

# Markup Languages

## Practice 2. XML + DTD



# Task 2. Making Markup Language CVML

1. Create your own semantic markup language CVML (Curriculum Vitae Markup Language) to store the data on your professional CV (minimum of CV components see task 1). Using Microsoft Visual Studio or any other XML-editor (XML Copy Editor, XMLPad, etc.), make CVML-document (**cvml.xml**).
2. Make a DTD document (Document Type Definition) for the language CVML. Comment semantics of elements and attributes data. Document DTD should be placed in a file **cvml.dtd**.
3. Check up well-formed and valid our xml-document using XML Validation.

# Instructions for task 2.

## Making XML-document

1. Making XML-document by Microsoft Visual Studio 2010.
  - 1) Run Microsoft Visual Studio 2010.
  - 2) Making new file, choose file type as «XML File».
2. Save your XML-document as *cvml.xml*. Press Ctrl+S, select Desktop, called your file as cvml.

# Instructions for task 2.

## Thinking about resume elements

1. Open task 1.
2. Look at the sections that should be present in resume. Let's look at first section:
  - ◆ Personal Information
    - ◆ surname, name
    - ◆ date of birth, place of birth
    - ◆ gender
    - ◆ photo
    - ◆ marital status
3. We should create XML-elements and attributes describing this information.

# Instructions for task 2.

## Creating resume elements

1. Let's create XML-elements for personal Information, surname, name, date of birth, place of birth, gender, photo, marital status.
  - What to choose a name for the element?
  - What will element content?
  - How much will these elements?
  - Will be required the element?
  - Will be attributes?

# XML Naming Rules

- ◆ XML elements must follow these naming rules:
  - ◆ Names can contain letters, numbers, and other characters
  - ◆ Names cannot start with a number or punctuation character
  - ◆ Names cannot start with the letters xml (or XML, or Xml, etc)
  - ◆ Names cannot contain spaces
  - ◆ Any name can be used, no words are reserved.

# Instructions for task 2.

## Creating resume elements

- ◆ Make all the elements and attributes in the file `cvml.xml`.

# Instructions for task 2. Making DTD-document

1. Making DTD-document by Microsoft Visual Studio 2010.
  - 1) Making new file, choose file type as «Text File».
2. Save your DTD-document as *cvml.dtd*. Press Ctrl+S, select Desktop.

# DTD Declaration

- If the DTD is declared **inside the XML file**, it should be wrapped in a DOCTYPE definition with the following syntax:

```
<!DOCTYPE root-element [element-declarations]>
```

- Declared in an **external file**:

```
<!DOCTYPE root-element SYSTEM "filename.dtd">
```

## example.xml

```
<?xml version="1.0"?>  
<!DOCTYPE book SYSTEM  
"example.dtd">  
<book>  
...  
</book>
```

## example.dtd

```
<?xml version="1.0"?>  
<!ELEMENT book (title, author*,  
pages)>  
<!ELEMENT title (#PCDATA)>  
<!ELEMENT author (#PCDATA)>  
<!ELEMENT pages (#PCDATA)>
```

# DTD Syntax Rules

`<!ELEMENT name (element-content)>`

`<!ATTLIST element-name attr-name  
attr-type default-value>`

◆ attr-type:

- ◆ Type: CDATA, ID, IDREF, NMTOKEN,...
- ◆ Values: (en1|en2|...)

◆ default-value:

- ◆ value
- ◆ #REQUIRED
- ◆ #IMPLIED
- ◆ #FIXED value