Vrije Universiteit Brussel

Proposal bachelor thesis

Title: Advanced Linking and Annotations for Office Documents

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Includes preparation course: No

Context

Existing hypermedia solutions and document formats often only support simple forms of linking. While many document formats offer the possibility to link to entire third party documents, it is normally not possible to address parts of these documents. For example, a developer can create hyperlinks in an HTML document targeting entire PDF or Word documents but it is not possible to address only parts of these documents. Another example is that we cannot establish a link between pieces of information in PDF and Word documents. This limitation is due to the simple embedded unidirectional link model offered by most of today's document formats.

In order to support cross-document linking, we have developed a linking service that uses external hyperlinks, takes into account the multitude of existing document formats and is extensible for emerging new formats. The architecture of the linking service is extensible to support any document format via a plug-in mechanism. The linking service differentiates between two kinds of document formats: document formats to be visualised in the linking service user-interface and document formats to be visualised within a third-party applications (e.g. PDF document visualised in Acrobat Reader). For a document format that is visualised with the linking service, a data and a local visual plug-in have to be provided. The data plug-in extends the linking model of the linking service in order to define the document format structure as well as its link anchors, while the local visual plug-in extends the link service's user-interface. The local visual plug-in is responsible for visualising the document's content, has to provide the necessary CRUD operations and deals with the highlighting of link anchors within documents. Document formats that are visualised based on their own third-party application have to provide data plug-ins to extend the link model of the linking service and provide external visual plug-ins for their own third-party applications. External visual-plug-ins communicate with the linking service about link anchors to be created or highlighted. Currently, the linking service supports the linking across XML, HTML, Text and PDF documents. XML, Text and PDF formats are supported via local visual plug-ins while HTML has been supported via Google Chrome visual plug-in. For more information about the linking service please refer to [1].

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In this bachelor project, the student will integrate office documents (Word and PowerPonint) into our link service. This includes the investigation of how to best augment existing office documents with additional link metadata and how to offer the necessary CRUD operations via new user interface components and interactions. The student will develop a visual plug-in (add-ins) for Microsoft Office. The visual plug-in should be built based on the Software Development Kit provided by Microsoft.

Preparatory course bachelor thesis

(only if applicable)

1- Tayeh, A.A.O. and Signer, B.: "Open Cross-Document Linking and Browsing based on a Visual Plug-in Architecture", Proceedings of WISE 2014, 15th International Conference on Web Information System Engineering, Thessaloniki, Greece, October, 2014