Training Application Developer

Learning Interface

Regular expressions

Domain C Level 2

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Overview

Level: Domain C Level 2
Duration:3 weeksMethod:Weekly schedule

Prior knowledge

HTML and CSS,

C2 Javascript

Materials

The following study materials are used:

- www.w3schools.com
- Your laptop

Instruction

It is recommended to follow this document from start to finish. Try out as many commands as possible. In between, show as much as possible to the teacher to see if you are on the right track.

Goals

You can use regular expressions to validate data.

You can use Jquery.

Assessment

This module concludes with two final assignmentsand. You have to hand this in in one zip file in Magister

Study block 1

Study

From Wikipedia:

Regular expression

A **regular** *expression* (from English, abbreviated to "regexp", "regex" or RE) is a way of describing patterns that allow a computer to recognize text. There is a formal syntax for this, which is partly standardized.

For example, regular expressions are used in text editors to search and manipulate pieces of text, in other programs they are used to check that certain patterns occur. Many programming languages support regular expressions for text manipulation. Some, like Perl and JavaScript, even have them built into their syntax. Regular expressions have become especially popular due to the utilities of the Unix operating system, such as sed and grep.

A simple variant of the regular expression can be found in many operating systems as the wildcard characters that can be used when searching for file names.

Basic concepts

A regular expression describes a collection of strings without listing them all. For example, the three strings *Handel*, *Handel* and *Haendel* can be described with the pattern "H(a|ä|ae)ndel".

Ordinary letters and numbers in the regular expression recognize the same character in the string to be found. A number of signs have special meaning:

- A period (**.**) represents any character except the newline character (**\n**).
- Square brackets list possible characters: **[**abc**]**.
  - Inside square brackets, a minus sign represents a sequence: **[**a-zA-Z**]** is the pattern by which all letters are "caught".
  - A roof as the first character within the square brackets changes the character set to the reverse: **[**^0-9**]** recognizes anything that is not a number.
- A roof **^** represents the beginning of the line.
- A dollar sign **$** represents the end of the line.

These basic elements can be combined with the following constructions:

Choice

A vertical bar separates the alternatives, e.g. "green**|** red" recognizes "green" or "red".

Quantification

A quantifier behind a sign indicates how often that sign may occur. The most common quantifiers are **+**, **?** and *****:

+ A plus sign indicates that the preceding character must appear at least once, e.g. "goo**+**gle" recognizes *google*, gooogle, *goooogle*, etc.

? A question mark indicates that the preceding character may occur no more than once, for example "De Bruij**?** n" recognizes "De Bruin" and "De Bruijn".

***** An asterisk indicates that the preceding character can occur zero or more times, for example, "0*****42" recognizes 42, 042, *0042* , and so on.

A common construction is .***** that finds all text.

Grouping

Parentheses make a unity of the pattern they are around, e.g. "**(**va**|** moe**)**der" is the same as "father|mother" and "**(**large**)?** father" recognizes both "father" and "grandfather".

These constructions can be combined in the same pattern so that "H(ae?| ä)ndel" is the same as "H(a|ae|ä)ndel".

The exact syntax varies slightly between the different programs, but usually the above are used.

Study on w3schools.com:

- https://www.w3schools.com/jsref/jsref_obj_regexp.asp
- https://www.w3schools.com/js/js_regexp.asp

Commands

Assignment 1

Create a regular expression for the following components:

A. Dutch postal code
B. Dutch phone number
C. Enamel
D. Address
E. Male or female imports

You can try out your regular expression on the following websites:

- http://www.regexpal.com/
- https://regex101.com/

Assignment 2

Test all your regular expression of command 1 in javascript.
This website can help you: https://www.w3schools.com/js/js_regexp.asp

Assignment 3

Study the following data and create a regular expression to do so:
0023
0240
2302
4002
0240

Study block 2

Study

Study on w3schools.com (jQuery tutorial):

- Home
- Intro
- Get Started
- Syntax
- Selectors
- jQuery Effects Hide/Show

Commands

Assignment 1

Create a simple html page with some <li> tags in it. For example, a wish list for your birthday. Make sure you can use jQuery in your html page. Also put a button on it

a. Make all <li> invisible with the click of a button
b. Add another button and make sure that one button hides all<li> and the other shows all <li> again.
c. Give a few <li> tags the class name "test". Add a piece of jQuery that after clicking a third button makes all <li> with class name test disappear.
d. * Make all <li> blue with 1 button and all <li> back to normal with the other button.

* This command is trickier, see how your css does things in jQuery.

Assignment 2

Create a simple html page with a number of <li> tags in it and around it a number of <div> tags.

a. Create a button that turns all <li> elements blue, but only if the css class of that div is colorCustomizable.
b. Create another button that will return the elements to their original state.

Assignment 3

Use the previous html file.

a. Create a button that turns all <li> tags blue that has color Customizable within a div with class and only if the <li> element itself has a class "customizable".
b. Create another button that will return the elements to their original state.

Assignment 4

Create an html file with four rows of <div> in which 4 <div> elements will be added. Make sure you get a neat square with four rows of four blocks of, for example, 100px. You can do this in CSS.

a. Create a button that gives each block a random color, where you can choose from 4 colors.
b. If you click on one of the blocks, all blocks that have the same color should turn white again. Hint: use colors that have a common name...

Study block 3

Study

Study of w3schools.com:

- Events

Commands

Assignment 1

Create an html file with three buttons and a <div>.

a. When you click on a button, make sure that the name of the button appears in the div
b. Do the same but when you hover over the button with the mouse
c. Modify your file so that when you hover over the first button with the mouse, your program randomly clicks one of the other two buttons.

Assignment 2

Create an html file with one button and a <div>, you can do the formatting of the div in css or in jquery.

In jQuery , create a program that causes the div to alternately turn red and green when you click on it.

Assignment 3

Create a simple form in html with at least 3 input fields and make sure that if the cursor is in one of the fields, the border gets a striking color and otherwise the default color.

Assignment 4

Create an html file with four rows of <div> in which 4 <div> elements will be added. Make sure you get a neat square with four rows of four blocks of, for example, 100px. You can do this in CSS. (Or, of course, you make a copy of last week's file)

Choose a color that has a name (nice and easy), make sure that if you hover over a box that that box gets the chosen color and if the mouse does not hang above it, the box returns to normal.

Assignment 5

Start with the same file as in command 4

a. Devise a procedure that ensures that all boxes are given a color, always two boxes the same color.

Make sure that there is a counter on the screen, and if you click the same color twice in a row, you add 1 to the counter.

Study block 4

Study

Study of w3schools.com:

- jQuery Effects

Commands

Assignment 1

Create a simple page and run a line text from right to left at the bottom. Just like you see with some TV programs. Basic formatting is allowed in CSS, the running part must be in jQuery.

Assignment 2

Create another simple html page. Put there on a div, which on the right takes up about a quarter of your screen in width. Make sure that a maximum of 5 lines of text can fit in, and fill those 5 lines with random text.

a. Create a button that adds a piece of text at the bottom, and thus discards one at the top.
b. Make assignment a more beautiful, because when you add one, the top item becomes more and more invisible and then removed, and then the new item at the bottom is added and slowly becomes visible.

Assignment 3

Create a rectangle of divs and fill it with images by controlling this in css.

a. If you move your mouse over a picture, it should get bigger
b. If you click on the picture, the picture flies out of the picture in a fun way. The more different way the more fun!

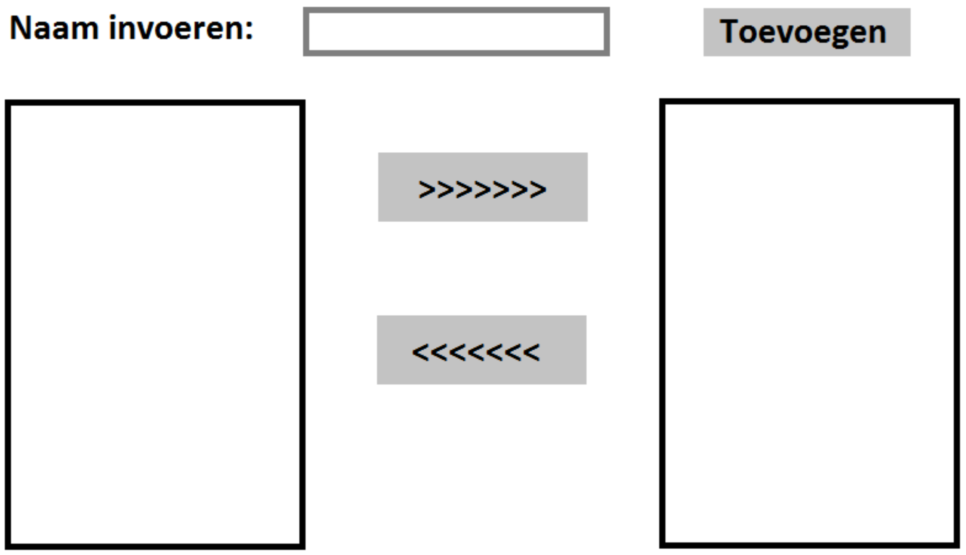
Assignment 4

Create a web page with a slider of three images. Of course, you have to make that slider yourself. It has to be continuous. You may use a tutorial.

Hand-in orders

Assignment 1

Create the example below (use divs for the large fields):



If you click on add, the entered name will appear in the left column . With the buttons between the columns you can slide the name from left to right and vice versa. Tip! Make use of an array.

See next sheet for assignment 2!

Assignment 2

- Create a form that can be displayed in both English and Dutch. The user must be able to choose between English or Dutch, make 2 links or 2 buttons. The different names for the fields must be stored in an array. After choosing, use jquery fade in/out to display the form.
- There is a choice for lord or madam. If one of the options is chosen, the style will change as follows:
    - With a man you get a dark green background with light green text fields.
    - With a woman, you get a purple background with pink text fields.
- If a date of birth is entered, the age is automatically calculated. The age should slowly appear behind the text field of the date of birth. To do this, use jquery effects. Search the internet for a formula for age calculation.
- All fields contain a regular expression test. Enter a popup window in case of an error message.

The following fields must appear in the form:

- Salutation (Sir or Madam)
- Name (regex=letters only)
- Address (regex=all possible characters in which a number must appear)
- Place of residence (regex=only letters with possibly a number)
- Postal code (regex=4 digits followed by 2 letters)
- Date of birth (regex=notation: 27-07-1978)
- Nationality (regex=letters only)
- Occupation (regex=letters only)
- Comments (textarea)

All fields except "comments" are required.

Hand in

All files of these 2 assignments must be submitted in one zip file in Magister

Sources

- ✓ http://javascript.divendo-webs.com/
- ✓ https://nl.wikipedia.org/wiki/Reguliere_expressie
- ✓ http://www.w3schools.com