Gym Management System

Analysis and Design Document

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Revision History

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# Project Specification

*[Present the project specification]*

# This application will be used inside a gym for the management of gym memberships and the management of the profit the gym produces every month. Besides the management of the memberships (operations like creating a new memberships, renew the old memberships that have expired etc.), the application will offer the option to create a personalized training program for the clients of the gym, these training programs will be made by the personal trainers from that gym. These personalized training programs will be structured in two parts: a workout program and a nutrition / diet program. The owner of the gym will have the possibility to monitor his employees using reports about their activity. The last functionality that the application will offer is analyzing the profit that the gym produces every month.

# Elaboration – Iteration 1.1

# Domain Model

*[Define the domain model and create the conceptual class diagrams]*

The users of this application (staff of the gym) will be able to create memberships for those who want a subscription at the gym. Also, they will have the possibility to renew old memberships and even delete the ones that haven’t been used in the past year.

Memberships will be identified by a unique ID of the User.

Also, the system will offer the possibility to create personalized training programs. Those programs will be made with the help of the personal trainers of that gym. Each training program can have 1 or more customers of the gym. Those training programs will be split in two parts: a diet program and a workout plan.

The owner of the gym will have access to the profit of the gym.

# Architectural Design

## Conceptual Architecture

*[Define the system’s conceptual architecture; use an architectural style and pattern - highlight its use and motivate your choice.]*

The architecture of the application will be based on Layered Architecture. The reason why I will use Layered Architecture is that Layered Architecture increases flexibility, maintainability, and scalability. In a Layered architecture we separate the user interface from the business logic, and the business logic from the data access logic. Separation of concerns among these logical layers and components is easily achieved with the help of layered architecture. Layered architecture enables develop loosely coupled systems.

## Package Design

*[Create a package diagram]*

## Component and Deployment Diagrams

*[Create the component and deployment diagrams.]*

# Elaboration – Iteration 1.2

# Design Model

## Dynamic Behavior

*[Create the interaction diagrams (1 sequence, 1 communication diagrams) for 2 relevant scenarios]*

## Class Design

*[Create the UML class diagram; apply GoF patterns and motivate your choice]*

# Data Model

*[Create the data model for the system.]*

# Unit Testing

*[Present the used testing methods and the associated test case scenarios.]*

# Elaboration – Iteration 2

# Architectural Design Refinement

*[Refine the architectural design: conceptual architecture, package design (consider package design principles), component and deployment diagrams. Motivate the changes that have been made.]*

# Design Model Refinement

## *[Refine the UML class diagram by applying class design principles and GRASP; motivate your choices. Deliver the updated class diagrams.]*

# Construction and Transition

# System Testing

*[Describe how you applied integration testing and present the associated test case scenarios.]*

For testing, I will use Unit Testing.

# Future improvements

*[Present future improvements for the system]*

# Bibliography