



Development of an Open Source XML and JSON Visualisation Software

Allan Christopher Blundell, BSc Software Engineering, P140932, ablundell.140932@student.uwtsd.ac.uk

Introduction

To development an open source XML (eXtensible Markup Language) and JSON (JavaScript Object Notation) visualisation software. As XML and JSON become more widely used as a means to transfer data between people/computers. Visualizing this information would be useful, while there are tools available these cost huge amount of money.

“JSON is a language-independent data format that expresses JSON objects as human readable list of properties” [2]

“XML (Extensible Markup Language) is a flexible way to create ‘self-describing data’ - and to share both the format and the data on the World Wide Web, intranets, and elsewhere.” [3]

```
JSON
{
  "siblings": [
    { "firstName": "Anna", "lastName": "Clayton" },
    { "lastName": "Alex", "lastName": "Clayton" }
  ]
}

XML
<siblings>
  <sibling>
    <firstName>Anna</firstName>
    <lastName>Clayton</lastName>
  </sibling>
  <sibling>
    <firstName>Alex</firstName>
    <lastName>Clayton</lastName>
  </sibling>
</siblings>
```

Image from PC Magazine Encyclopaedia [1]

Methodology

Agile Unified Process (AUP).

This benefits of are:

- Test Driven Development.
- Prototyping.
- No limitation on the number of developers.

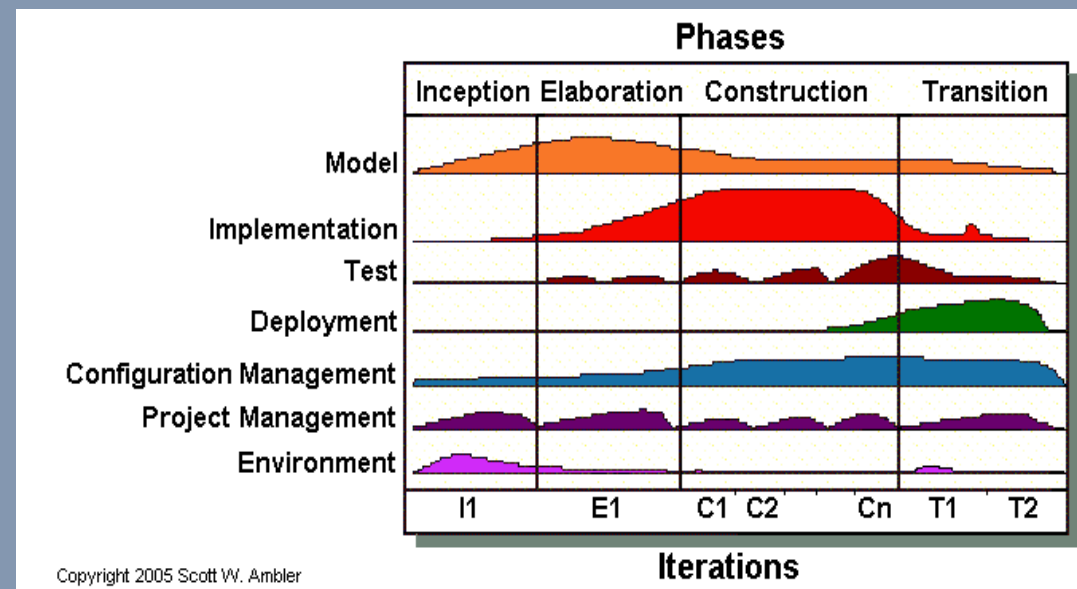


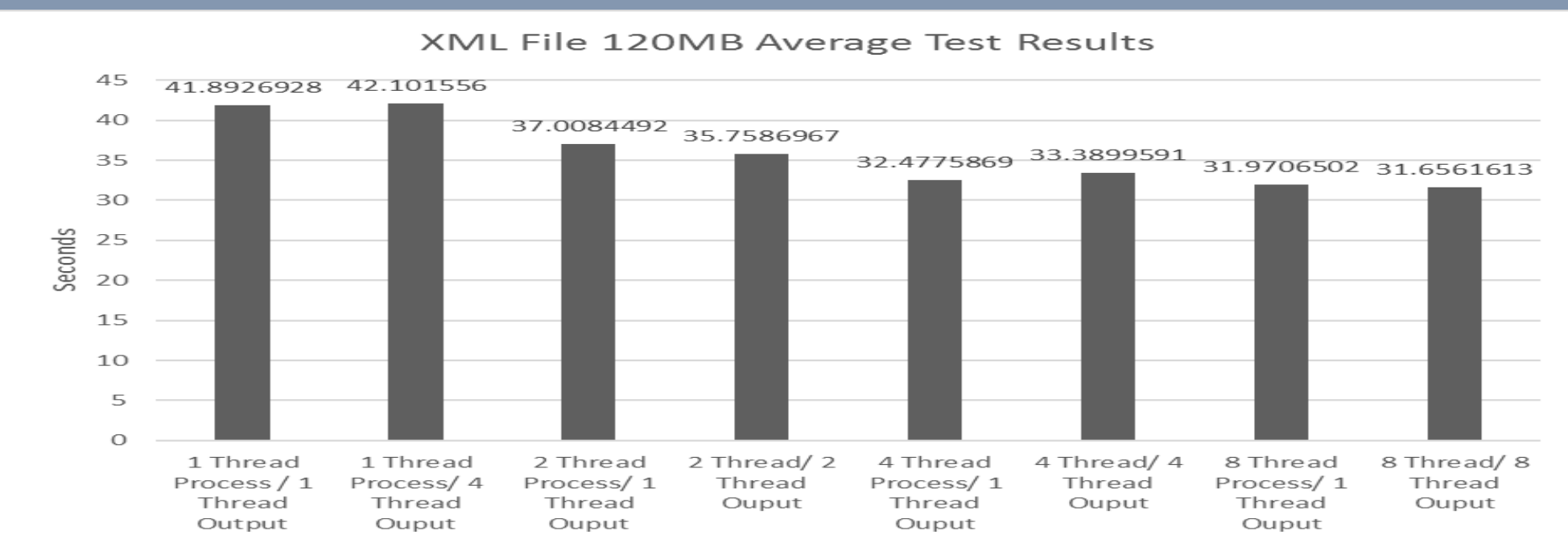
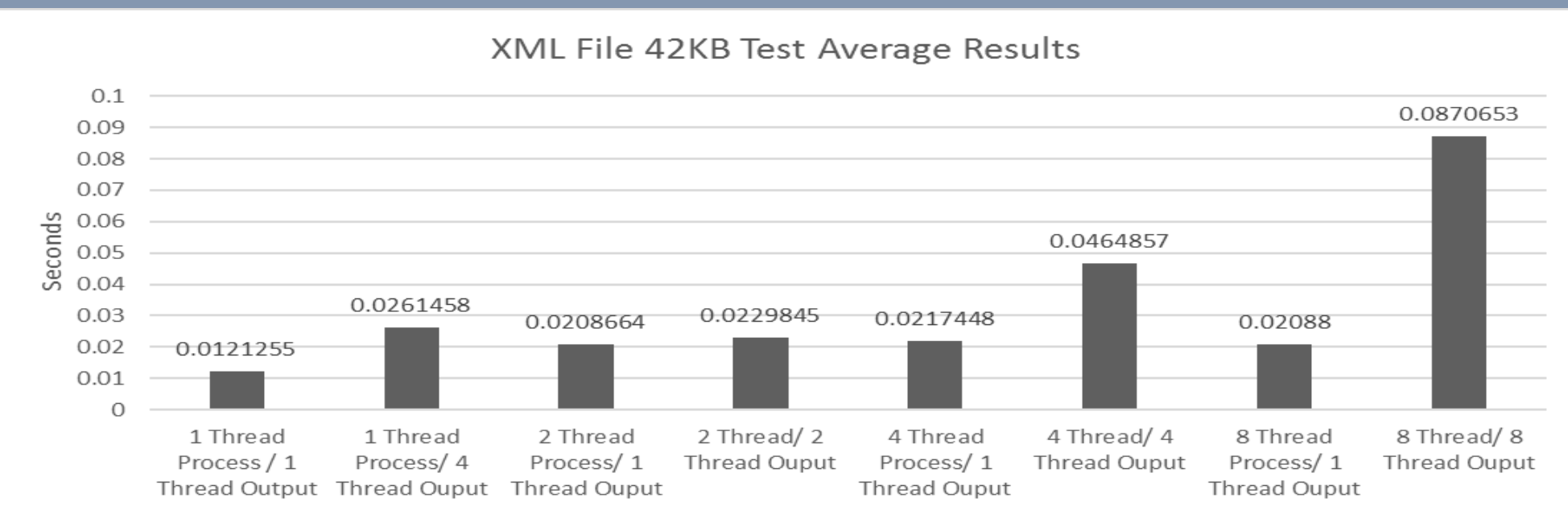
Image from The Agile Unified Process (AUP) [4]

Tools Used

- Server Side: C# - JSON.NET, HttpListener, LINQ to XML.
- Client Side: HTML, CSS, JQuery.
- Continuous Integration – Travis CI
- Unit Testing: NUnit
- Mono Framework – Run on Linux and Windows etc.

Experimentation

An experimentation to improve the processing of the documents was performed. Using technique by Kaur.N et al. [5]



Conclusion:

- Small files - Thread creation decreases performance.
- Large File - Small speed improvement.
- Further testing needed.

Conclusion

Function	OSXJV	XMLSpy	Code Beautify	XV – XML Viewer
XML	Node-based	Tree-Based	Tree-Based	Tree-based
JSON	Node-based	No	Tree-Based	No
XML Schema	Node-based	Node-based	No	No
XHTML	Node-based	Tree-Based	No	No

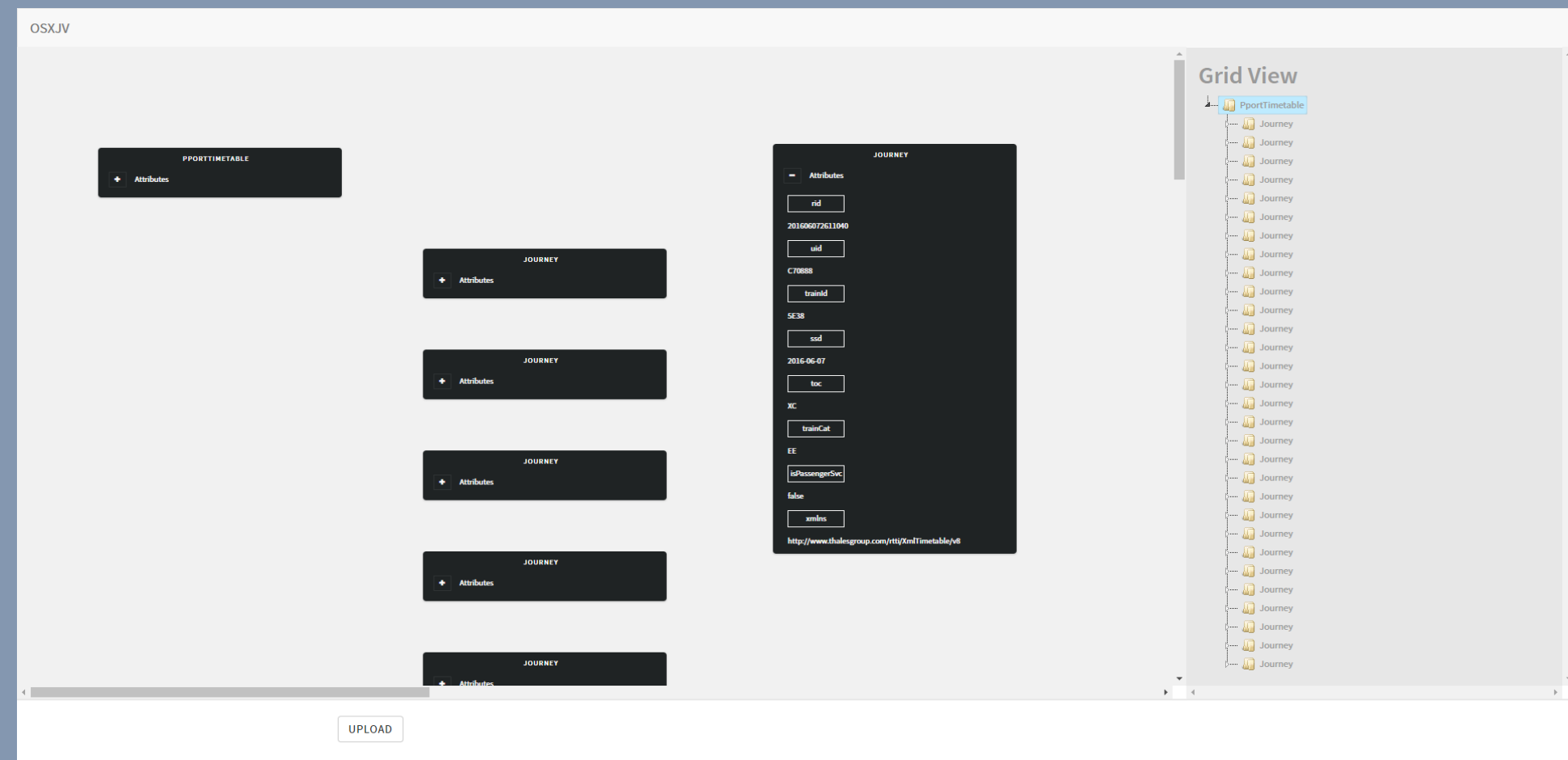


Image of application showing XML.

The aim and objectives of the project was met.

Future Research & Work

- Further research should be performed into parallel techniques to further improve performance of the application.
- Open Source licence.
- Use of other implementation of the server such as using WCF.
- Finish the User Interface.

References

- [1] “_JSON.GIF (430×415).” [Online]. Available: http://common.ziffdavisinternet.com/encyclopedia_images/_JSON.GIF.
- [2] J. FRIESEN, Java XML and JSON. Apress, 2016.
- [3] E. T. Ray, Learning XML. 2003.
- [4] “The Agile Unified Process (AUP) Home Page.” [Online]. Available: <http://www.ambyssoft.com/unifiedprocess/agileUP.html>.
- [5] N. Kaur, M.-T. Llriet, M. Harwinder, and S. Sohal, “XML Parsing on Multicore Processors and Data Representation in .NET Tree Control,” Int. J. Comput. Appl., vol. 99, no. 18, pp. 975–8887, 2014.

Similar Products

	XMLSPY	Code Beautify	XV XML Viewer
Cost	€ 399.00 - €799.00	Free	Free
Functionality	Extensive	Limited	Limited
Type	Program	Website	Chrome Extension
Main Features	Visualise XML Schema	Tree Viewer	Tree based XML Viewer