

STANDARDNI KORISNIČKI INTERFEJSI

Predavanje broj: 05

Nastavna jedinica: CSS

Nastavne teme:

CSS uvod. Povezivanje. Selektori. Svojstva. Pseudoklase. Pseudo-element. Grupisanje selektora. Nasleđivanje svojstava, kaskade. CSS model kutije. Generički kontejneri. Svojstva fonta. Svojstva teksta.

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Literatura:

J. D. Gauchat, "Integrisane tehnologije za izradu WEB strana", Mikroknjiga, Beograd, 2014.

W3C Tutorials, Internet, 2014.

- Godine 1990. Tim Berners-Lee (tvorac weba) izradio je browser koji je u sebi imao elemente jezika za definisanje stilova.
- Prva specifikacija CSS-a urađena je 1994. godine (Håkon Wium Lee i Bert Bos).
- CSS (Cascading Style Sheets) predstavljaju tehnologiju za dodavanje stilova WEB stranicama.
- Prednosti CSSa su kao što sledi:
 1. Odvaja prikaz podataka i dizajn od strukture podataka (dizajneri i programeri postaju međusobno samostalniji).
 2. HTML kôd postaje čitljiviji, manji i lakši za održavanje.
 3. Jednostavna je izmena izgleda stranica.
 4. Predložen je i standardiziran od strane W3 konzorcijuma.
 5. Donosi nove načine uređivanja prikaza podataka.
- Pored vodećih WYSIWYG alata (WEB Storm, Macromedia Dreamweaver, Microsoft FrontPage, ...) koji imaju ugrađene kvalitetne CSS editore i viewere postoje i besplatni alati za izradu CSS-a (lista je na W3 konzorcijumu, npr. TopStyle verzija Pro i Lite).

- Posmatrajmo primer ispisa dva paragrafa:

Lorem ipsum dolor sit amet,
consectetur adipisicing elit ...

- Pripadni CSS kod je (biće dat u materijalu u crvenoj boji elemenata):

```
p {  
  font-family: "Courier New", Courier, mono;  
}  
.stil {  
  color: #CC0000;  
  font-size: 24px;  
  font-weight: bold;  
}
```

- A pripadni HTML kod je (biće dat u materijalu u zelenoj boji elemenata):

```
<p>  
  <span class="stil">Lorem</span> ipsum dolor sit amet ...  
</p>  
<p>  
  <span class="stil">consectetur</span> adipisicing elit ...  
</p>
```

- U prethodnom CSS kodu dati su:
 - selektori (p, .stil) identifikuju pojedine elemente HTML stranice;
 - svojstva (color, font-size, ...) opisuju element stranice;
 - vrednosti (#CC0000, 24px, ...) vrednost koju može poprimiti dato svojstvo.
 - dodatna kategorija je komentar (tekst između znakova /* i */).
- Razmotrimo sledeći primer:

```
h1 {  
  font-family:Verdana,Helvetica,sans-serif;  
  font-weight:bold;  
  font-size:14px;  
}  
p {  
  font-family:Verdana,Helvetica,sans-serif;  font-size:12px;  
}  
p.citat {  
  font-style:italic;  font-size:12px;  
  border:1px solid #000;  
  padding:4px;  
  background-color:#FFFFCC;  
}
```

- Neka je HTML kod:

```
<h1>Lorem ipsum</h1>
```

```
<p>Lorem ipsum je tekst koji se sastoji od niza slučajnih reči bez  
značenja. Iako nema smisleno značenje, pretpostavlja se da je  
nastao na temelju Ciceronovog dela "O krajnostima dobra i  
zla"...</p>
```

```
<p class="citat">&quot;Lorem ipsum dolor...</p>
```

- Konačan izgled će biti:

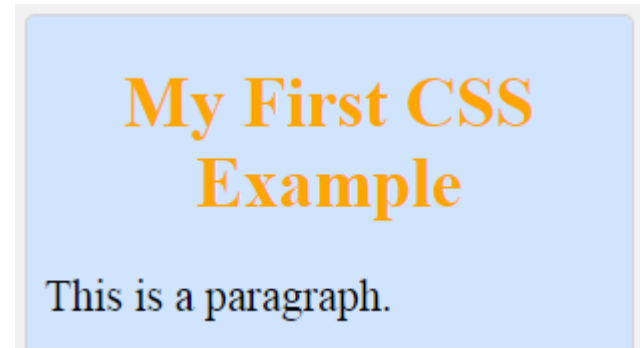
Lorem ipsum

Lorem ipsum je tekst koji se sastoji od niza slučajnih reči bez značenja. Iako nema smisleno značenje, pretpostavlja se da je nastao na temelju Ciceronovog dela "O krajnostima dobra i zla"...

"Lorem ipsum dolor..."

CSS primer

```
<!DOCTYPE html>
<html>
<head>
<style>
body {
    background-color: #d0e4fe;
}
h1 {
    color: orange;
    text-align: center;
}
p {
    font-family: "Times New Roman";
    font-size: 20px;
}
</style>
</head>
<body>
<h1>My First CSS Example</h1>
<p>This is a paragraph.</p>
</body></html>
```



CSS komentari

```
<!DOCTYPE html>
<html>
<head>
<style>
p {
    color: red;
    /* This is a single-line comment */
    text-align: center;
}
/* This is
a multi-line
comment */
</style>
</head>
<body>
<p>Hello World!</p>
<p>This paragraph is styled with CSS.</p>
<p>CSS comments are not shown in the output.</p>
</body>
</html>
```

Hello World!

This paragraph is styled with CSS.

CSS comments are not shown in the output.

CSS - povezivanje

- CSS stil se povezuje s HTML dokumentom na sledeće načine:
 - povezivanjem na vanjski dokument
 - uvoženjem vanjskog dokumenta
 - umetanjem u zaglavlje dokumenta
 - dodavanjem u liniji atributom style.
- U vanjskom CSS dokumentu ne navodi se tag `<style></style>`.
- Povezivanje na vanjski dokument izvodi se tagom `<link>` koja se dodaje u zaglavlje HTML dokumenta - između oznaka `<head>` i `</head>`.
 - Tag `<link>` služi za povezivanje s vanjskim dokumentima i nema završni tag.
- Bitni atributi taga `<link>` :
 - **rel** - definiše odnos između taga i odredišnog dokumenta (za povezivanje CSSa, poprima vrednost "stylesheet");
 - **type** - definiše tip odredišnog dokumenta (u ovom slučaju tip dokumenta je "text/css");
 - **href** - URI (Uniform Resource Identifier) dokumenta koji se povezuje.

- Primer povezivanja

```
<head>
```

```
...
```

```
<link rel="stylesheet"  
      type="text/css"  
      href="stil.css">
```

```
...
```

```
</head>
```

- Može i:

```
<link rel="stylesheet" href="stil.css">
```

- Za URI kod atributa href dopuštena je upotreba apsolutne i relativne putanje:
 - href="http://www.example.com/css/stil.css"
 - href="/css/stil.css" .

CSS - uvoz vanjskog dokumenta

- Uvoz CSS-a obavlja se ključnom reči @import koja se upisuje u zaglavlju dokumenta i to unutar <style> oznake.

```
<head>
<style>
  <!--
  @import url("/css/stil.css");
  @import "/css/stil1.css";
  @import "http://www.example.com/css/stil2.css";
  -->
</style>
</head>
```

- Oznake <!-- i --> su HTML komentar. Nisu obavezne kod ovakvog načina definisanja CSS-a, a služe da stariji browser-i, koji nisu imali mogućnost prikaza CSS-a, ne bi prikazivali CSS kao tekst.
 - Pri ovakvom načinu povezivanja CSS-a bitno je pripaziti na redosled uvezenih stilova jer će zbog kaskadnih svojstava CSS-a biti primenjena poslednja navedena definicija za svaki element.
- Može se uraditi i sledeći import:

```
@import url('/css/sidebar.css') screen, projection;
@import url('/css/print.css') print;
```

CSS: umetanje CSS-a u zaglavlje dokumenta

- CSS se može definisati u zaglavlju dokumenta u oznaci <style>.

```
<head>
<style>
  p {
    font-family:"Courier New", Courier, mono;
  }
  .stil {
    color:#CC0000;
    font-size:24px;
    font-weight:bold;
  }
</style>
...
</head>
```

- Moguće je i kombinovati uvoz i lokalne definicije:

```
<head><style>
  @import "/css/stil.css";
  p { font-family:"Courier New", Courier, mono; }
</style>...</head>
```

CSS:dodavanje CSS-a u liniji pomoću atributa style

- Stilovi za pojedinačnu HTML oznaku u dokumentu mogu biti definisani atributom style.
- Ovaj atribut može se definisati za gotovo sve HTML tagove (ne može sa npr. <script>, <basefont> i još neke.

```
<p style="font-size:30px">...tekst...</p>
```

- Ovako definisan stil vredi samo za oznaku unutar koje je definisan.

- Upiti medija:

```
<!-- CSS media query on a link element -->
```

```
<link rel="stylesheet" media="(max-width: 800px)" href="prvi.css" />
```

```
<!-- CSS media query within a stylesheet -->
```

```
<style>
```

```
@media (max-width: 600px) {
```

```
  .facet_sidebar {
```

```
    display: none;
```

```
  }
```

```
}
```

```
</style>
```

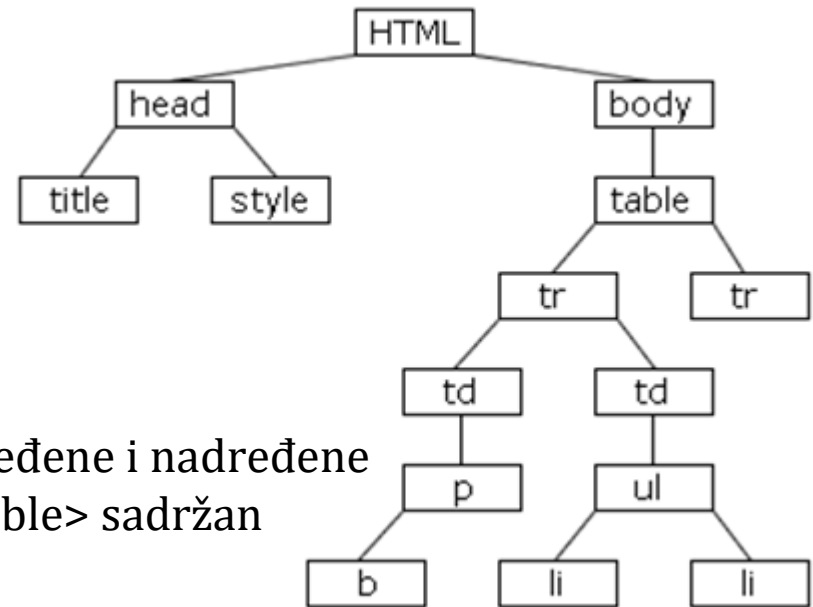
- Ili @media tv and (min-width: 700px) and (orientation: landscape)

CSS: selektori

- Pojedini stil se definiše kao:

`selektor {svojstvo:vrednost}`

- Selektor identifikuje element ili deo HTML stranice na koji će biti primenjen.
- Najčešće korišćeni tipovi selektora:
 1. jednostavni selektori
 2. klasni selektori
 3. ID selektori
 4. kontekstni selektori
 5. pseudoklase.



- Primer hijerarhijskog stabla HTML dokumenta:
 - elementi unutar stabla imaju svoje podređene i nadređene elemente (<tr> je sadržan u <table>, a <table> sadržan <body>).
- Pomoću selektora možemo precizno identifikovati bilo koji element stabla.

CSS: jednostavni selektori

- Jednostavni selektori (*type selectors*) odgovaraju nazivu html taga i primjenjuju se na svaki istovrsni tag u dokumentu.

```
p {  
    font-family:Verdana, Helvetica, sans-serif;  
}  
h1 {  
    color:#CC0000;  
    font-size:24px;  
    font-weight:bold;  
}
```

- Ovakav stil povezan s HTML dokumentom sugerije browser-u da:
 - tekst u svim paragrafima na stranici prikaže ispisan prvim raspoloživim od navedenih fontova
 - da sav tekst unutar taga <h1> u dokumentu bude crvene boje, veličine 24px i podebljan.
- Prednost korišćenja ovakvog tipa selektora ne zahteva intervencije u html kôd-u.

CSS: jednostavni selektori

- Ako želimo definisati tip i veličinu fonta za sve stranice, dovoljno je to napraviti selektorom body:

```
body {  
    font-family:Verdana, Helvetica, sans-serif;  
    font-size:12px;  
}
```
- Zbog toga što je selektor body u samom vrhu hijerarhije vidljivog dela HTML dokumenta - svi elementi koji se hijerarhijski nalaze niže od njega poprimaju navedena svojstva.
- Nedostatak primene CSS-a putem jednostavnih selektora je u tome što se definisani stil primenjuje na sve HTML elemente bez izuzetaka.
- Ne možemo postići da se paragrafi u tablici prikazuju različito od paragrafa van tablice.

CSS: klasni selektori

- Pretpostavimo da želite izraditi stranicu s prevodima latinskih izreka tako da u jednom paragrafu navedete izreku, u sledećem prevod, i tako naizmenično ali sa različitim stilovima zbog bolje čitljivosti.

```
.izreka {  
    font-weight:bold;  
    font-size:11px;  
}  
.prevod {  
    font-style:italic;  
    font-size:12px;  
}
```

Navigare necesse est, vivere non est necesse. <i>Ploviti je nužno, živeti nije nužno.</i>
--

te uz primenu sledećeg koda:

```
<p class="izreka">Navigare necesse est,  
vivere non est necesse.</p>  
<p class="prevod">Ploviti je nužno,  
živeti nije nužno.</p>
```

dobiti kao na slici.

- Pri definisanju selektora piše .naziv, a pri primeni selektora class="naziv" (bez navođenja) tačke.

CSS: klasni selektori

- Drugi način definisanja je *oznaka.naziv*. Razlika je što se ovako definisani selektori mogu primeniti samo na oznake istog tipa.

```
p.izreka {  
    font-weight:bold;  
    font-size:11px;  
}  
p.prevod {  
    font-style:italic;  
    font-size:12px;  
}
```

- Ovako definisani selektori primenjuju se jednako kao i prethodni (`<p class="naziv">`) ali za razliku od prethodnih, koji se mogu primeniti na različitim tagovima, ovakvi se mogu primeniti samo na paragrafe u navedenom slučaju.
- Na ovakav način definisali smo klasne selektore i identifikovali pojedine paragrafe kao pripadnike jedne, odnosno druge klase.

CSS: ID selektori

- ID selektori se definišu korišćenjem prefiksa #:

```
#izreka {  
    font-weight:bold;  
    font-size:11px;  
}  
#prevod {  
    font-style:italic;  
    font-size:12px;  
}
```

- Pozivaju se navođenjem umesto class atributom id:

```
<p id="izreka">Navigare necesse est,  
    vivere non est necesse.</p>  
<p id="prevod">Ploviti je nužno, živeti nije nužno.</p>
```

- U jednom HTML dokumentu ID selektor je vezan samo za jedan jedinstveni od istih tag-ova.
 - U datom primeru samo jedan paragraf može imati stil ="izreka".
- Obično se koristi kada je potrebno povezati delovanje JavaScript koda na dati element ili kada samo jedan element ima specifičan stil.

Kontekstni selektori

- Ideja je da se datom elementu unutar nekog elementa postavi stil.
 - želi se primena stila na sve elemente koji se pojavljuju unutar nekog drugog elementa

umesto

```
p {font-weight: bold;font-size: 11px;}  
.istakni {font-size: 12px; color: purple; }
```

```
<p><b class="istakni">Navigare</b> necesse est,  
<b class="istakni">vivere</b>non est necesse.</p>
```

koristi se

```
p {font-weight: bold;font-size: 11px;}  
p b {  
  font-size: 12px;  
  color: purple;  
}
```

Navigare necesse est, vivere non est necesse.

```
<p><b>Navigare</b> necesse est,  
<b>vivere</b> non est necesse.</p>
```

CSS: pseudoklase

- Pseudoklase definišu posebno stanje elementa:

- :link

- definiše izgled neposećenog linka

```
a:link {  
    text-decoration:none;  
    color:#CC0000;  
}
```

- :visited

- definiše izgled posećenog linka

```
a:visited {  
    text-decoration:line-through;  
    color:#0000CC;  
}
```

- Ovaj kod će dati kao rezultat da tekst neposećenog linka bude crvene boje a tekst posećenog linka bude zelene boje i precrtan.

```
<a href="http://www.google.com/">GOOGLE</a>
```

CSS: dinamičke pseudoklase

- Dodatna atraktivnost linkova može se postići dinamičkim efektima, koji se aktiviraju pri nekoj radnji korisnika. U ovom slučaju, prelaskom pokazivača preko linka aktivira se prikaz selektora **a:hover**, dok se od trenutka pritiska tastera miša, pa do otpuštanja tog tastera, aktivira prikaz selektora **a:active**.

```
a:hover {  
  background-color:#000;  
  color:#fff;  
}  
a:active {  
  background-color:#ffff00;  
  color:#cc0000;  
}  
<a href="http://www.google.com/">GOOGLE</a>
```

- Da biste dobili željeni rezultat ove pseudoklase pri definisanju uvek morate navesti sledećim redosledom:

a:link{} a:visited{} a:hover{} a:active{}

CSS: dinamičke pseudoklase

- Moguće je više istovremenih linkova različitih svojstava.
- Definisane pseudoklase vrede za sve linkove u dokumentu. Ukoliko u jednom dokumentu postoji potreba za više različitih vrsta linkova, koristi se kombinacija klasnih selektora i pseudoklasa.

```
a.vrsta1:link    { text-decoration:none;          color:#CC0000;}
a.vrsta1:visited{ text-decoration:line-through;    color:#0000CC;}
a.vrsta1:hover   { background-color:#000;          color:#fff;}
a.vrsta1:active  { background-color:#ffff00;        color:#cc0000;}
```

```
a.vrsta2:link    { text-decoration:underline;      color:#000;}
a.vrsta2:visited{ text-decoration:line-through;    color:#CC0000;}
a.vrsta2:hover   { background-color:#cc0000;        color:#ffff00;}
a.vrsta2:active  { background-color:#fff;          color:#000;}
```

- Probajte na linkovima:

```
<a class="vrsta1" href="http://www.google.com/">GOOGLE</a>
<a class="vrsta2" href="http://www.google.com/">GOOGLE</a>
```

Pseudoklase

- Prvi potomak bilo kog elementa.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
p:first-child {  
    color: blue;
```

```
}
```

```
p i:first-child {  
    color: blue;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<p>This is some text.</p>
```

```
<p>This is some text.</p>
```

```
<p>I am a <i>strong</i> man. I am a <i>strong</i> man.</p>
```

```
<p>I am a <i>strong</i> man. I am a <i>strong</i> man.</p>
```

```
</body>
```

```
</html>
```

This is some text.

This is some text.

I am a *strong* man. I am a *strong* man.

I am a *strong* man. I am a *strong* man.

Pseudoklase

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
p:first-child {  
    color: red;
```

```
}
```

```
p i:first-child {  
    color: green;
```

```
}
```

```
p:first-child i {  
    color: blue;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<p>I am a <i>strong</i> man. I am a <i>strong</i> man.</p>
```

```
<p>I am a <i>strong</i> man. I am a <i>strong</i> man.</p>
```

```
</body>
```

```
</html>
```

I am a *strong* man. I am a *strong* man.

I am a *strong* man. I am a *strong* man.

Pseudoklase

- Pseudoklasa :lang omogućuje definisanje specijalnih pravila za različite jezike.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
q:lang(no) {  
    quotes: "~" "~";  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<p>Some text <q lang="no">A quote in a paragraph</q> Some  
text.</p>
```

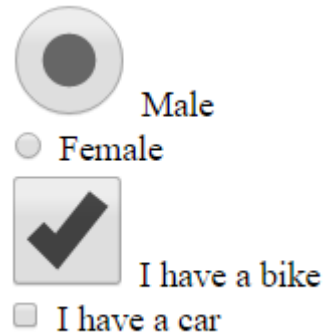
```
</body>
```

```
</html>
```

Some text ~A quote in a paragraph~ Some text.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input:checked {
    height: 50px;
    width: 50px;
}
</style>
</head>
<body>
<form action="">
    <input type="radio" checked="checked" value="male"
name="gender"> Male<br>
    <input type="radio" value="female" name="gender"> Female<br>
    <input type="checkbox" checked="checked" value="Bike"> I have a
bike<br>
    <input type="checkbox" value="Car"> I have a car
</form>
</body>
</html>
```



Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input:valid {
    background-color: yellow;
}
input:invalid {
    border: 2px solid red;
}
</style>
</head>
<body>
```

```
<h3>A demonstration of the :valid selector.</h3>
<input type="email" value="support@exampel.com">
<p>Try typing an illegal e-mail address, to see the styling
disappear.</p>
```

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

A demonstration of the :valid selector.

support@exampel.com

Try typing an illegal e-mail address, to see the styling disappear.

A demonstration of the :invalid selector.

supportEmail

Try typing a legal e-mail address, to see the styling disappear.

```
<!DOCTYPE html>
<html>
<head>
<style>
:target {
    border: 2px solid #D4D4D4;
    background-color: #e5eccc;
}
</style>
</head><body>
<h1>This is a heading</h1>
<p><a href="#news1">Jump to New content 1</a></p>
<p><a href="#news2">Jump to New content 2</a></p>
<p>Click on the links above and the
:target selector highlight the current
active HTML anchor.</p>
<p id="news1"><b>New content 1...</b></p>
<p id="news2"><b>New content 2...</b></p>
</body>
</html>
```

This is a heading

[Jump to New content 1](#)

[Jump to New content 2](#)

Click on the links above and the :target selector highlight the current active HTML anchor.

New content 1...

New content 2...

This is a heading

[Jump to New content 1](#)

[Jump to New content 2](#)

Click on the links above and the :target selector highlight the current active HTML anchor.

New content 1...

New content 2...

Pseudoklase

- Root element dokumenta (html)

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
:root {
```

```
    background: #ff0000;
```

```
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>This is a heading</h1>
```

```
</body>
```

```
</html>
```

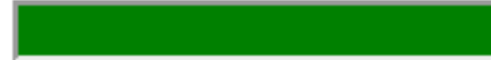


This is a heading

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input:optional {
    background-color: green;
}
input:required {
    background-color: yellow;
}
</style>
</head>
<body>
<h3>A demonstration of the :required selector.</h3>
<p>An optional input element:<br><input></p>
<p>A required input element:<br><input required></p>
<p>The :required selector selects form elements with a "required"
attribute.</p>
</body>
</html>
```

An optional input element:



A required input element:



Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input:read-write {
    background-color: yellow;
}
input:read-only {
    background-color: blue;
}
</style>
</head>
<body>
```

A normal input element:

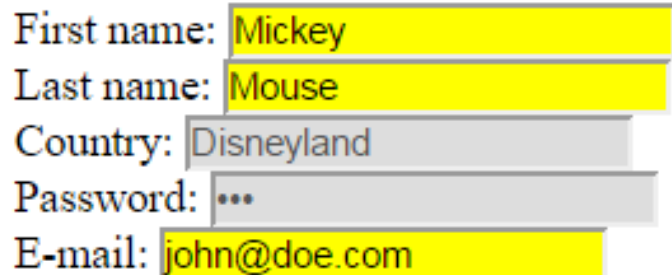
A readonly input element:

```
<p>A normal input element:<br><input value="hello"></p>
<p>A readonly input element:<br><input readonly value="hello"></p>

</body>
</html>
```

Pseudoklase

```
<!DOCTYPE html>
<html><head>
<style>
input:enabled {
    background: #ffff00;
}
input:disabled {
    background: #dddddd;
}
</style>
</head>
<body>
<form action="">
First name: <input type="text" value="Mickey"><br>
Last name: <input type="text" value="Mouse"><br>
Country: <input type="text" value="Disneyland" disabled><br>
Password: <input type="password" name="password" value="psw"
disabled><br>
E-mail: <input type="email" value="john@doe.com" name="usremail">
</form>
</body></html>
```



Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input[type=text]:enabled {
    background: #ffff00;
}
input[type=text]:disabled {
    background: #dddddd;
}
</style>
</head>
<body>
<form action="">
First name: <input type="text" value="Mickey"><br>
Last name: <input type="text" value="Mouse"><br>
Country: <input type="text" disabled="disabled"
value="Disneyland">
</form>
</body>
</html>
```

First name: Mickey
Last name: Mouse
Country: Disneyland

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
input:focus {
    background-color: yellow;
}
</style>
</head>
<body>
```

Click inside the text fields to see a yellow background:

First name:

Last name:

Click inside the text fields to see a yellow background:

First name:

Last name:

```
<p>Click inside the text fields to see a yellow background:</p>
```

```
<form>
First name: <input type="text" name="firstname"><br>
Last name: <input type="text" name="lastname">
</form>
```

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

Pseudoklase

```
<!DOCTYPE html>
<html><head>
<style>
input:out-of-range {
    border: 2px solid red;
}
input:in-range {
    border: 2px solid yellow;
}
</style>
</head><body>
<h3>A demonstration of the :out-of-range selector.</h3>
<input type="number" min="5" max="10" value="17">
<p>Try typing a number within the given range (between 5 and 10),
to see the styling disappear.</p>
<h3>A demonstration of the :in-range selector.</h3>
<input type="number" min="5" max="10" value="7">
<p>Try typing a number out of range (less than 5 or higher than
10), to see the styling disappear.</p>
</body>
</html>
```

A demonstration of the :out-of-range selector.

17

Try typing a number within the given range (between 5 and 10), to see the styling disappear.

A demonstration of the :in-range selector.

7

Try typing a number out of range (less than 5 or higher than 10), to see the styling disappear.

Pseudoklase

- Jedino dete roditelja.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
p:only-child {  
    background: #ff0000;  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<div><p>This is a paragraph.</p></div>
```

```
<div><span>This is a span.</span><p>This is a paragraph.</p></div>
```

```
</body>
```

```
</html>
```

This is a paragraph.

This is a span.

This is a paragraph.

Pseudoklase

- Jedino dete datog tipa.

```
<!DOCTYPE html>
<html>
<head>
<style>
p:only-of-type {
    background: #ff0000;
}
</style>
</head>
<body>
```

This is a paragraph.

dodatno

This is a paragraph.

This is a paragraph.

```
<div><p>This is a paragraph.</p><span>dodatno</span></div>
```

```
<div><p>This is a paragraph.</p><p>This is a paragraph.</p></div>
```

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

Pseudoklase

- Selektor se pojavljuje n-ti put.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<style>
```

```
p:nth-of-type(3) {  
    background: #ff0000;  
}
```

```
</style>
```

```
</head>
```

```
<body>
```

```
<h1>This is a heading</h1>
```

```
<p>The first paragraph.</p>
```

```
<p>The second paragraph.</p>
```

```
<p>The third paragraph.</p>
```

```
<p>The fourth paragraph.</p>
```

```
</body>
```

```
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

Pseudoklase

- Parno i neparno pojavljivanje selektora.

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-of-type(odd) {
    background: #ff0000;
}
p:nth-of-type(even) {
    background: #0000ff;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

```
<!DOCTYPE html>
<html><head>
<style>
p:nth-of-type(3n+0) {
    background: #ff0000;
}
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>
<p>The fifth paragraph.</p>
<p>The sixth paragraph.</p>
<p>The seventh paragraph.</p>
<p>The eighth paragraph.</p>
<p>The ninth paragraph.</p>
</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

The fifth paragraph.

The sixth paragraph.

The seventh paragraph.

The eighth paragraph.

The ninth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-of-type(2) {
    background: #ff0000;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>

</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-of-type(odd) {
    background: #ff0000;
}
p:nth-last-of-type(even) {
    background: #0000ff;
}
</style>
</head>
<body>

<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>

</body>
</html>
```

The first paragraph.

The second paragraph.

The third paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-of-type(3n+0) {
    background: #ff0000;
}
</style>
</head>
<body>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>
<p>The fifth paragraph.</p>
<p>The sixth paragraph.</p>
<p>The seventh paragraph.</p>
<p>The eighth paragraph.</p>
<p>The ninth paragraph.</p>
</body>
</html>
```

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

The fifth paragraph.

The sixth paragraph.

The seventh paragraph.

The eighth paragraph.

The ninth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-child(2) {
    background: #ff0000;
}
</style>
</head>
<body>

<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>
<div><p>The fifth paragraph.</p>
</div>

</body>
</html>
```

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

The fifth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-child(3n+0) {
    background: #ff0000;
}
</style>
</head>
<body>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>
<p>The fifth paragraph.</p>
<p>The sixth paragraph.</p>
<p>The seventh paragraph.</p>
<p>The eighth paragraph.</p>
<p>The ninth paragraph.</p>
</body>
</html>
```

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

The fifth paragraph.

The sixth paragraph.

The seventh paragraph.

The eighth paragraph.

The ninth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-last-child(odd) {
    background: #ff0000;
}

p:nth-last-child(even) {
    background: #0000ff;
}
</style>
</head>
<body>

<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>

</body>
</html>
```

The first paragraph.

The second paragraph.

The third paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-child(2) {
    background: #ff0000;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>

</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:nth-child(odd) {
    background: #ff0000;
}

p:nth-child(even) {
    background: #0000ff;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html><head>
<style>
p:nth-child(3n+0) {
    background: #ff0000;
}
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>
<p>The fifth paragraph.</p>
<p>The sixth paragraph.</p>
<p>The seventh paragraph.</p>
<p>The eighth paragraph.</p>
<p>The ninth paragraph.</p>
</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

The fifth paragraph.

The sixth paragraph.

The seventh paragraph.

The eighth paragraph.

The ninth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p {
    color: #000000;
}
:not(p) {
    color: #ff0000;
}
</style>
</head>
<body>
<h1>This is a heading</h1>
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>

<div>This is some text in a div element.</div>
</body>
</html>
```

This is a heading

This is a paragraph.

This is another paragraph.

This is some text in a div element.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:last-of-type {
    background: #ff0000;
}
</style>
</head>
<body>
```

```
<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>

</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:first-of-type {
    background: #ff0000;
}
</style>
</head>
<body>

<h1>This is a heading</h1>
<p>The first paragraph.</p>
<p>The second paragraph.</p>
<p>The third paragraph.</p>
<p>The fourth paragraph.</p>

</body>
</html>
```

This is a heading

The first paragraph.

The second paragraph.

The third paragraph.

The fourth paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
p:empty {
    width: 100px;
    height: 20px;
    background: #ff0000;
}
</style>
</head>
<body>

<p></p>
<p>A paragraph.</p>
<p>Another paragraph.</p>

</body>
</html>
```



A paragraph.

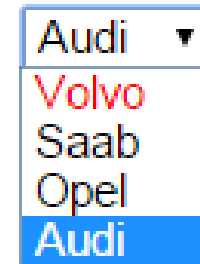
Another paragraph.

Pseudoklase

```
<!DOCTYPE html>
<html>
<head>
<style>
option:checked {
    color:red;
}
</style>
</head>
<body>

<select>
  <option value="volvo">Volvo</option>
  <option value="saab" >Saab</option>
  <option value="opel">Opel</option>
  <option value="audi">Audi</option>
</select>

</body>
</html>
```



Pseudo-element

```
<!DOCTYPE html>
<html><head>
<style>
p::before {
    content: "Read this -";
    background-color: yellow;
    color: red;
    font-weight: bold;
}
p::after {
    content: " - Remember this";
    background-color: yellow;
    color: red;
    font-weight: bold;
}
</style>
</head>
<body>
<p>My name is Donald</p>
<p>I live in Ducksburg</p>
</body></html>
```

Read this - My name is Donald - **Remember this**

Read this - I live in Ducksburg - **Remember this**

Pseudo-element

```
<!DOCTYPE html>
<html>
<head>
<style>
p::first-letter {
    font-size: 200%;
    color: #8A2BE2;
}
</style>
</head>
<body>

<h1>Welcome to My Homepage</h1>

<p>My name is Donald.</p>
<p>I live in Duckburg.</p>
<p>My best friend is Mickey.</p>

</body>
</html>
```

Welcome to My Homepage

My name is Donald.

I live in Duckburg.

My best friend is Mickey.

Pseudo-element

```
<!DOCTYPE html>
<html>
<head>
<style>
p::first-line {
    background-color: yellow;
}
</style>
</head>
<body>
```

```
<h1>WWF's Mission Statement</h1>
```

```
<p>To stop the degradation of the planet's natural environment and
to build a future in which humans live in harmony with nature, by;
conserving the world's biological diversity, ensuring that the use
of renewable natural resources is sustainable, and promoting the
reduction of pollution and wasteful consumption.</p>
```

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

WWF's Mission Statement

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by; conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

Pseudo-element

```
<!DOCTYPE html>
<html>
<head>
<style>
::selection {
    color: red;
    background: yellow;
}
</style>
</head>
<body>
```

```
<h1>Select some text on this page:</h1>
```

```
<p>This is a paragraph.</p>
```

```
<div>This is some text in a div element.</div>
```

```
</body>
```

```
</html>
```

Select some text on this page:

This is a paragraph.

This is some text in a div element.

CSS: grupisanje selektora

- Kada nekoliko selektora deli određena svojstva moguće je grupisati selektore tako da se odvajaju zapetama.

```
h1 {  
    font-family:sans-serif; font-size:16px;  
}  
h2 {  
    font-family:sans-serif; font-size:14px;  
}  
h3 {  
    font-family:sans-serif; font-size:12px;  
}
```

- Pošto želimo da se h1, h2 i h3 stil razlikuje samo u veličini datog fonta onda je čitljivije rešenje:

```
h1, h2, h3 { font-family:sans-serif;}  
h1          { font-size:16px;      }  
h2          { font-size:14px;      }  
h3          { font-size:12px;      }
```

- U praksi se selektori koji dele ista svojstva redovno grupišu.

Nasleđivanje svojstava

- Slikom možemo sagledati nasleđivanje, još jedno važno svojstvo CSS-a. Elementi HTML hijerarhijskog stabla koji su potomci (niže u stablu) nasleđuju svojstva svojih roditeljskih elemenata.
- Ukoliko je za prikazano stablo definisan selektor:

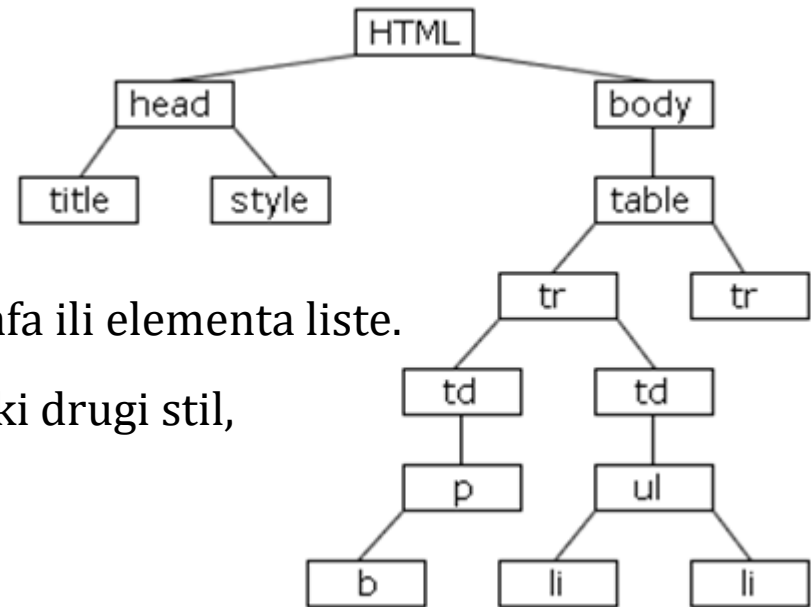
```
td {  
  color:red;  
}
```

tada će ceo tekst unutar polja tablice biti crvene boje, bez obzira bio on unutar paragrafa ili elementa liste.

- Ako je na nekom od potomaka primenjen neki drugi stil, taj stil ima prioritet.
- Ako je definisano:

```
body { font-size:10pt }  
li { font-size:12pt }
```

- Budući da je unutar taga <body> veličina znakova unutar taga biće 12pt.



Kaskade

- Delovanje selektora po prioritetu je kao što sledi:
 1. stil dodeljen atributom **style**
 2. id selektori
 3. klasni selektori i pseudoklase
 4. kontekstni
 5. jednostavni selektori.
- Primer prioriteta:

```
#naslov { color:red; }  
.plavo { color:blue;}  
h1      { color:blue;}  
<h1 id="naslov">Lorem ipsum</h1>  
<p class="plavo" style="color:red">Lorem ipsum dolor sit amet.  
</p>
```

Lorem ipsum

Lorem ipsum dolor sit amet.

- Tekst naslov je crven jer je **id** selektor **#naslov** većeg prioriteta od jednostavnog selektora **h1**.
- Tekst paragrafa definisan je atributom **style**, koji je većeg prioriteta od klasnog selektora **.plavo**, te je tekst crvene boje.

```
<!DOCTYPE html>
<html>
<head>
<style>
h1 { background-color: red;}
p   { background-color: green;}
div { background-color: yellow;}
</style>
</head>
<body>
<h1>CSS background-color example!</h1>
<div>
  This is a text inside a div element.
  <p>This paragraph has its own background color.</p>
  We are still in the div element.
</div>
</body>
</html>
```

CSS background-color example!

This is a text inside a div element.

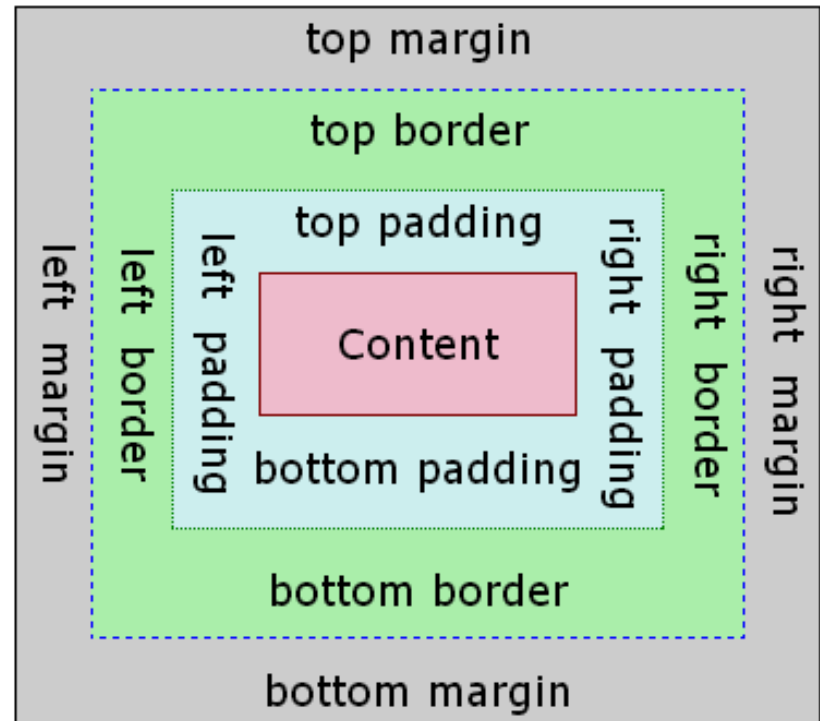
This paragraph has its own background color.

We are still in the div element.

CSS model kutije

- CSS elemente na stranici tretira kao složene kutije - pravougaonike - koji se na stranici slažu jedan iza drugog ili jedan ispod drugog.
- Kako povećati prostor između dva paragrafa? Bez CSS-a to bismo mogli napraviti dodavanjem razmaka.
 - U te svrhe su se često koristile prozirne slike poznatije pod imenom spacer.gif.
 - CSS model koji paragraf tretira kao kutiju nudi puno jednostavnije rešenje - definisanje gornje i donje margine.

```
p {  
  margin-top:5px;  
  margin-bottom:20px;  
  padding-left:30px;  
}
```



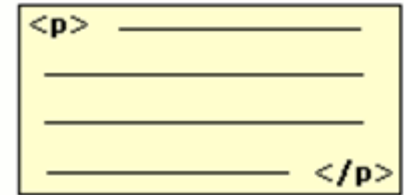
CSS elementi

- Elementi CSS-a se dele kao što sledi:

- Blok elementi (*block level elements*)

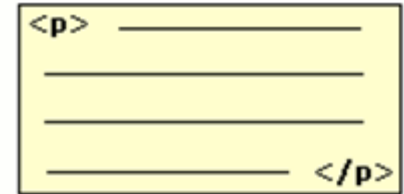
- Blok elementi su u dokumentu odvojeni od ostalih elemenata što ih okružuju.

- Predefinisano se ponašaju tako da sledeći element započinje u novoj liniji (npr. `<p>` , `<h1>`).



`<p>` _____

_____ `</p>`



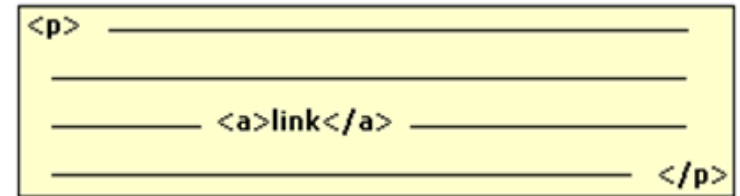
`<p>` _____

_____ `</p>`

- Linijski elementi (*inline elements*)

- Linijski elementi za razliku od blok elemenata dolaze u nizu, jedan za drugim (npr. `<a>` i `<img>`).

- Predefinisano se ponašaju tako da se uvek prikazuju u nizu s okolnim tekstom.



`<p>` _____

_____ `<a>link</a>` _____
_____ `</p>`

- Liste (*lists*).

- Liste su blok elementi, koji, osim blok svojstava, imaju i grafičku ili brojčanu oznaku ispred teksta.

Generički kontejneri span i div

- Element `<span>` je linijski generički kontejner.
- Smisao generičkih kontejnera je strukturirano obuhvatanje i formatiranje raznih elemenata koje mogu sadržavati. Za razliku od oznaka koje su predefinisane (`<p>`, `<h1>`, ...) definisanje efekta generičkih kontejnera prepušteno je dizajneru.
- Tipičan primer `<span>` kontejnera je formatiranje nekolicine reči u tekstu.

```
p {  
  font-size:11px;  
}
```

```
.istaknuto {  
  font-size:18px;  
  font-weight:bold;  
  border:1px solid #000;  
}
```

```
<p>Lorem<span class="istaknuto">ipsum dolor</span>,sit amet.</p>
```

Lorem **ipsum dolor**,sit amet.

CSS: kategorije svojstava

- Podsetimo se kako radi CSS. Svaki stil se sastoji od selektora i njima pridruženih parova svojstva i vrednosti:

```
p { /* p je selektor */  
  font-family:"Courier New", Courier, mono;  
}  
.stil {  
  color:#CC0000; /* color je svojstvo */  
  font-size:24px; /* 24px je vrijednost */  
  font-weight:bold;  
}
```

- Specifikacija CSS-a definiše čitav niz svojstava i njihovih vrednosti. Svojstva se po svom delovanju mogu grupisati u sledeće kategorije:
 - svojstva fonta
 - svojstva teksta
 - svojstva boja i pozadina
 - svojstva CSS kutije
 - svojstva popisa
 - pozicioniranje (smeštanje).

Svojstva fonta

font-family

- Ovo svojstvo sugerije browser-u kojim fontom će se prikazivati tekst u dokumentu. Problem nastaje ako korisnik na računaru nema instaliran potreban font. CSS definiše pet generičkih porodica fontova - *serif*, *sans-serif*, *cursive*, *monospace* i *fantasy*. Pri definisanju možemo koristiti neke od njih:

```
body { font-family:monospace; }
```

ili, što je preporučljivo, možemo koristiti stvarna imena fontova:

```
body { font-family:"Courier New", Courier, monospace; }
```

- U ovom slučaju browser će prvo pokušati prikazati tekst fontom Courier New, a ako njega nema, onda fontom Courier i tek onda, ako prva dva fonta nisu instalirana, prikazati će tekst fontom iz porodice fontova mono.

font-weight

- Svojstvo koje definiše debljinu znakova. Vrednosti su: *lighter*, *normal*, *bold*, *bolder*, *100*, *200*, *300*, *400*, *500*, *600*, *700*, *800*, *900*. Najčešće se koriste vrijednosti *normal* i *bold*. *Bolder*, *lighter* i brojčane definicije debljine fonta nisu sigurne za korišćenje jer ih browser-i različito prikazuju - najčešće do 500 za normalne, a 600, 700, 800 i 900 za deblje fontove.

Svojstva fonta

font-size

- Definiše veličinu fonta. Može poprimiti bilo koju definisanu vrednost veličine (12px, 10pt, 2em (1em=16px)...) ili neku od ključnih riječi (*xx-small*, *x-small*, *small*, *medium*, *large*, *x-large*, *xx-large*). Budući da se svojstvo nasleđuje, može se pisati sledeće:

```
body { font-size:10pt;}  
p     { font-size:150%;}
```

U ovom primeru paragraf nasleđuje veličinu definisanu selektorom body, pa bi tekst u paragrafu bio prikazan fontom veličine 15pt.

font-style

- Sugeriše browser-u da prikaže tekst kao *normal* ili kao *italic*. Postoji još i vrijednost *oblique*, ali nju browser-i prikazuju isto kao italic.

font-variant

- Može poprimiti vrednosti *normal* ili *small-caps*. Korištenjem *small-caps* dobije se efekt teksta pisanog velikim slovima, ali fontovima različitih veličina.

```
p { font-variant:small-caps;}
```

LOREM IPSUM DOLOR SIT AMET

```
<p>Lorem Ipsum Dolor Sit Amet</p>
```

Svojstva fonta, svojstva teksta

- Sva ova svojstva mogu se navesti preko skraćenog selektora **font**, na sljedeći način:

```
p { font:italic small-caps 12px Verdana, Helvetica, sans-serif; }
```

- Svojstva teksta definišu razmeštaj teksta u dokumentu.

letter-spacing

- Ovo svojstvo definiše razmak između pojedinih znakova u tekstu.

```
p { letter-spacing:0.5em; }  
<p>Lorem ipsum dolor sit amet</p>
```

- Izlaz je: L o r e m i p s u m d o l o r s i t a m e t

line-height

- Definiše razmak između dve linije teksta (eng. *baseline*).

```
p { font-size:9pt; line-height:26pt; }
```

```
<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed  
do eiusmod tempor incididunt ut labore et dolore magna aliqua.</p>
```

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do
eiusmod tempor incididunt ut labore et dolore magna aliqua.

Svojstva teksta

text-decoration

- Opisuje dekoracije koje se dodaju tekstu. Može poprimiti vrijednosti: *none*, *underline*, *overline*, *line-through*. Boje dekoracija pojavljuju se u boji teksta.

text-transform

- Pretvara slova iz koda u velika ili mala. Moguće vrednosti su: *capitalize*, *uppercase*, *lowercase*. *Capitalize* postavlja početno slovo u svakoj reči u veliko slovo. *Uppercase* postavlja sva slova u velika, a *lowercase* u mala, bez obzira na izvorno slovo u kodu.

```
p { text-transform:capitalize; }  
<p>Lorem ipsum dolor sit amet</p>
```

Izlaz je: Lorem Ipsum Dolor Sit Amet

text-align

- Vodoravno poravnanje tekstakoe se primenjuje samo na blok elemente, a moguće vrijednosti su: *left*, *right*, *center* i *justify*.

Lorem ipsum dolor sit amet,
consectetur adipisicing elit,
sed do eiusmod tempor incididunt
ut labore et dolore magna aliqua.

```
p { text-align:center; }  
<p>Lorem ipsum dolor sit amet,<br>consectetur adipisicing  
elit,<br>sed do eiusmod tempor incididunt<br>ut labore et dolore  
magna aliqua.</p>
```

Svojstva teksta

```
<!DOCTYPE html>
<html>
<head>
<style>
  h1      { text-align: center; }
  p.date  { text-align: right;  }
  p.main  { width:10em;
            text-align: justify;
            word-wrap:break-word;}
</style>
</head><body>
<h1>CSS text-align Example</h1>
<p class="date">May, 2009</p>
<p class="main">In my younger and more vulnerable years my father
gave me some advice that I've been turning over in my mind ever
since. 'Whenever you feel like criticizing anyone,' he told me,
'just remember that all the people in this world haven't had the
advantages that you've had.' 000000000000000000000000000000000000</p>
<p><b>Note:</b> Resize the browser window to see how the value
"justify" works.</p>
</body></html>
```

CSS text-align Example

May, 2009

In my younger and more
vulnerable years my
father gave me some
advice that I've been
turning over in my mind
ever since. 'Whenever
you feel like criticizing
anyone,' he told me, 'just
remember that all the
people in this world
haven't had the
advantages that you've
had.'

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Note: Resize the browser window to see how the value
"justify" works.

Svojstva teksta

```
<!DOCTYPE html>
<html>
<head>
<style>
h1 { text-decoration: overline;}
h2 { text-decoration: line-through;}
h3 { text-decoration: underline;}
p.uppercase { text-transform: uppercase; }
p.lowercase { text-transform: lowercase; }
p.capitalize{ text-transform: capitalize;}
</style>
</head>
<body>
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
<p class="uppercase">This is some text.</p>
<p class="lowercase">This is some text.</p>
<p class="capitalize">This is some text.</p>
</body>
</html>
```

This is heading 1

~~This is heading 2~~

This is heading 3

THIS IS SOME TEXT.

this is some text.

This Is Some Text.

text-indent

- Prvi red paragrafa je obično uvučen za određenu vrednost.

```
p { text-indent:45px; }
```

```
<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed  
do eiusmod tempor incididunt ut labore et dolore magna aliqua.
```

```
</p>
```

 Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor
incididunt ut labore et dolore magna aliqua.