**UTCN**

**Computer Science Department**

**Software Design 2017**

**ASSIGNMENT A1**

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1. **Objective**

The objective of this assignment is to allow students to become familiar with architectural patterns.

1. **Application Description**

Use JAVA/C# API to design and implement an application for the front desk employees of a bank. The application should have two types of users (a regular user represented by the front desk 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:

* Add/update/view client information (name, identity card number, personal numerical code, address, etc.).
* Create/update/delete/view client account (account information: identification number, type, amount of money, date of creation).
* Transfer money between accounts.
* Process utilities bills.

The administrator user can perform the following operations:

* CRUD on employees’ information.
* Generate reports for a particular period containing the activities performed by an employee.

1. **Application Constraints**

* The data will be stored in a database. Use the Layers architectural pattern to organize your application. Use a domain logic pattern (transaction script or domain model) / a data source hybrid pattern (table module, active record) and a data source pure pattern (table data gateway, row data gateway, data mapper) most suitable for the application
* All the inputs of the application will be validated against invalid data before submitting the data and saving it in the database.

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.
* SQL script for creating and populating the database with initial values.
* 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**

Martin Fowler et. al, Patterns of Enterprise Application Architecture, Addison Wesley, 2003

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

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

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

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