo razvijaju kako bi zadovoljili zahteve

- za modernim i interaktivnim web aplikacijama
- bogatijom korisničkim iskustvom
- poboljšanom funkcionalnošću.

Povećano korišćenje semantičkih elemenata

- ✓ Semantički elementi poput <header>, <footer>, <article>, i <section>
- ✓ omogućavaju developerima da organizuju sadržaj na logičan i pristupačan način.
- ✓ Poboljšavaju SEO i olakšavaju rad sa različitim alatima za pristupačnost.

Animacije i interaktivnost putem CSS-a i JavaScript API-ja

- HTML5 podržava integraciju s naprednim animacijama i interakcijama, omogućavajući lagane efekte prelaza, mikrointerakcije i animirane elemente bez potrebe za dodatnim bibliotekama.
- **Canvas API-ja i WebGL-a,**  2D i 3D grafika,  igre i vizualizacije podataka.

Progressive Web Apps (PWA)

Instaliraju web aplikacije na uređajima, koristeći ih poput nativnih aplikacija.

- PWAs koriste
 - offline pristup,
 - brzo učitavanje
 - responzivnost,

Benefit za mobilne korisnike.

Napredna multimedijalna podrška

ugrađena podršku za <video> i <audio> tagove,

direktno uključivanje medijskih sadržaja bez potrebe za eksternim dodacima.

jednostavnije postavljanje multimedije na sajtovima i veću kontrolu nad reprodukcijom.

WEBM, HVEC....

Web Komponente i ponovna upotrebljivost komponenti

- ✓ Kreiranje prilagođenih HTML elemente sa sopstvenom strukturom, stilom i ponašanjem.
- ✓ Ponovno korišćenje komponenti u različitim projektima, poboljšavajući održivost i modularnost koda.

Napredna podrška za forme

- ✓ Unapređen rad s formama dodavanjem novih input tipova, (date, time, email, i range)
- ✓ Validacija u realnom vremenu
- ✓ smanjena potreba za dodatnim JavaScript kodom
- ✓ poboljšano korisničko iskustvo.

Sigurnost i privatnost

- ✓ Nove mere za poboljšanje sigurnosti i privatnosti korisnika, Content Security Policy (CSP) i sandboxing atribut za <iframe>.
- ✓ Smanjen rizik od napada poput XSS (cross-site scripting)
- ✓ Zaštita korisničkih podataka.

AR/VR i WebXR integracija

- ✓ WebXR API,
- ✓ Omogućava stvaranje bogatih, interaktivnih 3D iskustava direktno u pregledaču
- ✓ Primena AR u edukaciji, trgovini i zabavi.

ZA VEŽBU

Lazy Loading (lenjo učitavanje) za slike i okvire

- ✓ loading="lazy" atribut za slike i iframe elemente,
- ✓ Omogućava lenjo učitavanje (lazy loading) kako bi se smanjilo početno vreme učitavanja stranice i optimizovali resursi.
- ✓ poboljšava performanse sajta i smanjuje potrošnju podataka, posebno na mobilnim uređajima.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Lazy Loading Example</title>
</head>
<body>
  <h1>Lazy Loading Images Example</h1>
  <p>Scroll down to see images loading as they come into view.</p>

  <!-- Prva slika s lazy loading atributom -->
  

  <!-- Druga slika s lazy loading atributom -->
  

  <!-- Treća slika s lazy loading atributom -->
  
</body>
</html>
```