This test consists of two parts. Part 1, Developing a Web Application and Part 2, Technical Questions. You will have 3 hours to complete both parts.

**Part 1, Developing a Web Application (120 points)**

The general purpose of the web application is to process MS Word (docx) document using Lucene.NET and generate comments with number of occurrences for every paragraph appearing more than once.

**Functional requirements:**

* As a user I would like to upload MS Word (docx) file
* As a user I would like to have my file processed using Lucene.NET in a way that every paragraph repeated several times in the document gets a comment added to it with the number of occurrences.

**Technical requirements:**

* Use ASP.NET MVC (with C#) framework to create the web application
* Use Lucene.NET for full text indexing and searching
* Use OpenXML SDK for MS Word (docx) processing

**The application will be assessed based on the following criteria:**

* Each requirement will be scored based on completeness and correctness. Each requirement is worth 50 points, for a total of 100 points
* Organization of components – how well was the software designed according to object oriented design principles(DRY, SOLID), consistent naming conventions and aesthetics of application (10 points)
* Security – no login is required, however, there should not be any potential security flaws (10 points)

**Part 2, Technical Questions (80 points)**

(1) When developing a web application that will be accessed by users in different locations/time zones, what considerations would you take when planning the application design and infrastructure? (20 points)

(2) Describe the most common security vulnerabilities to a web application and how you can prevent them (15 points)

(3) Describe the most common approaches used for MS Word (docx) files processing (15 points)

(4) Describe multi-tenancy and how it could be useful for a project which is offering SaaS (Software as a Service) (20 points)

(5) Have you ever used an ORM? If so, which one(s). Provide characteristics of the ORMS you have used. (e.g. benefits/disadvantages) (10 points)

**Delivery Protocol:**

* Zip your solution and name the file firstname\_lastname.zip. For example, if your name is Mary Smith, the file should be named mary\_smith.zip
* In the zip file include a backup of any databases which might be needed
* Include answers to the five questions in the email
* **Please be sure to email whatever you have completed as soon as the allotted time is up.** You may continue to work afterwards and provide a more complete solution later. However, the work that was delivered at the deadline will be considered first.
* Upload the zip file(s) to the location specified in the email you received. **Please do not replace files which were already uploaded, as we will check the dates to ensure that they were delivered on time.** You can of course continue to upload files with another name.