**UTCN**

**Computer Science Department**

**Software Design 2017**

**ASSIGNMENT A2**

**====================================================================**

1. **Objective**

The objective of this assignment is to allow students to become familiar with the Model View Controller architectural pattern and the Factory Method design pattern.

1. **Application Description**

Use Java/C# API to design and implement an application for the employees of a book store. The application should have two types of users (a regular user represented by the book store employee and an administrator user) which have to provide a username and a password in order to use the application.

The regular user can perform the following operations:

* Search books by genre, title, author.
* Buy books.

The administrator can perform the following operations:

* CRUD on books (book information: title, author, genre, quantity, and price).
* CRUD on regular users’ information.
* Generate two types of reports files, one in pdf format and one in csv format, with the books out of stock.

1. **Application Constraints**

* The information about users, books and selling will be stored in multiple XML files. Use the Model View Controller in designing the application. Use the Factory Method design pattern for generating the reports.
* All the inputs of the application will be validated against invalid data before submitting the data and saving it.

1. **Requirements**

* Create the analysis and design document (see the template).
* Implement and test the application.

1. **Deliverables**

* 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. **References**

<http://docs.oracle.com/javase/tutorial/uiswing/>

<http://docs.oracle.com/javase/tutorial/jdbc/basics/index.html>

<http://www.saxproject.org/sax1-roadmap.html>

<http://www.roseindia.net/xml/dom/>

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

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

<http://msdn.microsoft.com/en-us/library/system.xml.xmlreader.aspx>

<http://msdn.microsoft.com/en-us/library/system.xml.xmlwriter.aspx>

<http://msdn.microsoft.com/en-us/library/ms764730(VS.85).aspx>