Sveučilište u Zagrebu
PMF – Matematički odsjek

Mreže računala

Vježbe 09

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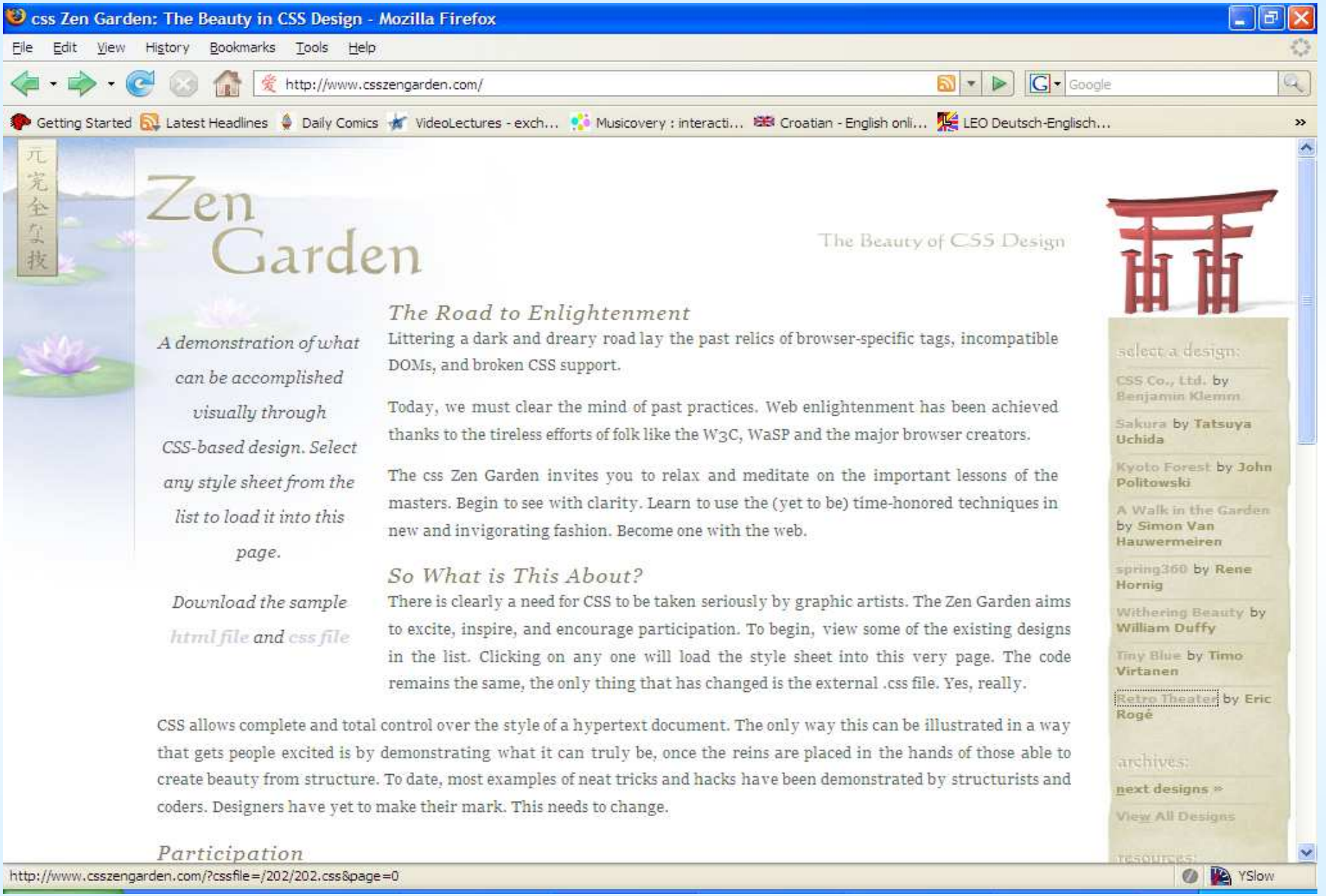
CSS

- CSS - Cascading Style Sheets
- Stilske kartice (engl. style sheets) opisuju kako HTML dokument treba prikazati, tj. njegov izgled.
- Sastoje se od niza pravila koje se primjenjuju na elemente stranice.
- Kontroliraju razmještaj elemenata na stranici, njihov stil i prikaz.

Važna napomena:
Sve stilske aspekte HTML dokumenta treba zapisati korištenjem CSS-a!
Na taj način stil je moguće u potpunosti odvojiti od sadržaja.

Demonstracija mogućnosti CSS-a

- CSS Zen Garden
  - http://www.csszengarden.com/


css Zen Garden: The Beauty in CSS Design - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://www.csszengarden.com/
Google
Getting Started
Latest Headlines
Daily Comics
VideoLectures - exch...
Musicovery : interacti...
Croatian - English onli...
LEO Deutsch-Englisch...
Zen Garden
The Beauty of CSS Design
A demonstration of what can be accomplished visually through CSS-based design. Select any style sheet from the list to load it into this page.
Download the sample html file and css file
The Road to Enlightenment
Littering a dark and dreary road lay the past relics of browser-specific tags, incompatible DOMs, and broken CSS support.
Today, we must clear the mind of past practices. Web enlightenment has been achieved thanks to the tireless efforts of folk like the W3C, WaSP and the major browser creators.
The css Zen Garden invites you to relax and meditate on the important lessons of the masters. Begin to see with clarity. Learn to use the (yet to be) time-honored techniques in new and invigorating fashion. Become one with the web.
So What is This About?
There is clearly a need for CSS to be taken seriously by graphic artists. The Zen Garden aims to excite, inspire, and encourage participation. To begin, view some of the existing designs in the list. Clicking on any one will load the style sheet into this very page. The code remains the same, the only thing that has changed is the external .css file. Yes, really.
CSS allows complete and total control over the style of a hypertext document. The only way this can be illustrated in a way that gets people excited is by demonstrating what it can truly be, once the reins are placed in the hands of those able to create beauty from structure. To date, most examples of neat tricks and hacks have been demonstrated by structurists and coders. Designers have yet to make their mark. This needs to change.
Participation
select a design:
CSS Co., Ltd. by Benjamin Klemm
Sakura by Tatsuya Uchida
Kyoto Forest by John Politowski
A Walk in the Garden by Simon Van Hauwermeiren
spring360 by Rene Hornig
Withering Beauty by William Duffy
Tiny Blue by Timo Virtanen
Retro Theater by Eric Rogé
archives:
next designs »
View All Designs
resources:
http://www.csszengarden.com/?cssfile=/202/202.css&page=0
YSlow

css Zen Garden: The Beauty in CSS Design - Mozilla Firefox
File Edit View History Bookmarks Tools Help
http://www.csszengarden.com/?cssfile=/209/209.css&page=0
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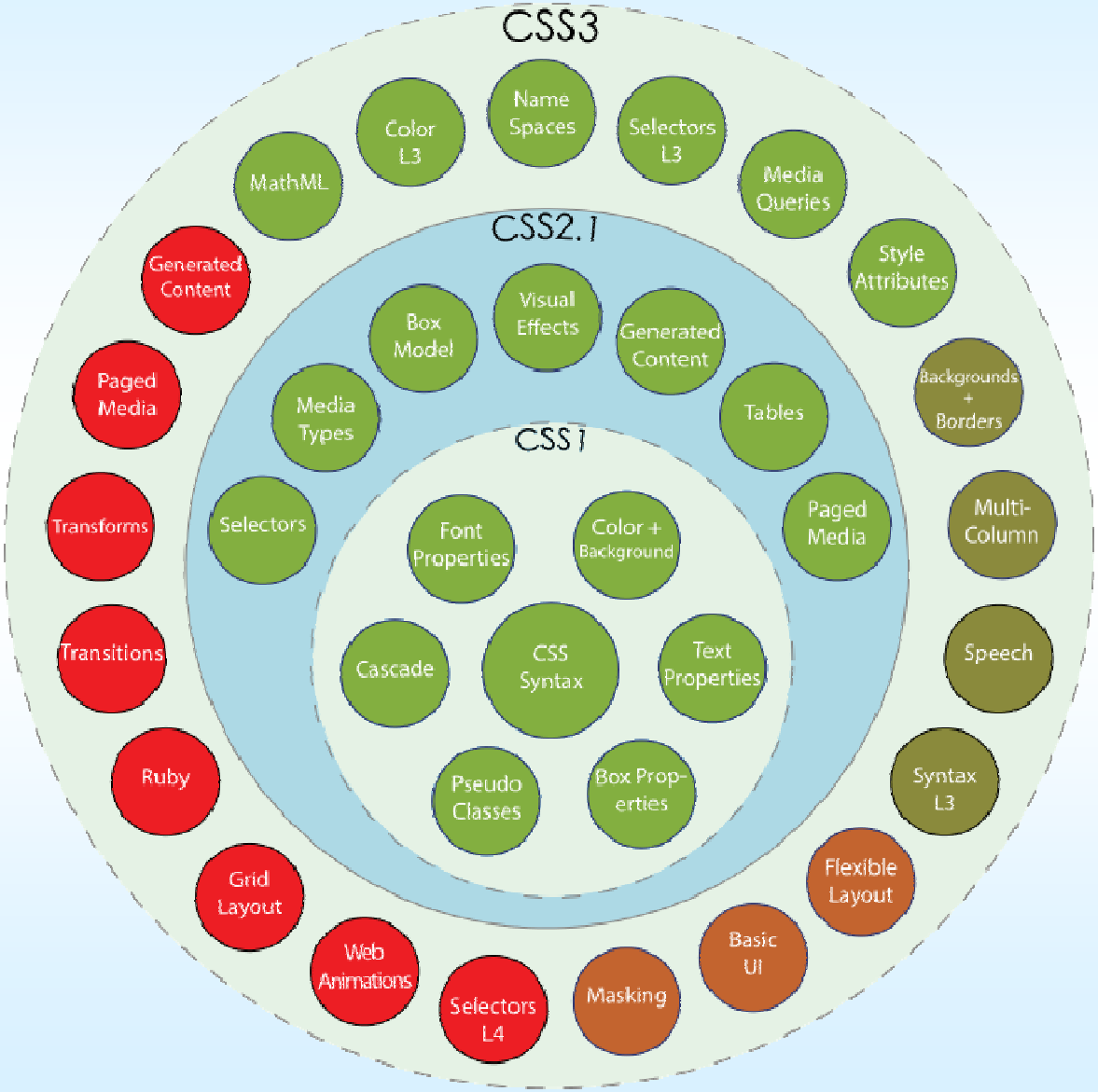
Done
YSlow

Status CSS-a u 2015.

- Standardizirana verzija (od 2011.): CSS 2.1
- CSS 3
  - podijeljen u module;
  - pojedini moduli imaju razne stupnjeve standardiziranosti;
  - podrška u browserima brzo napreduje.
  - https://developer.mozilla.org/en-US/docs/Web/CSS/CSS3
- Podrška u web-preglednicima:
  - možemo reći da suvremeni browseri u potpunosti podržavaju CSS 2.1 (IE8+, Firefox 3+, Chrome, Safari).
  - podrška za pojedina svojstva CSS 3 se može vidjeti na: www.caniuse.com

Status CSS-a u 2015.



CSS3

- Neka svojstva su i prije standardizacije prihvaćena u pojedinim browserima, tada se prefix `-moz-`, `-webkit-`, `-ms-`, `-chrome-`, `-o-` dodaje ispred imena svojstva, npr.

```
background-color: #42c264;
background-image: -webkit-linear-gradient(#4fec50, #42c264);
background-image: -moz-linear-gradient(#4fec50, #42c264);
background-image: -o-linear-gradient(#4fec50, #42c264);
background-image: -ms-linear-gradient(#4fec50, #42c264);
background-image: -chrome-linear-gradient(#4fec50, #42c264);
background-image: linear-gradient(#4fec50, #42c264);
```

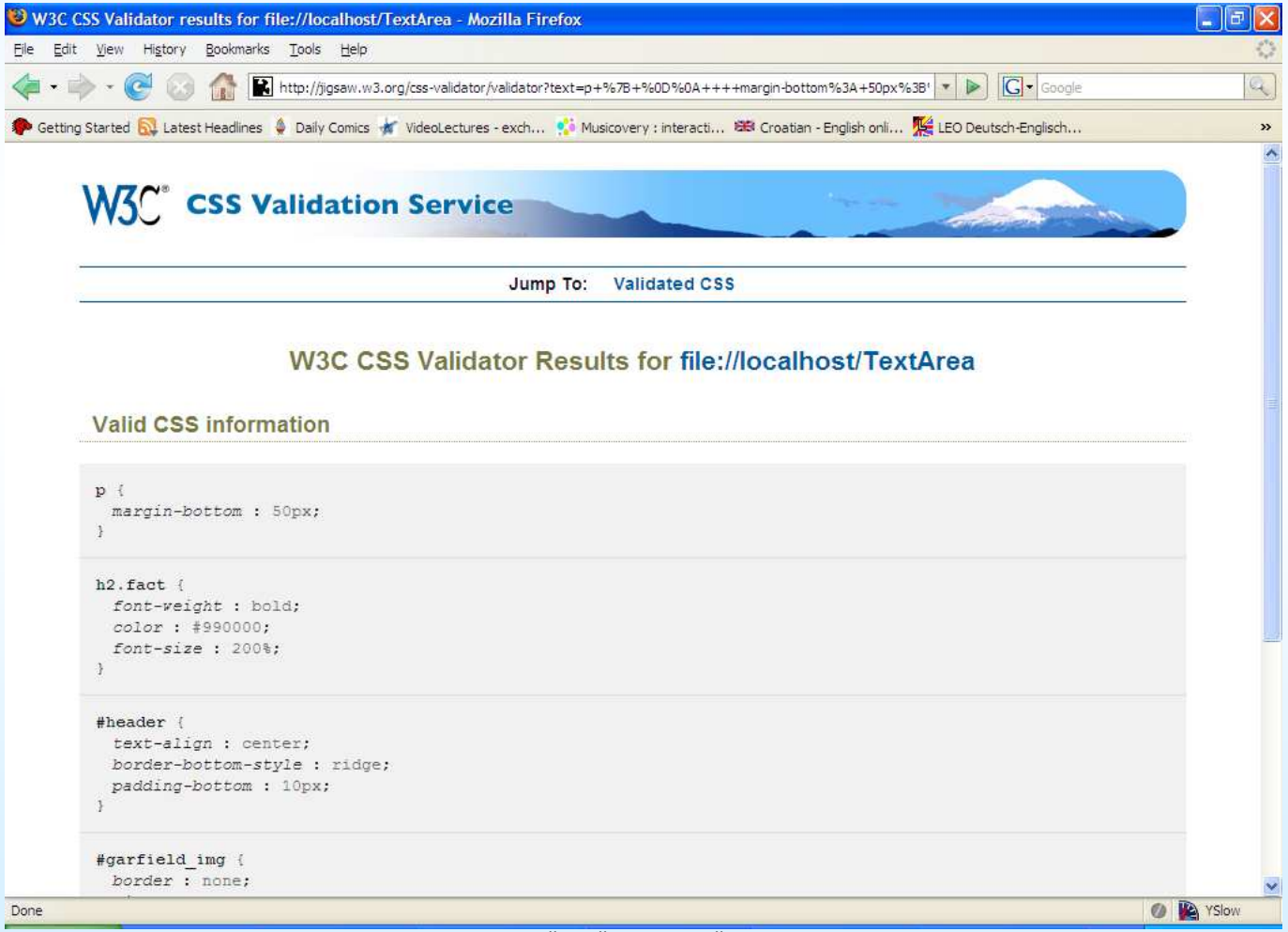
- "Kaskadirajuća" priroda CSS-a tada osigurava da se u svakom browseru primijeni ispravno pravilo.
- Postoje i elegantnija rješenja pomoću JavaScript-a, vidi `http://modernizr.com/`

Literatura za CSS

- CSS materijali (autor: Vedran Čačić)
  - http://web.math.hr/~veky/rp1/vjezbe4/
- W3Schools CSS Tutorial
  - http://www.w3schools.com/css/
- Mozilla Developer Network (MDN):
  - https://developer.mozilla.org/en-US/docs/Web/CSS/
- HTML Dog CSS tutorials
  - http://htmldog.com/guides/css/
  - http://htmldog.com/reference/cssproperties/
- W3C Cascading Style Sheets home page
  - http://www.w3.org/TR/CSS/
- Pratit ćemo materijale iz prve točke, uz neke dodatke.

CSS Validator

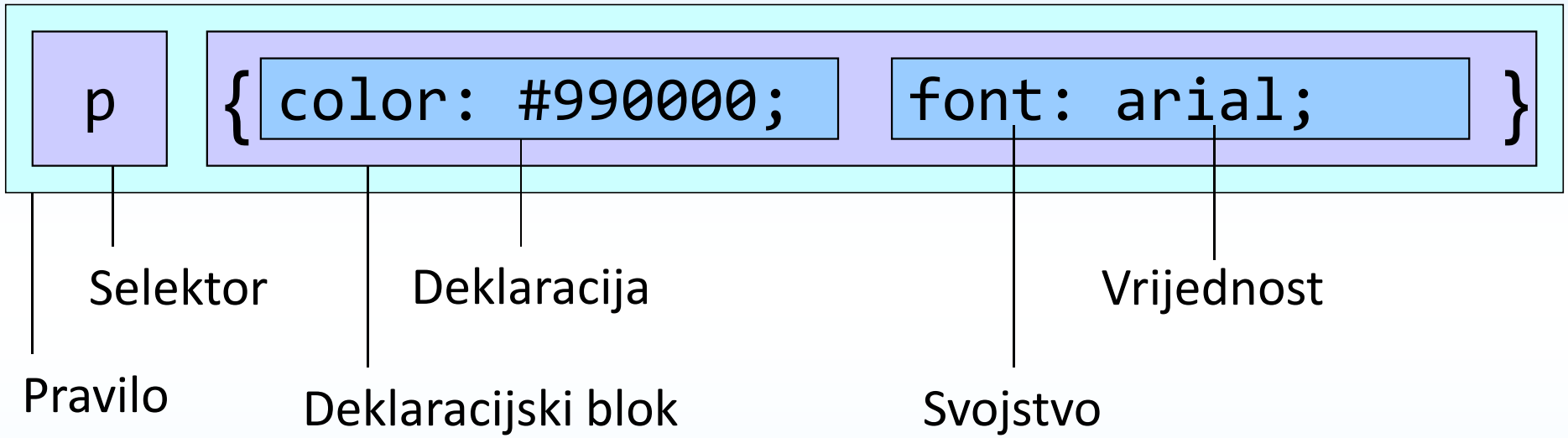
- http://jigsaw.w3.org/css-validator/



Gdje se sve mogu nalaziti CSS pravila

- Unutar elemenata, korištenjem atributa `style` na HTML tagu:
  - `<p style="color: #990000;"> … </p>`
- Umetnuti u vlastitom `style` elementu:
  - `<style> p {color: #990000;} </style>`
- U vanjskoj datoteci povezanoj s HTML dokumentom:
  `<link rel="stylesheet" href="stil.css" />`
- Najčešće koristimo posljednju metodu.

Struktura CSS pravila



Osnovni tipovi CSS selektora

Tag

```
<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit,
sed do eiusmod tempor incididunt ut labore et dolore magna
aliqua.</p>
<p>Ut enim ad minim veniam, quis nostrud exercitation ullamco
laboris nisi ut aliquip ex ea commodo consequat.</p>
```

```
p {
  color: #990000;
}
```

Class

```
<p class="latin">Lorem ipsum dolor sit amet, consectetur
adipisicing elit, sed do eiusmod tempor incididunt ut labore
et dolore magna aliqua.</p>
<p class="latin">Ut enim ad minim veniam, quis nostrud
exercitation ullamco laboris nisi ut aliquip ex ea commodo
consequat.</p>
```

```
p.latin {
  color: #990000;
}
```

Id

```
<p id="latin1">Lorem ipsum dolor sit amet, consectetur
adipisicing elit, sed do eiusmod tempor incididunt ut labore
et dolore magna aliqua.</p>
<p id="latin2">Ut enim ad minim veniam, quis nostrud
exercitation ullamco laboris nisi ut aliquip ex ea commodo
consequat.</p>
```

```
p#latin1, #latin2
{
  color: #990000;
}
```

Još neki često korišteni tipovi CSS selektora

```
P { color: black; }                          /* Tag */
P, H1, H2 { color: black; }                  /* Grupiranje */
* { color: black; }                          /* Univerzalni selektor */
P.urgent, .Error { color: black; }           /* Selektor klase */
#menu { color: black; }                      /* Selektor id-a */
*[title], A[href][title] { color: black; } /* Selektor atributa */
A[title="home page"] { color: black; }       /* Selektor atributa - egzaktni */
A[title~="foo"] { color: black; }            /* Selektor atributa - parcijalni */
*[lang|="en"] { color: black; }              /* Selektor atributa - partikularni *
UL LI UL { color: black; }                   /* Selektor potomka */
P > STRONG { color: black; }                 /* Selektor djeteta */
A:hover { color: black; }                    /* Selektor pseudoklase */
P::first-letter { font-size: 200%; }         /* Selektor pseudoelementa */
```

Koje pravilo djeluje na element?

```
// index.html
<link rel="stylesheet" href="stil.css" />
...
<style> p { color: red; } </style>
<p style="color: blue;" id="para" class="graph">Neki tekst</p>
```

```
// stil.css
p { color: green; }
#para { color: black; }
.graph { color: orange; }
```

Koje pravilo djeluje na element?

- Neka svojstva se nasljeđuju od roditeljskih elemenata:

```
<p style="color:red;">Ovo je <em>naglašeni</em> tekst.</p>
```

  a druga se ne nasljeđuju:

```
<p style="padding:50px;">Ovo je <em>naglašeni</em> tekst.</p>
```

- Za svako svojstvo na MDN piše nasljeđuje li se ili ne.

- Ukoliko više pravila utječe na isti element, postoji formula koja određuje koje se pravilo zaista primjenjuje: http://web.math.hr/~veky/rp1/vjezbe4/vjezbe43.html
- Ukoliko pravila imaju isti prioritet, primjenjuje se ono koje je posljednje specificirano.

CSS vrijednosti

- Duljina:
  - `predznak iznos jedinica`
  - Relativne jedinice (bolje!): `em, ex, px`
  - Apsolutne jedinice: `in, cm, mm, pt, pc`
  - Npr. `width: 1px; font-size: 12pt; margin-top: -5px;`

- Postotak:
  - Opisuje relativnu promjenu u odnosu na pretpostavljenu vrijednost.
  - Npr. `font-size: 120%;` je isto kao `font-size: 1.2em;`

- URL:
  - Navođenje adrese resursa (relativne ili apsolutne).
  - Npr. `background-image: url('../img/slika.png');`

CSS vrijednosti

- Boje:
  - Imenovane: `blue, red, black, orange, ...`
  - RGB, 3 ili 6 hex znamenki: `#00F, #FF1255`
  - RGB, broj do 255 ili postotak:
    `rgb(0, 100, 255), rgb(0%, 50%, 100%)`
  - Npr. `color: #FF1255; background-color: rgb(255, 0, 100);`

  - CSS3: "alpha kanal", tj. prozirnost: `rgba(255, 0, 0, 0.8)`
  - CSS3: gradijentni prijelazi kao pozadina elementa
    `https://developer.mozilla.org/en-US/docs/Web/CSS/CSS_Images/Using_CSS_gradients`

```
p { background: linear-gradient(90deg, #ffffff 0%, #e4e4e4 50%, #ffffff 100%); }
h1 { background: radial-gradient(red 5%, yellow 25%, #1E90FF 50%); }
```

Često korištena CSS svojstva – Font

- Za svako svojstvo, pogledati MDN i materijale asist. Čačića.
- Font grupa:
  - `font-family`
  - `font-style`
  - `font-variant`
  - `font-weight`
  - `font-size`
  - `font`

Web fontovi

- Korištenje proizvoljnih korisničkih fontova.

```
@font-face {
    font-family: 'BebasNeueRegular';
    src: url('BebasNeue-webfont.eot');
    font-weight: normal;
    font-style: normal;
}
h1 { font-family: 'BebasNeueRegular'; }
```

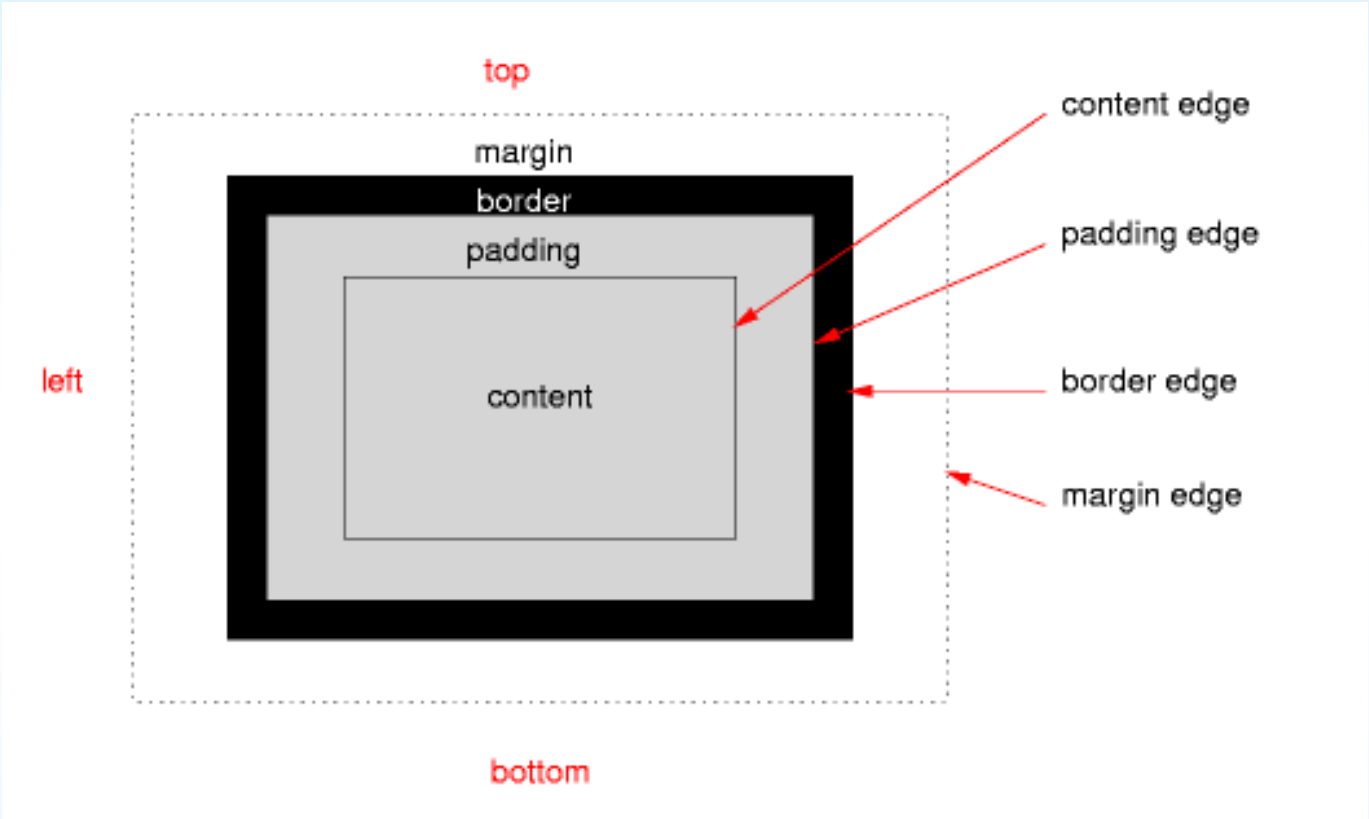
- Slično funkcioniraju i Google Web-fontovi, vidi https://www.google.com/fonts:

```
<link rel="stylesheet"
href="http://fonts.googleapis.com/css?family=Roboto&subset=latin,latin-ext" />
...
h1 { font-family: 'Roboto'; }
```

Često korištena CSS svojstva – Boje, pozadina

- Za svako svojstvo, pogledati MDN i materijale asist. Čačića.
- Boje teksta; upravljanje pozadinom elementa:
  - `color`
  - `background-color`
  - `background-image`
  - `background-repeat`
  - `background-position`
  - `background`

CSS box model



Objašnjenje ovih pojmova:
http://web.math.hr/~veky/rp1/vjezbe4/vjezbe45.html

Često korištena CSS svojstva – Box model

- Za svako svojstvo, pogledati MDN i materijale asist. Čačića.
- Dimenzije okvira, svojstva ruba elemenata:
  - `padding`, `padding-left`, `padding-top`, `padding-bottom`,`padding-right`
  - `margin`, `margin-left`, `margin-top`, `margin-bottom`, `margin-right`
  - `border`, `border-width`, `border-style`, `border-color` `border-left`, `border-top`, `border-bottom`, `border-right`
  - Novo u CSS3: `border-radius`, `box-shadow`, `text-shadow`

Često korištena CSS svojstva – Oblikovanje teksta

- Za svako svojstvo, pogledati MDN i materijale asist. Čačića.
- Oblikovanje teksta:
  - `word-spacing, letter-spacing`
  - `text-align, vertical-align`
  - `line-height`
  - `text-decoration, text-transform, text-indent`
  - `white-space`
  - `list-style-type, list-style-image, list-style-position, list-style`

Često korištena CSS svojstva – Pozicioniranje elemenata

- Za svako svojstvo, pogledati MDN i materijale asist. Čačića.
- Širina i visina elementa:
  - `width, height`
- Promjena toka prikaza web-stranice:
  - `float, clear`
  - `display`
  - `position, top, left, bottom, right`
  - `z-index`

Pseudoklase i pseudoelementi

- Pseudoklasa – element koji je u "specijalnom stanju".
  - `:hover`
  - `:link, :visited`
  - `:first, :last, :first-child, :nth-child, :first-of-type`
  - Npr. `a:hover { color: red; }, p:first { color: blue; }`
- Pseudoelement – "lažni" element koji ovisi o tome kako browser prikazuje web-stranicu.
  - `::first-letter, ::first-line, ::selection`
  - Npr. `p::first-letter { font-size: 4em; }`
  - CSS3 propisuje da pseudoelementi počinju sa `::`, prije je bilo samo `:`

- `http://www.w3schools.com/css/css_pseudo_classes.asp`

Strukturiranje izgleda stranice

- Koristite HTML elemente poput `header`, `nav`, `article`, `section`, `footer` kako biste definirali organizaciju unutar HTML dokumenta.
- Stilizirajte pojedine segmente organizacije pomoću CSS.
- Koristite svojstva poput `display` i `float` kako biste pozicionirali sekcije.

- Važna napomena:
  HTML tablice treba koristiti samo za tabelarni prikaz podataka, ne i za strukturiranje izgleda web stranice.

Izgled web-stranice na različitim uređajima

- Detekcija veličine ekrana:

```
@media screen and (max-width: 960px) {
    body { background-color: red; }
}
@media screen and (max-width: 768px) {
    body { background-color: orange; }
}
```

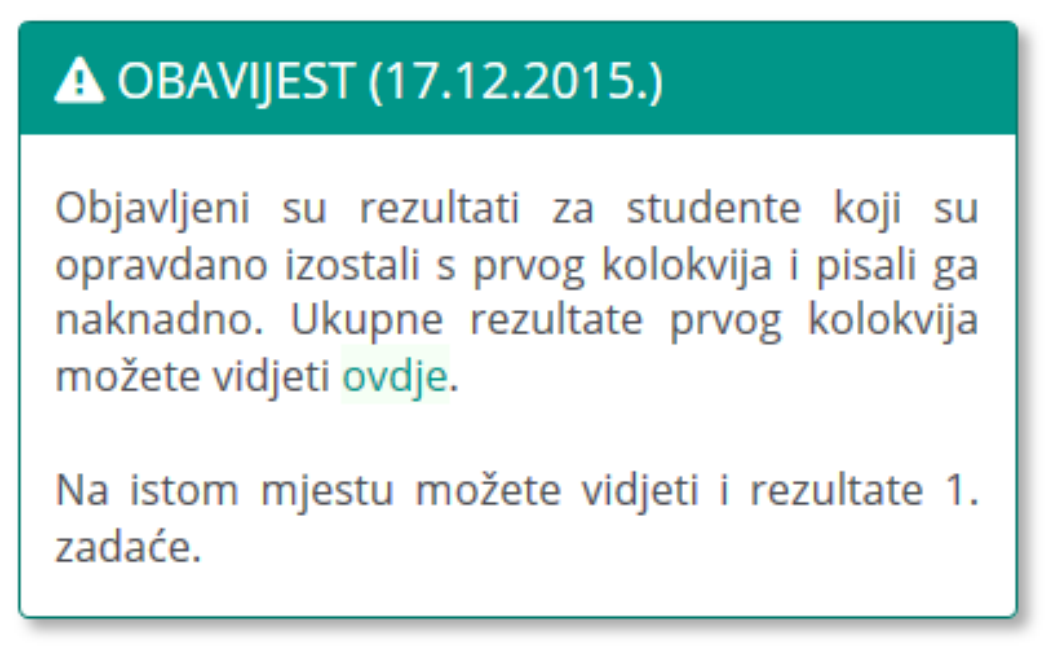
- Moguće i u HTML5:

```
<link rel="stylesheet" media="screen and (orientation:
portrait) and (min-width: 800px)" href="800wide-portrait-
screen.css" />
```

- Tzv. responzivni dizajn je nužnost modernih web-stranica. Vidi: http://www.w3schools.com/css/css_rwd_intro.asp
- Često se koriste gotovi responzivni grid-sustavi, poput Bootstrap: http://getbootstrap.com/

Zadatak 1

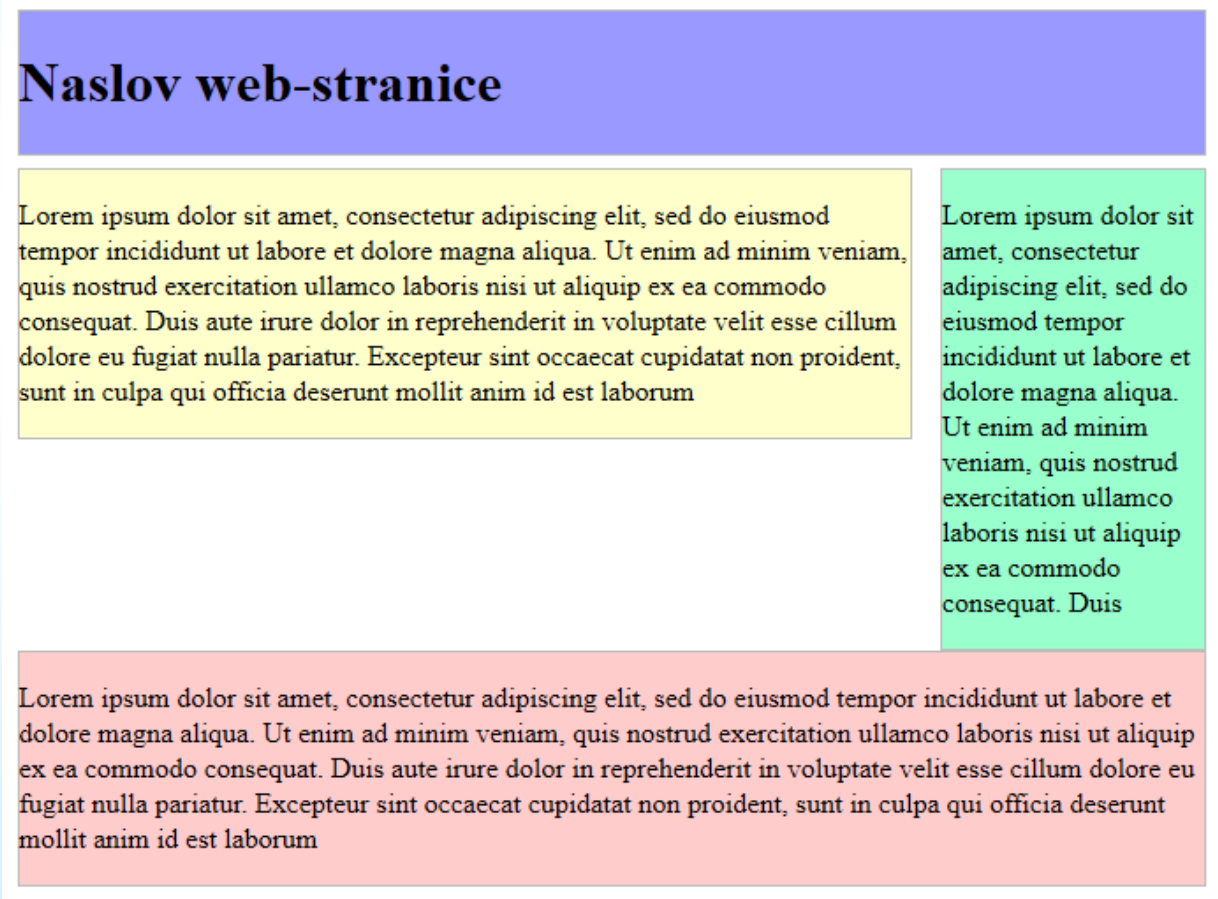
- Koristeći HTML i CSS, napravite ovakav `section` element:



- Uskličnik na početku:
  `https://fortawesome.github.io/Font-Awesome/`

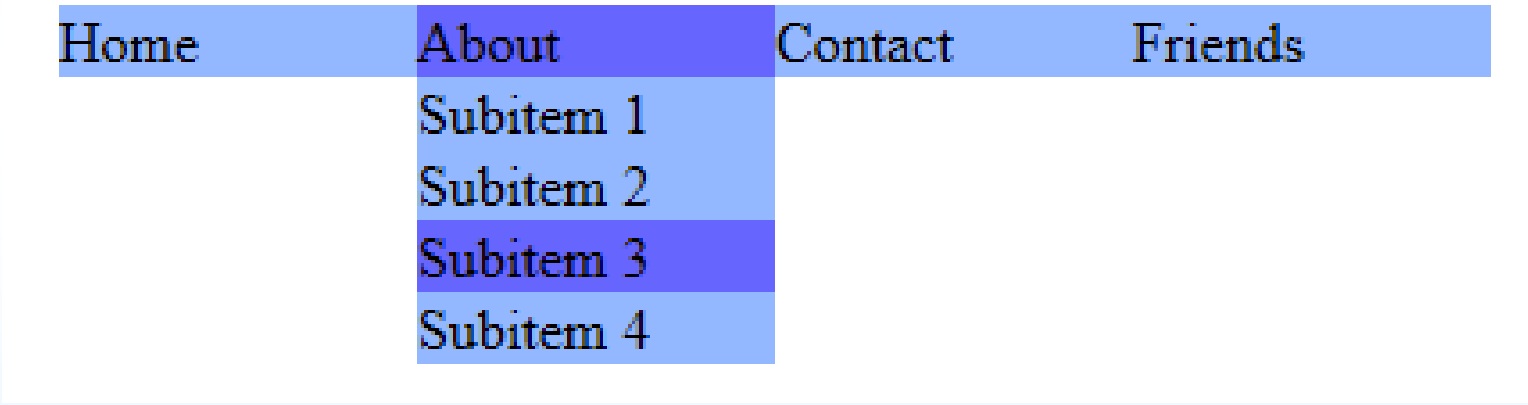
Zadatak 2

- Koristeći HTML i CSS, organizirajte sadržaj web-stranice kao na slici:



Zadatak 3

- Koristeći HTML i CSS, napravite padajući izbornik kao na slici (kad mišem prijeđemo iznad "About" otvori se podizbornik):



- Uputa: trebat će vam CSS svojstva poput `position`, `top`.