

050132 Advanced Software Architecture (UE), Winter Semester 2015/16

Task 3

Task 3: Domain-Specific Languages with Xtext

Task-ID: XTX

General Remarks

- The **deadline** for this work is the 22.11.2015, which can also be found in Moodle (<https://moodle.univie.ac.at/course/view.php?id=46197>). The deadline is firm! No deadline extensions are given.
- You will have to present your solution during the presentation in class: 1.12.2015 (Group 3), 2.12.2015 (Group 2), 3.12.2015 (Group 4), 4.12.2015 (Group 1) – so be prepared and bring with you the requisite materials (laptop, your presentation, running example, ...)
- Your delivered solution will be graded with up to 10 points, which have to be defended during presentation.
- This is an **individual work**. Consequently, group work is **not** allowed in this assignment.
- If you have problems, do not hesitate to query the Moodle forum (<https://moodle.univie.ac.at/mod/forum/view.php?id=1120095>), contact the tutors (ase.tutor@swa.univie.ac.at), or us (ase@swa.univie.ac.at) via e-mail.

Submission Guidelines

- The guidelines proposed on https://swa.univie.ac.at/General_guidelines must **always** be satisfied.
- If guidelines are ignored,
 - an assessment of the tasks **cannot be guaranteed** because they are processed electronically.
 - In case of any unsatisfied guidelines, three (3) points will be deducted from the assessment of the task.
- Artifacts to upload into Moodle are (see guidelines for more information):
One (1) ZIP archive containing:
 - One (1) Eclipse project containing your DSL
 - The Eclipse project(s) generated from your DSL
 - One (1) full instance of the DSL
 - Document about your assumptions (PDF)

Task Definition:

Right at the Start

Please, read the guidelines at https://swa.univie.ac.at/General_guidelines, especially the part about naming conventions for your uploads! If you do not follow these guidelines, we will not be able to grade your work, because we will not be able to find your files any more (yes, it is that simple ...).

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Task 3 Assignment

Wikipedia's content is written in the Wiki Markup Language (commonly called "wikitext") [1], a lightweight markup language that provides a simple, easy-to-read syntax. It provides text formatting as well as allowing the addition of features such as internal and external links, the construction of templates, etc.

a) Create a Domain-Specific Language (DSL) using Xtext [2] that allows the description of a subset of the Wiki Markup Language as given in Annex 1.

Your DSL must, at a minimum, be able to replicate the behaviour of the "wikitext" shown in the example. To do that, it must ptext formatting (e.g. bold and italic text, ordered and unordered lists, indentation), the structuring of the text (headers and paragraphs), allow the definition of internal and external links, allow the inclusion of media items, as well as the use of the templates given above. The above example is an indicative instance; you are strongly advised to check up actual usage and the full definition of the syntax elements given above in Wikipedia.

b) Create an Xtend [3] transformation that renders your "wikitext" into plain html pages. For an example, see Annex 2.

c) Create a sample instance of the DSL you created. This instance needs to contain at least six content items written with your "wikitext". The instance must use all of the syntax items defined in your DSL. At least one template must be reused in more than one than one pages, at least two pages must make linked references to sections of the other's content, and at least two different sets of content items must belong to a common category.

Checklist

Before uploading your solution, ensure the following checkpoints can be marked positive:

- I followed the guidelines and conventions from https://swa.univie.ac.at/General_guidelines
- I created an Xtext-based DSL that correctly models the syntax elements given in the example
- I created an Xtend transformation that produces a correct rendering of the "wikitext" into html
- I created an instance of the DSL with the required characteristics

Tips and references

[1] Wiki Markup: https://en.wikipedia.org/wiki/Help:Wiki_markup

[2] Xtext documentation: <https://www.eclipse.org/Xtext/documentation/>

[3] Xtend documentation: <https://www.eclipse.org/xtend/documentation/>

Document your thought and solution process. Feel free to make your own assumptions, but mention them in your document. If you use solutions found on the web, please record them as such, with the appropriate link.

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Annex 1: Wikitext example



```
=Task 3=
{{about|the example instance for ASE Task 3|actual information on Mediawiki|MediaWiki|and|Help:Wiki markup}}
[[File:Award numeral 3.svg|thumb|This is the example test for the '''''3rd Task''''']]

==Background==
When ''[[Wikipedia]]'' was first launched in January 2001 (cf. [[History of Wikipedia#Timeline|Timeline of Wikipedia]]), it
ran on the existing ''wiki'' software ''[[UseModWiki]]'', which was written in ''[[Perl]]'' and stored all ''wiki'' pages
in text files. This software soon proved limiting, both in its functionality and its performance. In mid-2001, [[Magnus
Manske]], a developer and student at the [[University of Cologne|Cologne University]], began working on new software that
would replace ''UseModWiki'', specifically for use by ''Wikipedia''. This software was written in ''[[PHP]]''
([https://secure.php.net/]) and stored all its information in a ''[[MySQL]]'' ([https://www.mysql.com/ www.mysql.com])
database.
<blockquote>This software was referred to as "the ''PHP'' script" and as "phase II", with the name "phase I" retroactively
given to the use of ''UseModWiki''.</blockquote>

===Milestones===
Major milestones in ''MediaWiki''{{'}}s development have included (see also [[#Version history|below]]):
# the categorization system, added in 2004
# [[Parsing|parser functions]], added in 2006
# [[flagged revisions]], added in 2008
# the ''ResourceLoader'', a delivery system for [[Cascading Style Sheets|''CSS'']] and ''[[JavaScript]]'', added in 2011
# the [[VisualEditor]], a [[WYSIWYG]] (What You See Is What You Get) editor, added in 2013

====[[Version history]]====
{{main|MediaWiki version history}}
* 1.1
* 1.2
** 1.2.1
** 1.2.4
* 1.3

[[Category:MediaWiki|*]] <!-- This means that this page is the main page of the category -->
[[Category:Free software programmed in PHP]]
[[Category:Free wiki software]]
[[Category:2002 software]]
[[Category:Cross-platform free software]]
```

Wiki markup ▼ Insert:  Wiki markup: 

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Annex 2: Rendered page

Project page **Talk**

Read **Edit** **View history**

Search

Wikipedia:Sandbox

Task 3

This page is about the example instance for ASE Task 3. For actual information on Mediawiki, see [MediaWiki](#) and [Help:Wiki markup](#).

Background

When *Wikipedia* was first launched in January 2001 (cf. [Timeline of Wikipedia](#)), it ran on the existing *wiki* software *UseModWiki*, which was written in *Perl* and stored all *wiki* pages in text files. This software soon proved limiting, both in its functionality and its performance. In mid-2001, [Magnus Manske](#), a developer and student at the [Cologne University](#), began working on new software that would replace *UseModWiki*, specifically for use by *Wikipedia*. This software was written in *PHP* ([\[1\]](#)) and stored all its information in a *MySQL* (www.mysql.com) database.

This software was referred to as "the *PHP* script" and as "phase II", with the name "phase I" retroactively given to the use of *UseModWiki*.

Milestones

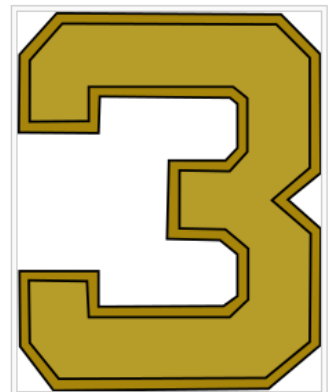
Major milestones in *MediaWiki*'s development have included (see also [below](#)):

1. the categorization system, added in 2004
2. [parser functions](#), added in 2006
3. [flagged revisions](#), added in 2008
4. the "ResourceLoader", a delivery system for *CSS* and *JavaScript*, added in 2011
5. the *VisualEditor*, a *WYSIWYG* (What You See Is What You Get) editor, added in 2013

Version history

Main article: [MediaWiki version history](#)

- 1.1
- 1.2
 - 1.2.1
 - 1.2.4
- 1.3



This is the example test for the **3rd Task**

Categories: [MediaWiki](#) | [Free software programmed in PHP](#) | [Free wiki software](#) | [2002 software](#) | [Cross-platform free software](#)