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Article title: Teaching AJAX in Web-centric Courses

Year of publication: 2007

Citation: Draganova, C. and Vassilev, V. (2007) 'Teaching AJAX in Web-centric Courses', In: Proceedings of the 12th annual SIGCSE Conference on Innovation and Technology in Computer Science Education (ITiCSE 2007), June 23–27, Dundee, Scotland, United Kingdom, ACM p. 311

Link to published version: <http://dx.doi.org/10.1145/1268784.1268877>

DOI: 10.1145/1268784.1268877

Teaching AJAX in Web-centric Courses

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ABSTRACT

Asynchronous JavaScript and XML (AJAX) is a web development technique for building responsive web applications behaving in a similar fashion to traditional desktop applications. This poster illustrates ideas for teaching the AJAX technique in web-centric courses based on the experience of implementing these ideas at London Metropolitan University and provides links to resources appropriate for use in laboratorial work.

Categories and Subject Descriptors

H.3.5 [Online Information Services]: Web-based services

General Terms

Languages, Design, Experimentation, Human Factors

Keywords

Service-Oriented Architectures, Asynchronous Communications, Web applications, AJAX

1. INTRODUCTION

The constant change in web development technologies requires continuous revision of the respective computing courses. AJAX became very popular after the adoption of the technique by the Google projects: Gmail, Google Maps and Google Suggest. The AJAX model of communication brings the desktop type functionality to the web and raises the user's expectations from the web [1]. This pushes developers and companies around the world to adopt the AJAX approach and include it in their tools and frameworks.

In response to this current technological development topics related to AJAX have been introduced in existing web related courses at London Metropolitan University. This poster aims to share some ideas and examples related to teaching the AJAX technique. Our experience shows that students find it interesting and motivating to learn popular innovative technologies.

2. TEACHING AJAX

The key underlying concepts that need to be addressed when teaching the AJAX technique include: asynchronous communication models, event models of user interaction and the Document Object Model (DOM) for manipulating content, structure and the style of documents. Table 1 illustrates our view

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ITICSE '07, June 23–27, 2007, Dundee, Scotland, United Kingdom.
ACM 978-1-59593-610-3/07/0006.

of the lecture topics and workshop exercises related to introducing the AJAX approach at different levels of web related courses.

Table 1. AJAX lectures and workshops

Lecture topics	Workshop exercises	Course Level
DOM; JavaScript; Event Model	Using JavaScript DOM [2]	Introductory
XML; AJAX Introduction, HTTP Callback;	Forms, Process Monitoring and Synchronization [3]	Intermediate
AJAX patterns; AJAX Frameworks, Pattern-oriented Architectures	Communication Control Patterns [4], AJAX APIs, Tools	Advanced

More information of appropriate resources for use in laboratorial work and lecture slides related to the above topics can be found on www.city.londonmet.ac.uk/~draganov/ajax.

3. CONCLUSIONS

The AJAX technique requires relatively little new knowledge and can be easily included in teaching web application development by focusing on specific parts of existing technologies and demonstrating appropriate applications. This provides the students with opportunities to develop broader skills in web application development, improve their understanding of fundamental concepts related to event driven programming, the Document Object Model and Object Oriented techniques. Some of the challenges that we experienced include overcoming the different level of understanding of the prerequisite concepts by the students, the need of developing more suitable examples and finding an appropriate tool or a framework for rapid development of AJAX applications at advanced level. The ideas presented here could be used as an example of embedding emerging technologies in the computing curriculum through existing courses.

4. REFERENCES

- [1] Paulson, L.D. Building rich applications with AJAX, *Computer*, 38, 10 (Oct. 2005), 14-17.
- [2] W3 JavaScript Tutorial <http://www.w3schools.com/js/>.
- [3] McLaughlin, B. *Head Rush AJAX*, O'Reilly Media, 2006.
- [4] Zakas, N. C., McPeak J. and Fawcett J, *Professional AJAX*, Wiley Publishing, Indianapolis, IN, 2006