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Table of Contents

1. Requirements Analysis 3

1.1 Assignment Specification 3

1.2 Functional Requirements 3

1.3 Non-functional Requirements 3

2. Use-Case Model 3

3. System Architectural Design 3

4. UML Sequence Diagrams 3

5. Class Design 3

6. Data Model 3

7. System Testing 3

8. Bibliography 3

1. Requirements Analysis

# Assignment Specification

Design and implement an application for a ping-pong association that organizes tournaments on a regular basis.

# Functional Requirements

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)

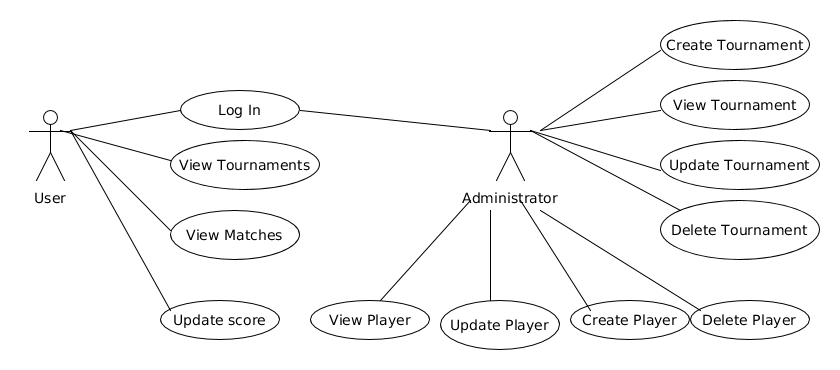
The administrator user can perform the following operations:

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

# Non-functional Requirements

* 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.

2. Use-Case Model



**Use case:** User Log In

**Level:** User-goal level

**Primary actor:** User

**Main success scenario:** The user provides his username and password, the credentials are found in the database and the log in attempt is validated.

**Extensions:** The username – password combination is not found, so the user is prompted to try again.

3. System Architectural Design

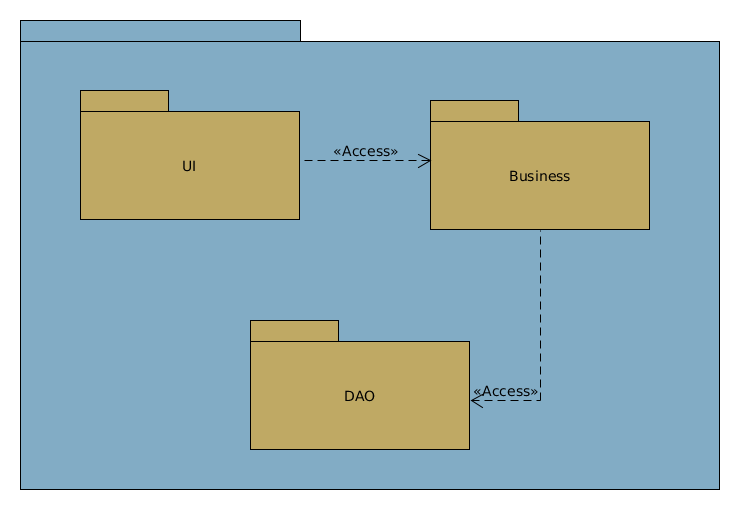
**3.1 Architectural Pattern Description**

The architectural pattern used is the Layers pattern, in order to decompose the code into 3 distinct, non-overlaping layers:

* DAO, which accesses the external database
* Business, which processes data provided by the user and uses methods visible inside the DAO
* UI, the Graphical User Interface

**3.2 Diagrams**

*[Create the system’s conceptual architecture; use architectural patterns and describe how they are applied. Create package, component and deployment diagrams]*



4. UML Sequence Diagrams

*[Create a sequence diagram for a relevant scenario.]*

5. Class Design

**5.1 Design Patterns Description**

*[Describe briefly the used design patterns.]*

**5.2 UML Class Diagram**

*[Create the UML Class Diagram and highlight and motivate how the design patterns are used.]*

6. Data Model

*[Present the data models used in the system’s implementation.]*

7. System Testing

*[Present the used testing strategies (unit testing, integration testing, validation testing) and testing methods (data-flow, partitioning, boundary analysis, etc.).]*

8. Bibliography