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| University of Leeds logo | School of Computing  University of Leeds  **Coursework 1 - Answers** | **Module Code**  **COMP3900** |

Full Name: username:

Coursework Title: Web services Deadline Date: 22/11/2016

**Question 1**

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| --- | --- |
| **Web service No. 1** | *Fill in this table* |
| **Name** | Books-restfull-endpoint |
| **Description** | Get book by ISBN |
| **SOAP-based or RESTful** | RESTfull / Produce JSON |
| **Name of publisher** | My own webservice |
| **Details** | Url example: http://localhost:8080/books-restfull-endpoint/rest/books/978-3-16-148410-0 |

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| **Web service No. 2** | *Fill in this table in case you have considered 3 Web services* |
| **Name** | **number-converter-soap-client** |
| **Description** | **Convert a number to words** |
| **SOAP-based or RESTful** | **JAX-WS / SOAP** |
| **Name of publisher** | **DataAccess** |
| **Details** | **It will be used to convert book's price to words. The WSDL url: http://www.dataaccess.com/webservicesserver/numberconversion.wso?wsdl** |

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| **Web service No. 3** | *Provide the details of the Web service YOU have developed* |
| **Name** | **countries-restfull-client** |
| **Description** | **Get country details by ISO code (UK, USA, ...)** |
| **SOAP-based or RESTful** | **RESTfull/ JSON** |
| **Details** | **It will be used to list states of the author country in which the book is present** |

**Question 2**

*How does your Web services development approach compare with the steps required to implement a Java RMI client?*

*- The webservice (SOAP or JSON based) middleware is more flexible and easy to use; - Stubs generation is not required to access the remote object;*

*- No technologies dependency (JSON, and XML response are supported in all programming languages).*

**Question 3**

Measure the time it takes to invoke the individual services. To get these measurements you are expected to run the experiments *n* times (e.g. n = 5). A statistical analysis (average, standard deviation) is expected.

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| **Run No.** | **Web service 1** | **Web service 2** | **Web service 3** |
| **1** | 151ms | 1286ms | 895ms |
| **2** | 4ms | 192ms | 197ms |
| **3** | 2ms | 195ms | 190ms |
| **4** | 4ms | 200ms | 580ms |
| **5** | 3ms | 202ms | 477ms |
| **Average** | 32,8ms | 415ms | 487,8ms |
| **Standard Deviation** | 32,8ms | 415ms | 487,8ms |

*Explain how you have obtained these measurements*

By class of mesurements in WsAggregator project.

*Discuss the performance results*

- The Web service 1 is more performant because is deployed in local machine (so no network distance) and the JSON response os more compact;

- The Web service 2: is performance but less than Webserice 1 because of networking distance (connexion to public directory over internet);

- The Web service 3: is less performant because of networking distance (connexion to public directory over internet) and XML format is less compact than JSON.

**Question 4**

*Consider the respective platforms upon which the service providers and service consumer are implemented. What does this tell you about how Web Services differ from more conventional distributed object technology?*

**Question 5**

*What are the factors affecting the performance of your application? In what ways, and at what cost, could performance be improved?(You may assume that you have the freedom to re-implement the SOAP or REST service providers as well as your service consumer, using a different hardware and software platform if necessary.*

**Implementation details**

**Web Service 1**

*Explain how it is invoked*

*Include relevant snippet of source code if you wish*

**Web Service 2**

*Explain how it is invoked*

*Include relevant snippet of source code if you wish*

**Web Service 3 – This is YOUR Web service**

*Provide design details*

*Explain how it is invoked*

*Include relevant snippet of source code if you wish*

**Integration / User Interface**

*Provide details of your integration*

**Servlets/JSP/Other Frameworks**

*Provide details of your Web-based application*

**Other Comments**