**UTCN**

**Computer Science Department**

**Software Design 2018**

**ASSIGNMENT A3 – TudorV 2018**

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1. **Objective**

The objective of this assignment is to allow students to become familiar with the client-server architectural style and the Observer design pattern.

1. **Application Description**

Use Java/C# API to design and implement a client-server application for a news agency. The application has 2 types of users: the readers and the writers. The **readers** can view a list of articles, read an article and do not need to login in order the use the application. The **writers** need to authenticate in order tocreate, update or delete articles. So the writer accounts are preset by the application developer and cannot be altered.

An article has the following components:

* Title
* Abstract
* Author
* Body

The application must support multiple concurrent users. If a writer posts a new article, the readers must see it in the list of articles in real time, without performing any refresh operation.

1. **Application Constraints and Technical Requirements**

* The application must be client-server.
* Use the Observer design pattern for updating the list of articles in real time
* For sending data from the client to the server use JSON serialization.
* When writing an article, show a list that supports multi-select for choosing the related articles.

1. **Deliverables**

In the same Github classroom repo [ invite <https://classroom.github.com/a/fzl0JxWF> ] the following files:

* Analysis and design document.
* Implementation source files.
* Readme file that describes the installation process of the application and how to use it:
  + how to install your application on a clean computer
  + how to access your application and with what users
  + images with all use cases and their scenarios implemented

1. **Grading**

|  |  |
| --- | --- |
| **Grade** | **Functionality** |
| **5** | Analysis and design document Client-Server Architecture  Working communication layer  Json Serialization for data sent between client and server  Maven/Gradle |
| **6** | View List of Articles  Write Simple Article |
| **7** | Persist Articles  Persist Writer Accounts  CRUD on Writer Accounts  Database different than used so far |
| **9** | Open Article  Articles Update in real-time (Observer Design Pattern) |
| **10** | Quality of Implementation and Documentation  (Validated Input Data + Code + UI) |

1. **References**

<http://download.oracle.com/javase/tutorial/networking/sockets/index.html>

<https://docs.oracle.com/javafx/2/get_started/jfxpub-get_started.htm>

<https://www.tutorialspoint.com/jackson/jackson_first_application.htm>

<https://en.wikipedia.org/wiki/Composite_pattern>

<https://en.wikipedia.org/wiki/Observer_pattern>

<https://msdn.microsoft.com/en-us/library/54xbah2z(v=vs.110).aspx>

<https://msdn.microsoft.com/en-us/library/e80y5yhx(v=vs.110).aspx>