UTCN
Computer Science Department
Software Design 2018

ASSIGNMENT A1

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1. Objective

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

2. Application Description

Use JAVA/C# API to design and implement an application for a ping-pong association that organizes tournaments on a regular basis. Every tournament has a name and exactly 8 players (and thus 7 matches). A match is played best 3 of 5 games. For each game, the first player to reach 11 points wins that game, however a game must be won by at least a two point margin.

The application should have two types of users: a regular user represented by the player and an administrator user. Both kinds of uses have to provide an email and a password in order to access the application.

The regular user can perform the following operations:

- View Tournaments
- View Matches
- Update the score of their current game. (They may update the score only if they are one of the two players in the game. The system detects when games and matches are won)

The administrator user can perform the following operations:

- CRUD on player accounts
- CRUD on tournaments: He creates the tournament and enrolls the players manually.

3. 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.

4. Requirements

- Create the analysis and design document (see the template).
- Implement the application.
- Write at least one Unit Test for each method in the business layer (e.g. Test that a game ends if the score is 11-8).

5. Deliverables

The following files will be uploaded on your personal github account in a new repository:

- Analysis and design document.
- Implementation source files.
- SQL script for creating and populating the database with initial values.
- Build file (e.g. pom.xml)

The link to this repository must be sent to vlad.buzea@student.utcluj.ro after presenting the application at the laboratory. In the absence of this email the grade of the assignment is 0, regardless of the circumstances.

6. Grading

Grade	**Functionality**
5	Analysis and design document 3-Tier Project Structure View Tournaments View Matches
7	Login Update Score (And detect Game & Match end) Create Tournament from UI Create Account from UI
8	Unit Tests
9	Update Users Update Tournaments Delete Users Delete Tournaments
10	Quality of Implementation and Documentation

7. References

7.1. https://pongworld.com/table-tennis-sport/rules

7.2. Martin Fowler et. al, Patterns of Enterprise Application Architecture, Addison Wesley, 2003 (Chapters 10 and 9)

7.3. https://en.wikipedia.org/wiki/Multitier_architecture#Three-tier_architecture

7.4. https://github.com/buzea/SoftwareDesign2018

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

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