Bahir Dar University

Bahir Dar Institute of Technology

Faculty of Computing

Industrial project on

Gym club management System for Bahir Dar Gym

Submitted to the faculty of computing in partial fulfilment of the requirements for the degree of Bachelor of Science in computer science

Group members

Name	ID No
1. Getaneh Alehegn	0602049
2. Minichil Assefa	0602111
3. Selam Ayalew	0602142

Advisor : Derejaw Lake

January 29, 2009
Bahir Dar, Ethiopia

Declaration

The Project is our own and has not been presented for a degree in any other university and all the sources of material used for the project have been duly acknowledged.

Name	**Signature**
Getaneh Alehegn	----------
Minichil Assefa	----------
Selam Ayalew	----------

Faculty: Computing

Program: degree of Bachelor of Science in computer science program

Project Title: Gym club management System for Bahir Dar Gym

This is to certify that I have read this project and that in my opinion it is fully adequate, in scope and quality, as a project for the degree of Bachelor of Science.

---------- ----------

Name of Advisor **Signature**

Examining committee members	**signature**	**Date**
1. Examiner 1	.....	.....
2. Examiner 2	.....	.....

It is approved that this project has been written in compliance with the formatting rules laid down by the faculty.

Acknowledgment

We wish to express our sincere gratitude to project advisor, Mr. Derejaw Lake. For his guidance, continuous support and encouragement throughout the completion of this final year project. We would also like to convey my heartfelt appreciation to Mr. Derejaw Lake. For contributing his ideas and in-depth knowledge in the field.

A warm thank is extended to BDU lecturers for sharing their resources, opinions, knowledge, experience and skills in programming and development methodology, so generously. We would also like to thank our family, friends in BDU and our fellow class-mates who have one way or another extended their assistance in completing this project.

Lastly, we wish to acknowledge the good support shown by all lectures who teach before.

Table of Contents

List of figures

List of Tables

List of acronyms

Admin: System Administrator

BDR: BAHIR DAR

BDU: Bahir Dar University

GYM: Gymnasium

GCMS: Gym Club Management System

UC: use case

SQL: Structured query language

MYSQL: MY Structured language

UML: Unified modelling language

BR: Business rule

PHP: Hypertext Preprocessor

CSS: Cascading style sheet

HTML: Hyper Text Markup Language

HTTP:Hyper Text transfer protocol

ODBC: Open Database Connectivity

AJAX: Asynchronous JavaScript and XML

Abstract

The main purpose to develop this project is in partial fulfillment of the requirement for Bachelor of Science. Besides that, is to help the BDR GYM club Center to reduce their overload paperwork. BDR GYM club management System mainly consists of the following modules which are login Module, Trainer Module, notification Module, Payment Module, schedule Module, Report Module, and Logout Module. We were using the Object Oriented Approach to design our system. We was draw out some the diagram such as class diagram, deployment diagram, activity diagram and sequence diagram in order to help us have the better idea when develop the system. The tools we are using to develop our system are umlet, Rapid php editor 2016 and MS word 2013.During the system development, Mr. Derejaw give us some suggestion in the designing system. First of all, we come out a proposal with the propose system that we want to develop. Then we find the advisor that who accepts our proposal and guide us for the final year project. After that, we come out the project specification. Which include the company background, business rules, organization structure, project objective, project scopes and project schedules. After we done all the initial plan and analysis, then we start to design the UML diagram such as class diagram, deployment diagram, activity diagram and sequence diagram. The project overall is consider fulfill the requirement and can deliver the system on time. The strength of the system is the interface is standardize, minimizes the user input and validation checking for the user input. Through the project, we have learned that time management is important. If do not have the good time management, it will affect the quality of the project. Besides that, team work and communication also consider as important. Two person works is better than one person work.

Chapter one: system planning

1. Introduction

Bahir Dar Gym Club Management System is to provide a system which handles the information of the people coming into the gym and maintaining their health care. It takes care of all their health information. Data will be stored in the database. It also maintains the people's health information, gym records. The System to be produced is on Gym Club Management System. Here there are 6 users. They are The Admin, Manager, Trainer, and the cashier, gym instructor, and store clerk. Cashier can add the details of a person who wish to join the gym. Their personal information including weight, height and phone number are collected. The instructor also provides timings for that person, when he can come to the gym. The store clerk can note down the gym equipment he wishes to join. Admin has more authority than the other users. He provides unique username and password for the users. He also has the right to delete or modify the users account and log details.

1.1 Background of the organization

BDR GYM is one of the GYM Club in BahirDar which was established in the year 1998 E.C. BDR GYM is located inside Dagim Yohaness Garden, in BahirDar town which is 100m far from Addis Amba Hotel. BDR GYM is private organization and owned by Miss.Worku.it contains permanently 9 employees and on average 35-40 trainers in the GYM. Besides, BDR GYM will also provide some special services, such as aerobics sport service, shower and dressing room services.

1.1.1Mission

BDR GYM is with a mission to improve the health and well-being of its trainers and the community by providing health and fitness services through assessment, education, and exercise in a supportive situation.

1.1.2 Vision

Our vision is to be the premier medically-based health and wellness facility providing advanced, collaborative programming centered on the whole-health and well-being of our community and our region. We will be known for an exceptional trainer experience, with the highest quality fitness services.

1.2 Existing System

The current system that the BDR GYM uses is mostly manual system. They don't use Database to keep track the trainer record. The staff was feeling stress by the constantly growing workload. Furthermore, the manual system waste a lot of paperwork cost and it also waste the storage space problem because they need to have a space to store all the record.

1.2.1Statement of the problem

The problem occurred in the current system are of the following:

- File lost: When computerized system is not implemented file is always lost because of human environment. Sometimes due to some human error there may be a loss of records.
- File damaged: When a computerized system is not there file is always lost due to some accident like spilling of water by some trainer file accidentally. Besides some natural disaster like floods or fires may also damage the files.
- Difficult to search record: When there is no computerized system there is always a difficulty in searching of records if the records are large in number.
- Space consuming: After the number of records becomes large the space for physical storage of file and records also increases if no computerized system is implemented.
- Cost consuming: As there is no computerized system to add each record paper will be needed which will increase the cost for the management of GYM Club.
- Error during payments
- Data redundancy
- No direct role for higher officials

1.3 Proposed System

The proposed GYM club management system helps us to:

- To help the organization to reduce the overload paperwork
- To reduce the storage space problem of keeping the trainer records.
- To update record quick and easily because all the system are computerized
- Minimize the human mistake and error because do not need the manual record
- Speed out the joining and leaving process for trainer
- Reduce the administrative costs because we no need to hire more staffs.
- Can maintain the trainer history easily.
- Can save the printing and distributing paper based manuals.
- Can avoid redundancy of data.
- Administrator controls the entire system.

1.4 Objectives of the Project

The general and specific objectives of the project are described below.

1.4.1General Objectives

General objective of the project is to develop the web based GCMS for BDR GYM.

1.4.2 Specific Objectives

In order to reach the general objective, the following list of specific objectives is set:

- Gather requirements continuously for the system
- Study the existing system and find out the problem.
- Find the solution for the problem found in existing system.
- Identify functional and non-functional requirements for the new system
- Analyse and design the system documentation with detailed UML specifications
- Implement and test the system.
- deploying the system

1.5 Scope of the project

The proposed system is designed only for Bahir Dar Gym and it didn't cover the whole Gym club management system because of time constraint. BDR Gym Club Management System is an easy-to-use gym club management system. It allows the user to store the wellness, schedule, the details person who is in the gym, gym equipment details etc. BDR Gym Club Management System allows storing all the details related to gym and managing payment, schedule, trainer information, log details, and equipment's. The accomplishment of the system in the organization will considerably reduce details entry, time and also offer readily measured reports.

Modules included in our project:

- Plan Module
- Account module
- Trainer Module
- Payment Module
- Log module
- Equipment Module
- Schedule Module
- Notification Module
- Health status Module
- Report Module

Modules excluded in our project:

- Trainer attendance module
- Shopping cart Module
- Staff module

1.6 Methodology of the project

In this section we shall include data collection methods, approaches and system development tools.

1.6.1 Data collection method

A fact gathering study was under taken to study the activities involved in the various aspect of the existing system. We had visited various stakeholders of the company.

The existing system was studied by means of:

i. Background Reading

It's a process to gain more understanding about our system such as organization background, objective, and soon. By gaining the understanding of their organization such as organization policy and organization rules, it eases develop to building up the business rules when designing the database and coding. Through reading, we understanding all their business need and also find out that they are actually using manual work for management currently.

ii. Questionnaire

Since Cashier as well as higher officials of Gym have work load they cannot able to answer/give information what we ask. So we prepare some sample questions to get précised information.

iii. Interview

After back ground reading, we also interviewed Mr. Muhabaw Getahun the managers of BDR GYM. Through the interview we gather all problems that facing by their current management in order to gain more understanding about the need of the system, we agreed us to collect information from GYM staff by using questionnaire technique.

Interviewer	Getaneh Alehegn Minichil Assefa Selam Ayalew
Interviewee:	Manager of BDR GYM Mr. Muhabaw Getahun
Time:	07 November 2016 at 10:00 am
Venue:	BDR GYM

Table 1.1 Interview Information

1.6.2 Approach used

The methodology that we used in this project is object oriented approach (OO approach). This approach combines the data and process together into an entity which is known as objects. Each of the objects represents some entity in the system being modelled, and it is characterized by its class, its state (attribute), and its operation (behaviour).OO approach has cut down the complexity of the system by subdividing the system into smaller pieces of components like an object and established a well-refined relationship between those objects in the system. Besides that objects that created before can be reused for another part which will make the project progress faster. OO approach provides us with a lot of advantages such as scalable, reusable, and real world modelling.

1.6.3 System Development Tools

We are using many software tools used for analysis, design and implementation. The software tools used for developing the system are listed below in the table.

Activities	**Tools**
Documentation	MS word 2013
Presentation	MS PowerPoint 2013
Design	Microsoft Visio 2007,Visual paradigm for UML standard design, and umlet
Editing	Paint, Macromedia flash 8,Adobe.Photoshop , adobe flash
Script languages	PHP, JavaScript, CSS, HTML,ajax, jQuery
Web server	Apache Xampp server
Database Server	Mysql database
Code editor	Rapid PHP 2016

Table 1.2 Tools used for the project

1.7 Significance of the Project

After this project is finished and properly used it gives great benefit. Some of the significant that the team has identified are listed out as follows:

- **Cost and time saving:** Staff can enjoy savings in term of times and costs with regard to save the administrative cost because the entire document can easily maintain and the organization not need to employ more people to keep track the data.
- **Reduced redundancy*:*** Data used across several different purposes can lead to repetition of information and leading to inconsistency and duplicated data. After develop the system, each data is only be stored once. It can minimize the human mistake and error because do not need the manual record. So it will reduce the data redundancy.
- **Up-to-date data*:*** After develop this system, it can update record quick and easily because all the system are computerized. The staffs no need to find out the data manually and correct it with pen. Staff can directly go to the search button in the system to find out the particular data and correct it quick.
- **Security*:*** In this system, all the data can only be accessible to those authorized to see it. Only the authorized person have the capability to make changes on the data under controlled conditions. For example, only the cashier has the authorized to make changes of the trainer information. And the other staff cannot have the authorized to view or make changes on other trainer or staff information.
- **Improve customer service: The** system saves times and help organization to provide the best way to serve the customer.

The beneficiaries of the system are:

Trainers: the trainers can view their history and membership information, view schedule, make payment by just scanning QR code, view equipment , download resources easily and timely.

Cashier and other administrative officials: they can access System and related information easily.

BDR GYM: the GYM gets better audience and saves costs and time

1.8 Organization of the Project

The project document is divided into three chapters for better understanding. Chapter one focuses on introductory part as we have seen above. Chapter two of the document is all about the features of the system including description of existing and proposed system, the analysis models like sequence diagram, analysis level class diagram and activity diagram, requirements like functional and non-functional requirements and use cases diagrams. In chapter three, on this chapter we discussed what the system should look the deployment, Component, User interface, Design level class diagram, and algorithm design.

Chapter Two: System features

2. Introduction

In this chapter we will see about the features of the system like, existing system description, proposed system description, functional requirement, no-functional requirement and analysis model.

2.1 Existing System Description

An Existing system refers to the system that is being followed now. Presently all the Functionalities are done manually. This is making the person very difficult to keep track of the user and the trainers. In the existing BAHIR DAR club GYM management system the following services are given to the users and In order to get this services the Cashier, Manager, trainer, or administrative Staff should do the following activities.

User of the system

- User comes to the gym and obtain the gym rules and procedures including the time and days open and closed
- After the user knows about the rules and provided payments the user pays the payment
- The user is a trainer of the gym until his membership expiration date is reached.
- The user searches the free equipment's in the gym and use that gym equipment in his need until the gym closing time
- User of the system obtain membership card after pays the payment
- The membership card is expires based on the membership type
- There are 4 types of the membership types the one is for one days and the amounts to be payed is 35 birr, the second is for 12 days and the amounts to be payed is 260 birr, the third is for 45 days and the amount to be payed is 600 birr, the last is for 90 days the amounts to be payed is 900 birr.
- The user is not be able to use the system if his membership expires.

Cashier of the system

- The cashier of the gym registers the new coming trainer by give explanation about some rules and procedures.
- Make payments by take the amounts payed by users

- The cashier record the starting date and ending date of trainer while make the payment
- The cashier opens the gym in opening time and closes in closing time and also tells to trainer the opening and closing time.
- The cashier give membership card to trainer after make the payment
- The Cashier Can register, and view trainer information
- The cashier of the gym describe to trainers the gym equipment's available in the gym and his procedures to use

Manager of the system

- The manager of the gym manages the whole system
- The manager of the gym manages(add,edit,delete,view) the gym equipment's
- Make manage plan (the plan is the description of the membership type and amounts to be payed for each membership type) by communicating with owner

Business Rules in the existing system

A business rule is effectively an operating principle or polices that must be fulfilled and obligated in order the system will function properly and effectively. It often pertain to access control issues, business calculations, or operating polices and principles of the organization.

- **BR1:** Only 20 minutes is allowed to use walking truck machines.
- **BR2:** payments are not transferred to others.
- **BR3:** Only payed trainers are be able to enter to the gym and use the system services.
- **BR4:** Each payment can only make one payment for the membership and each membership payment can only be making by one trainer.
- **BR5:** Each trainer has their own locker. One locker is belong to one trainer
- **BR6:** The Trainers needs to register before join our gym club.
- **BR7:** One trainer only can have one record.

2.2 Proposed System Description

Bahir Dar Gym club management system is user-friendly application and very simple to use. In the proposed system it is considers there should be an administrator who controls and manage the overall activities of the system and there are users who are going to use the proposed system so that, the following are description of the proposed system.

The proposed system enables the following to be done by the administrator.

- First of all the administrator must Login in to the system with his / her own username and password.
- Manage account of the system (which includes create account, delete account, edit account, view account information).
- Manage user and activity log which includes whose user is logged in, when the user is logged in, when user logged out and what activities are performed by user when logged in.

The proposed system enables the following tasks to be done by the Manager.

- First of all the Manager must Login in to the system with his / her own username and password.
- View trainer overview information
- Manage membership plans
- View Trainer plan expiry and records position.
- View notification or alerts

The proposed system enables the following tasks to be done by the Cashier.

- First of all the Cashier must Login in to the system with his / her own username and password.
- Make Payment and Due Collection and generate invoice
- Get users profile by Photo catch
- Manage payment details
- Manage trainer information
- Manage trainer health status

The proposed system enables the following tasks to be done by the Trainer.

- First of all the trainer must Login in to the system with his / her own username and password.
- Make Payment
- View Trainer plan expiry and records position.
- View schedule and their own payment details

The proposed system enables the following tasks to be done by the Store clerk.

- Manage equipment information it includes add new equipment, delete inappropriate equipment, edit equipment, and view equipment.

The proposed system enables the following tasks to be done by the gym instructor.

- Manage schedule it includes add exercise details of trainer, date, and time.
- Prepare the required resources
- Guiding trainers

Merits of Proposed System

- Security of data
- Ensure data accuracy
- Avoid data redundancy
- Avoid human mistakes or error
- Administrator controls the entire system
- Reduce the wastage of the resources
- Minimize manual data entry
- Greater efficiency
- User friendly and interactive user interface
- Saves lot of time
- Retrieval and Updating tasks can be performed much faster and easier

2.3 Functional Requirements

1. **Trainer module**

1.1 The system will allow the cashier to view the particular trainer detail by using the search criteria that are provided which is trainer ID, or trainer name in the trainer detail form.

1.2 The system will allow the cashier to view all the trainer details.

1.3 The system will allow the cashier to add trainer detail

1.4 The system will allow the cashier to edit the trainer information.

1.5 The system will allow the cashier to cancel trainer information when the trainer resign or expired.

2. **Report module**

2.1 The system will allow the manager to view the monthly, weekly, and daily report.

- Manager need to select the month that he or she wants to view report. For trainer report, manager needs to select the month and trainer type when he or she wants to view the report.

2.2 The system will allow the cashier to generate report.

3. **Login module**

3.1 The system will allow the Users to log into the system with their own account.

- After login in the system, the system will access relevant data to user based on their username and password.
- The login module also allows the user to change to password for the security purpose.

4. **Account module**

4.1 The system will allow the Administrators to create account for users

4.2 The system will allow the administrator to delete account of users

4.3 The system will allow the administrator to activate users account

4.4 The system will allow the administrator to deactivate user account

5. **Equipment module**

5.1 The system will allow the store clerk to add equipment details.

5.2 The system will allow the store clerk to edit equipment details.

5.3 The system will allow the store clerk to delete equipment details.

5.4 The system will allow the store clerk to view equipment details.

5.5 The system will allow the trainer to view equipment details.

5.6 The system will allow the cashier to view equipment details.

5.7 The system will allow the gym Instructor to view equipment details.

6. Health_status module

6.1 The system will allow the cashier to add Health_status of trainer

6.2 The system will allow the cashier to edit Health_status of trainer

6.3 The system will allow the cashier to delete Health_status of trainer

6.4 The system will allow the cashier to view Health_status of trainer

7. Schedule module

7.1 The system will allow the gym Instructor to add schedule or detail exercises of the trainer

7.2 The system will allow the gym Instructor to edit schedule or detail exercises of the trainer

7.3 The system will allow the gym Instructor to delete schedule or detail exercises of the trainer

7.4 The system will allow the gym Instructor to view schedule or detail exercises of the trainer

8. Plan/membership type module

8.1 The system will allow the Manager to add new plan details the plan details consists membership ID, membership name , days , and Rates .

8.2 The system will allow the Manager to edit plan details.

8.3 The system will allow the Manager to delete plan details.

8.4 The system will allow the Manager to view plan details.

9. Payment module

9.1 The system will allow the Cashier to add trainer payment

9.2 The system will allow the cashier to edit trainer payment

9.3 The system will allow the Cashier to delete trainer payment

9.4 The system will allow the Cashier to view trainer payment

9.5 The system will allow the Trainer to make their own payment by scanning QR code

9.6 The system will allow the Trainer to view their own balance

10. Notification module
    - 10.1 The system will allow the Manager to view ending membership details
    - 10.2 The system will allow the manager to view unpaid trainer details
11. Log module
    - 11.1 The system will allow the Administrator to manage user log
    - 11.2 The system will allow the Administrator to manage activity log
12. **Logout module**

    10.1 The system will allow the User of the system to logged out of the system

2.4 Non Functional Requirements

Non-Functional requirements are often associated with the quality of the system and not with the functionality that the system has to offer. The overall qualities of the system such as usability, maintainability, modifiability, portability, reusability, and security.

Security: In this system, all the data can only be accessible to those authorized to see it. Only the authorized people have the capability to make changes on the data under controlled conditions. The system provides username and password to prevent the system from unauthorized access. The system shall authenticate server side users. Passwords should be stored in encrypted form.

Reliability: The system should be reliable in providing expected output and able to perform its required functions under stated conditions for a specified period of time.

Availability: The system should always be available for access with connected network and power source.

Portability: The system should run in every Windows, Mac and Linux operating system. The system should run on every version of web browsers. The system should run in every server and client computer.

Usability: The system provides a help and support menu in all interfaces for the user to interact with the system.

2.5 Analysis Models

Different kinds of UML diagrams are used to model the functionality, structure and sequence of activities of the system. Here are the sets of system modelling.

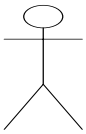
- Functionality description of the system by using use case diagram
- Sequence of activities of the system by using sequence diagrams
- The flow of activities between different tasks are modeled using activity diagram
- Relationship between class are modeled using class diagram

2.5.1 Use case diagram

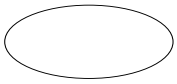
A use case diagram describes how a system interacts with outside actors. It is a graphical representation of the interaction among the elements and system. Each use case representation a piece of functionality that a system provides to its user. Use case identifies the functionality of a system.

Use case components:

- **Actor:** is a person, or external system that plays a role in one or more interaction with the system. And represented with:



- **Use case**: describes a sequence of actions that provides something of measurable value to an actor and is drawn as a horizontal ellipse.



- **System boundary**: indicates the scope of the system project. Anything within the box represent functionalities in side in scope.

Actor identification

In the use cases an actor interact with the system to perform a piece of meaningful work that helps them to achieve a goal and has access to define their overall role in the system and the scope of their action. Depending on the above explanation actors in this system are the following:

- **Administrator**: The administrator manages the overall system.

- **Trainer**: The trainer view payment, expiry, schedule, and equipment information online and make payment.
- **Manager:** The manager view notification, trainer overview, expiry, and report and also manages plan and schedule.
- **Cashier:** manage health status, trainer, and payment details of trainers.
- **Store clerk**: The store clerk manages the equipment of system.
- **Gym instructor**: manage schedule, prepare/upload resources, and instructing trainers.

Use case identification

Each Use Case describes the functionality to be built in the proposed system, which can include another Use Case's functionality or extend another Use Case with its own behavior. The most important and basic use cases of this system are the following:-

- Login
- Manage log details
- Manage account
- View notification or alerts
- View comment
- Generate report
- Manage plan
- Manage payment
- Manage trainer
- Manage schedule
- Mange equipment
- View report
- Prepare resources
- Download resources
- Instructing trainers
- Logout

Use case diagram of BDR gym club management system

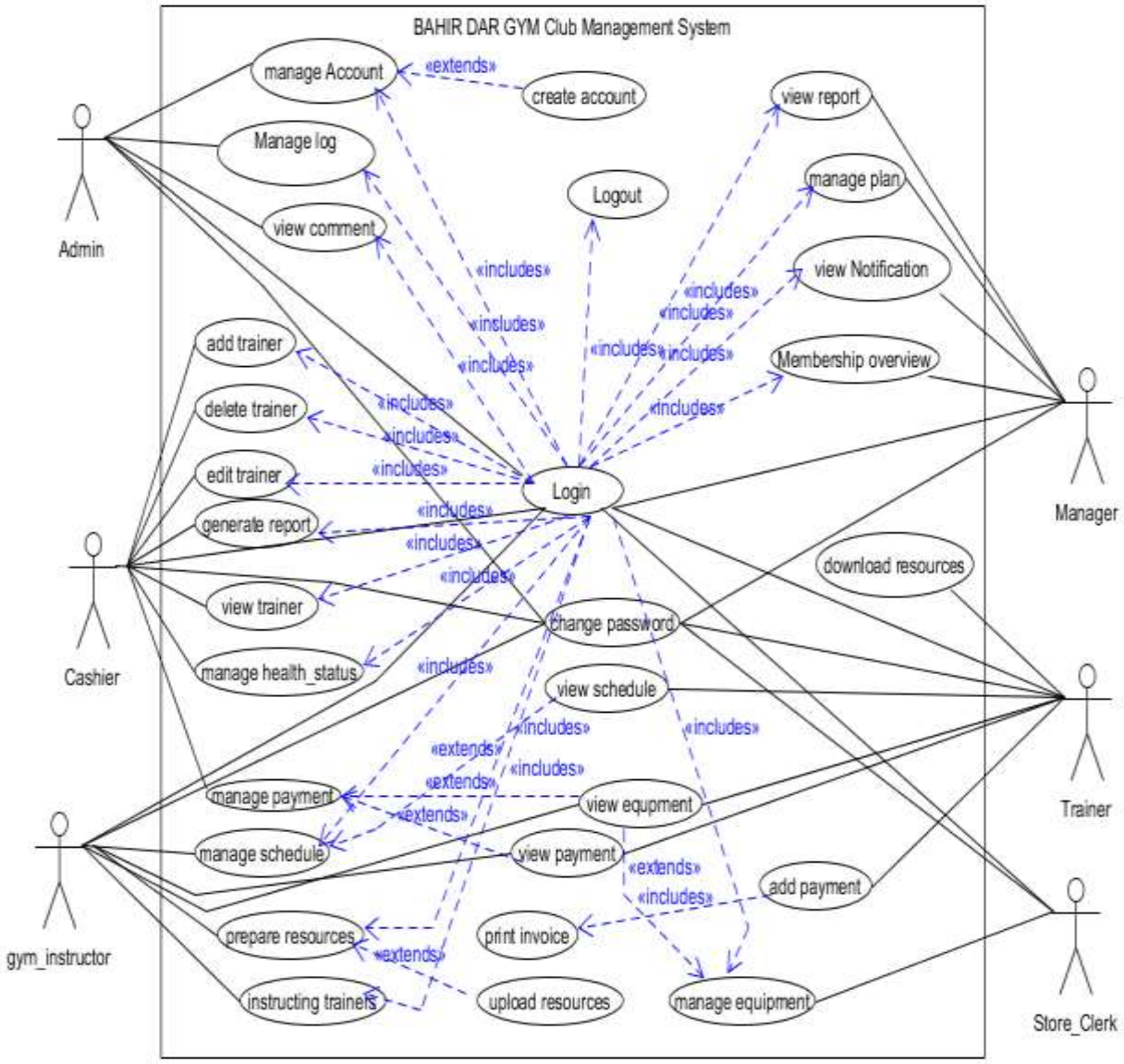


Figure 2.1 use case diagram for BDR Gym club management system

2.5.1.1 Use Case Description

Use Case Description for create account

Use case name	Create Account
Use case ID	UC-01
Description	Used to create account for users of the system to login to the system.
Actor	Admin
Pre- condition:	Admin should be fill the required form details Users
Basic course of action	1) The admin selects create account link. 2) The system displays create account page. 3) The admin fills the required information and submits it. 4) The system validates the information. 5) The system registers the users into the database and display a message successfully register thank you. 6) The use case ends.
Post- condition	The account is successfully created.
Alternative course of action	If the information admin fill is invalid information. The system displays the particular error message. The go to step2

Table 2.1 use case description for create account

Use Case Description for login

Use case name	Login
Use case ID	UC-02
Description	User need to login to the system in order to perform the tasks.
Actor	Admin,Manager,Cashier,trainer, store clerk ,and gym_instructor
Pre- condition:	User should have an account to log in to the system
Basic course of action	1. The user click login link 2. System display Login screen 3. User enter username and password 4. System verify username and password 5. System display main menu 6. Use case ends
Post- condition	The User is successfully Log in into the system.
Alternative course of action	**A1 step S3**: If the Username and Password that entered by user are not match with the database, system will display invalid username and password message and require the user to key in again.

Table 2.2 use case description for login

Use Case Description for change password

Use case name	Change Password
Use case ID	UC-03
Description	This use case is to allow the User to change the password.
Actor	Admin, Manager , Cashier ,trainer ,store clerk , and gym instructor
Pre- condition:	User should have an existing account to change password
Basic course of action	1. System display login screen 2. User click change password link 3. System display change password form 4. User enter username and existing password 5. User enter new password 6. System verify username and password 7. System change password successfully 8. Use case ends
Post- condition	The User's password is successfully changed.
Alternative course of action	**A1 step S6**: If the Username and Password that entered by user are not match with the database, system will display invalid username and password message and require the user to key in again. **A2 step S6**: If the Username and Password that entered by user are match with the database, but the new password is invalid, ask user re-enter the new password.

Table 2.3 use case description for change password

Use Case Description for add trainer

Use case name	Add Trainer
Use case ID	UC-04
Description	This use case is to allow the User to add trainer or new user.
Actor	Cashier
Pre- condition:	User should be login in to the system to add trainer
Basic course of action	1. User selects add trainer link 2. System display add new trainer form 3. The user enters the details of the trainer 4. The user click add trainer button 5. System will verify the data that the actor enters 6. System add trainer successfully and updates the database 7. Use case ends
Post- condition	The new Trainer of the system is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.4 use case description for add trainer

Use Case Description for edit trainer

Use case name	Edit Trainer
Use case ID	UC-05
Description	This use case is to allow the User to edit trainer information.
Actor	Cashier
Pre- condition:	User should be login in to the system to edit trainer
Basic course of action	1. User selects edit trainer link 2. System display edit trainer form with a particular trainer detail 3. The user edit some details of the trainer 4. The user click edit trainer button 5. System will verify the data that the User enters 6. System edit trainer successfully and updates the database 7. Use case ends
Post- condition	The Trainer information is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.5 use case description for edit trainer

Use Case Description for delete trainer

Use case name	Delete Trainer
Use case ID	UC-06
Description	This use case is to allow the User to delete trainer information.
Actor	Cashier
Pre- condition:	User should be login in to the system to delete trainer
Basic course of action	1. User selects delete trainer link 2. System display delete trainer form with a particular trainer detail 3. The user click delete trainer button 4. System will ask the confirmation from user to delete 5. User click on conformation to delete trainer 6. System delete trainer successfully and updates the database 7. Use case ends
Post- condition	The Trainer information is deleted successfully
Alternative course of action	**A1 step S5**: If the user will click No on confirmation the trainer details or information is not deleted.

Table 2.6 use case description for delete trainer

Use Case Description for view trainer

Use case name	View Trainer
Use case ID	UC-07
Description	This use case is to allow the User to View trainer information.
Actor	Trainer, cashier
Pre- condition:	User should be login in to the system to view trainer
Basic course of action	1. User selects view trainer link 2. System display view trainer form to user for viewing particular trainer detail or all the trainer 3. The user enter trainer ID, or Name or select view all 4. System will verify the ID, or Name that the user enters 5. System display trainer details 6. Use case ends
Post- condition	The Trainer information is displayed in the screen
Alternative course of action	**A1 step S3**: If the user enter invalid ID, or Name the system prompt out message for invalid ID, or Name.

Table 2.7 use case description for view trainer

Use Case Description for add new plan details

Use case name	Add Plan
Use case ID	UC-08
Description	This use case is to allow the Manager to add new plan.
Actor	Manager
Pre- condition:	Manager should be login in to the system to add new plan (plan includes membership type ,amounts to pay, number of days to attain and so on)
Basic course of action	1. Manager selects add trainer link 2. System display add new plan form for Manager 3. The Manager enters the details of the plan 4. The Manager click add new plan button 5. System will verify the data that the Manager enters 6. System add plan successfully and updates the database 7. Use case ends
Post- condition	The new plan is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Manager is invalid data, system will display invalid data message.

Table 2.8 use case description for add plan

Use Case Description for view plan

Use case name	View Plan
Use case ID	UC-09
Description	This use case is to allow the User to view plan details.
Actor	Manager
Pre- condition:	Manager should be login in to the system to view plan details(plan includes membership type ,amounts to pay, number of days to attain and so on)
Basic course of action	1. Manager selects view plan link 2. System display view plan form 3. The Manager enters the Plan ID, Name or select view all. 4. The Manager click view plan button 5. System will verify the ID or Name that the Manager enters 6. System Displays the plan details 7. Use case ends
Post- condition	The plan detail is displayed successfully
Alternative course of action	**A1 step S3**: If one of the ID or Name entered by Manager is invalid data, system will display invalid data message.

Table 2.9 use case description for view plan

Use Case Description for edit plan

Use case name	Edit Plan
Use case ID	UC-10
Description	This use case is to allow the Manager to edit plan details.
Actor	Manager
Pre- condition:	Manager should be login in to the system to edit plan details(plan includes membership type ,amounts to pay, number of days to attain and so on)
Basic course of action	1. Manager selects edit plan link 2. System display edit plan form with a particular plan detail 3. The Manager edit some details of the plan 4. The Manager click edit plan button 5. System will verify the data that the Manager enters 6. System edit plan successfully and updates the database 7. Use case ends
Post- condition	The plan detail is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Manager is invalid data, system will display invalid data message.

Table 2.10 use case description for edit plan

Use Case Description for delete plan

Use case name	Delete Plan
Use case ID	UC-11
Description	This use case is to allow the Manager to delete plan details.
Actor	Manager
Pre- condition:	Manager should be login in to the system to delete plan details(plan includes membership type ,amounts to pay, number of days to attain and so on)
Basic course of action	1. Manager selects delete plan link 2. System display delete plan form with a particular plan detail 3. The Manager click delete plan button in plan detail form 4. System will ask for confirmation from manager 5. Manager will click on confirmation for delete the plan details 6. System delete plan successfully and updates the database 7. Use case ends
Post- condition	The plan detail is deleted successfully
Alternative course of action	**A1 step S5**: If the manager click No on confirmation for delete the plan details is not deleted.

Table 2.11 use case description for delete plan

Use Case Description for add payment

Use case name	Add payment
Use case ID	UC-12
Description	This use case is to allow the User to add payment.
Actor	Cashier, trainer
Pre- condition:	User should be login in to the system to add payment details
Basic course of action	1. User selects add payment link 2. System display add payment form to User 3. The User enters the details of the payment 4. The User click add payment button 5. System will verify the data that the User enters 6. System payment successfully and updates the database 7. Use case ends
Post- condition	The payment is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.12 use case description for add payment

Use Case Description for view payment

Use case name	View Payment
Use case ID	UC-13
Description	This use case is to allow the User to view payment details.
Actor	Cashier, trainer ,manager
Pre- condition:	User should be login in to the system to view payment details
Basic course of action	1. Cashier selects view payment link 2. System display view payment form 3. The User enters the payment ID, Name or select view all. 4. The User click view payment button 5. System will verify the ID or Name that the User enters 6. System Displays the payment details 7. Use case ends
Post- condition	The payment detail is displayed successfully
Alternative course of action	**A1stepS3**: If one of the ID or Name entered by User is invalid data, system will display invalid data message.

Table 2.13 use case description for view payment

Use Case Description for edit payment details

Use case name	Edit payment
Use case ID	UC-14
Description	This use case is to allow the Cashier to edit payment details.
Actor	Cashier
Pre- condition:	Manager should be login in to the system to edit payment details
Basic course of action	1. Cashier selects edit payment link 2. System display edit payment form with a particular payment detail 3. The Cashier edit some details of the payment 4. The Cashier click edit payment button 5. System will verify the data that the Cashier enters 6. System edit payment successfully and updates the database 7. Use case ends
Post- condition	The payment detail is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Cashier is invalid data, system will display invalid data message.

Table 2.14 use case description for edit payment

Use Case Description for delete payment

Use case name	Delete payment
Use case ID	UC-15
Description	This use case is to allow the Cashier to delete payment details.
Actor	Cashier
Pre- condition:	Cashier should be login in to the system to delete payment details
Basic course of action	1. Cashier selects delete payment link 2. System display delete payment form with a particular payment detail 3. The Cashier click delete payment button in payment detail form 4. System will ask for confirmation from Cashier 5. Cashier will click on confirmation for delete the payment details 6. System delete payment successfully and updates the database 7. Use case ends
Post- condition	The payment detail is deleted successfully
Alternative course of action	**A1 step S5**: If the Cashier click No on confirmation for delete the payment details is not deleted.

Table 2.15 use case description for delete payment

Use Case Description for membership overview

Use case name	Membership overview
Use case ID	UC-16
Description	This use case is to allow the Manager to view overview of membership details.
Actor	Manager
Pre- condition:	Manager should be login in to the system to view overview of membership details.
Basic course of action	1. Manager selects membership overview link 2. System display membership overview form 3. The Manager enter the ranges of dates or months that need to overview details 4. System will display number of trainers, amounts of incomes payed from trainers in that ranges that the manager enters 5. Use case ends
Post- condition	The membership overview is displayed successfully
Alternative course of action	**A1 step S3**: If the manager enters invalid date ranges the system prompt out invalid date range.

Table 2.16 use case description for membership overview

Use Case Description for view alerts or notifications

Use case name	View notification /alerts
Use case ID	UC-17
Description	This use case is to allow the Manager to manage notifications or alerts of the trainer
Actor	Manager
Pre- condition:	Manager should be login in to the system to manage notifications or alerts.
Basic course of action	1. Manager selects notification or alert link 2. System display notification detail menu form 3. The Manager selects notification or alerts that we need 4. System will display unpaid membership details or ending membership details based on users choice 5. Use case ends
Post- condition	The notification or alerts is displayed successfully
Alternative course of action	**A1 step S3**: If there is no notification or alert is present nothing is displayed.

Table 2.17 use case description for view notification

Use Case Description for view Report

Use case name	View Report
Use case ID	UC-18
Description	This use case is to allow the User to view the Report in graphical representation
Actor	Manager
Pre- condition:	User should be login in to the system to view report
Basic course of action	1. User selects View report link 2. System display View report form 3. The User select the particular report type 4. System Prompt to enter required fields 5. Manager fill the field and click view 6. System displayed report in pie chart 7. Use case ends
Post- condition	The report detail is displayed successfully
Alternative course of action	**A1 step S3**: If the manager not select the report type and click view the system prompt to manager please select message

Table 2.18 use case description for view report

Use Case Description for add equipment

Use case name	Add equipment
Use case ID	UC-19
Description	This use case is to allow the User to add equipment.
Actor	Store clerk
Pre- condition:	User should be login in to the system to add equipment details
Basic course of action	1. User selects add equipment link 2. System display add equipment form to User 3. The User enters the details of the equipment 4. The User click add new equipment button 5. System will verify the data that the User enters 6. System add equipment successfully and updates the database 7. Use case ends
Post- condition	The new equipment is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.19 use case description for add equipment

Use Case Description for view equipment

Use case name	View equipment
Use case ID	UC-20
Description	This use case is to allow the User to view equipment details.
Actor	Store clerk, cashier, trainer
Pre- condition:	User should be login in to the system to view equipment details
Basic course of action	1. Store clerk selects view equipment link 2. System display view equipment form 3. The User enters the equipment ID, Name or select view all. 4. The User click view equipment button 5. System will verify the ID or Name that the User enters 6. System Displays the equipment details 7. Use case ends
Post- condition	The equipment detail is displayed successfully
Alternative course of action	**A1 step S3**: If one of the ID or Name entered by User is invalid data, system will display invalid data message.

Table 2.20 use case description for view equipment

Use Case Description for edit equipment

Use case name	Edit equipment
Use case ID	UC-21
Description	This use case is to allow the Store clerk to edit equipment details.
Actor	Store clerk
Pre- condition:	Store clerk should be login in to the system to edit equipment details
Basic course of action	1. Store clerk selects edit equipment link 2. System display edit equipment form with a particular equipment detail 3. The Store clerk edit some details of the equipment 4. The Store clerk click edit equipment button 5. System will verify the data that the Store clerk enters 6. System edit equipment successfully and updates the database 7. Use case ends
Post- condition	The equipment detail is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Store clerk is invalid data, system will display invalid data message.

Table 2.21 use case description for edit equipment

Use Case Description for delete equipment

Use case name	Delete equipment
Use case ID	UC-22
Description	This use case is to allow the Store clerk to delete equipment details.
Actor	Store clerk
Pre- condition:	Store clerk should be login in to the system to delete equipment details
Basic course of action	1. Store clerk selects delete equipment link 2. System display delete equipment form with a particular equipment detail 3. The Store clerk click delete equipment button in equipment detail 4. System will ask for confirmation from Store clerk 5. Store clerk will click on confirmation for delete the equipment details 6. System delete equipment successfully and updates the database 7. Use case ends
Post- condition	The equipment detail is deleted successfully
Alternative course of action	**A1 step S5**: If the Store clerk click No on confirmation for delete the equipment details is not deleted.

Table 2.22 use case description for delete equipment

Use Case Description for print invoice

Use case name	Print invoice
Use case ID	UC-23
Description	This use case is to allow the User to print subscription details.
Actor	Cashier, trainer
Pre- condition:	User should be login in to the system to print subscription details
Basic course of action	1. User selects make payment link 2. System display make payment form with a particular payment detail 3. User enter the payment details 4. The User click make payment button 5. System validate the data that the User enters while make payment 6. System display payment overview based on user input 7. User click print button 8. System print he invoice successfully
Post- condition	The payment detail printed successfully
Alternative course of action	**A1 step S3**: If the entered data is not valid while make payment the system prompt out the invalid data message.

Table 2.23 use case description for print invoice

Use Case Description for add health

Use case name	Add health
Use case ID	UC-24
Description	This use case is to allow the User to add health details.
Actor	Cashier
Pre- condition:	User should be login in to the system to add health details
Basic course of action	1. User selects add health link 2. System display add health form for User 3. The User enters the details of the users health information 4. The User click add health button 5. System will verify the data that the User enters 6. System add health details successfully and updates the database 7. Use case ends
Post- condition	The new health detail is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.24 use case description for add health

Use Case Description for view health

Use case name	View health
Use case ID	UC-25
Description	This use case is to allow the User to view health details.
Actor	Cashier
Pre- condition:	User should be login in to the system to view health details
Basic course of action	1. Manager selects view health link 2. System display view health form 3. The User enters the health ID, Name or select view all. 4. The User click view health button 5. System will verify the ID or Name that the User enters 6. System Displays the health details 7. Use case ends
Post- condition	The health detail is displayed successfully
Alternative course of action	**A1 step S3**: If one of the ID or Name entered by User is invalid data, system will display invalid data message.

Table 2.25 use case description for view health

Use Case Description for edit health

Use case name	Edit health
Use case ID	UC-26
Description	This use case is to allow the Manager to edit health details.
Actor	Cashier
Pre- condition:	Cashier should be login in to the system to edit health details
Basic course of action	1. Cashier selects edit health link 2. System display edit health form with a particular health detail 3. The Cashier edit some details of the health 4. The Cashier click edit health button 5. System will verify the data that the Cashier enters 6. System edit health successfully and updates the database 7. Use case ends
Post- condition	The health detail is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Cashier is invalid data, system will display invalid data message.

Table 2.26 use case description for edit health

Use Case Description for delete health

Use case name	Delete health
Use case ID	UC-27
Description	This use case is to allow the Cashier to delete health details.
Actor	Cashier
Pre- condition:	Cashier should be login in to the system to delete health details
Basic course of action	1. Cashier selects delete health link 2. System display delete health form with a particular health detail 3. The Cashier click delete health button in health detail form 4. System will ask for confirmation from Cashier 5. Cashier will click on confirmation for delete the health details 6. System delete health successfully and updates the database 7. Use case ends
Post- condition	The equipment detail is deleted successfully
Alternative course of action	**A1stepS5**: If the Cashier click No on confirmation for delete the health details is not deleted.

Table 2.27 use case description for delete health

Use Case Description for log details

Use case name	Log details
Use case ID	UC-28
Description	This use case is to allow the Admin to manage user log details.
Actor	Admin
Pre- condition:	Admin should be login in to the system to manage user log details
Basic course of action	1. Admin selects user log link 2. System display log details menu 3. The Admin click either user log or activity log 4. System process based on the user choice 5. System display user log details or user activity details 6. Use case ends
Post- condition	The log detail is managed successfully
Alternative course of action	**A1 step S3**: If the Admin is not select their choice to manage log details system prompt out please select your choice message.

Table 2.28 use case description for log details

Use case description for View comment

Use case name	View comment
Use case ID	UC-29
Description	This use case is to allow the Admin to view comments or feedback sent by the visitors of the system
Actor	Admin
Pre- condition:	Admin should be login in to the system to view comment
Basic course of action	1. Admin log to his/her page. 2. Admin click on click on view comment link. 3. The system reorders the comments according to the time of delivery. 4. The Admin starts to view the comments. 5. Use case ends
Post- condition	The Admin views the submitted comments.
Alternative course of action	**A1 step S1**:If the Admin is try to view comments the session is go back to login page and not be able to view comments

Table 2.29 use case description for view comment

Use case description for generate report

Use case name	Generate report
Use case ID	UC-30
Description	This use case is to allow the Cashier generate timely report.
Actor	Cashier
Pre- condition:	Cashier should be login in to the system to generate report
Basic course of action	1. The cashier must log to his/her page 2. The cashier select generate report link 3. the system displays the options (criteria) 4. The user selects the criteria from the given options and clicks On Display button. 5. The system displays the information to the user 6. Use case ends
Post- condition	The report will be generated.
Alternative course of action	**A1 step S4**:The system displays error message as invalid selection , then Go to step1 and continues the next step

Table 2.30 use case description for generate report

Use case description for add new schedule

Use case name	Add schedule
Use case ID	UC-31
Description	This use case is to allow the gym instructor to add new schedule to store trainer's exercises details.
Actor	Gym instructor
Pre- condition:	User should be login in to the system to add schedule details
Basic course of action	1. User selects add schedule link 2. System display add schedule form for User 3. The User enters the details of the users schedule information 4. The User click add schedule button 5. System will verify the data that the User enters 6. System add schedule details successfully and updates the database 7. Use case ends
Post- condition	The new schedule detail is added successfully
Alternative course of action	**A1 step S3**: If one of the data entered by User is invalid data, system will display invalid data message.

Table 2.31 use case description for add schedule

Use Case Description for view schedule

Use case name	View schedule
Use case ID	UC-32
Description	This use case is to allow the User to view schedule details.
Actor	Gym instructor
Pre- condition:	User should be login in to the system to view schedule details
Basic course of action	1. Gym instructor selects view schedule link 2. System display view schedule form 3. The User enters the schedule ID, Name or select view all. 4. The User click view schedule button 5. System will verify the ID or Name that the User enters 6. System Displays the schedule details 7. Use case ends
Post- condition	The schedule detail is displayed successfully
Alternative course of action	**A1 step S3**: If one of the ID or Name entered by User is invalid data, system will display invalid data message.

Table 2.32 use case description for view schedule

Use Case Description for edit schedule

Use case name	Edit schedule
Use case ID	UC-33
Description	This use case is to allow the Gym instructor to edit schedule details.
Actor	Gym instructor
Pre- condition:	Gym instructor should be login in to the system to edit schedule details
Basic course of action	1. Gym instructor selects edit schedule link 2. System display edit schedule form with a particular schedule detail 3. The Gym instructor edit some details of the schedule 4. The Gym instructor click edit schedule button 5. System will verify the data that the Gym instructor enters 6. System edit schedule successfully and updates the database 7. Use case ends
Post- condition	The schedule detail is edited successfully
Alternative course of action	**A1 step S3**: If one of the data entered by Gym instructor is invalid data, system will display invalid data message.

Table 2.33 use case description for edit schedule

Use Case Description for delete schedule

Use case name	Delete schedule
Use case ID	UC-34
Description	This use case is to allow the Gym instructor to delete schedule details.
Actor	Gym instructor
Pre- condition:	Gym instructor should be login in to the system to delete schedule details
Basic course of action	1. Gym instructor selects delete schedule link 2. System display delete schedule form with a particular schedule detail 3. The Gym instructor click delete health button in schedule detail form 4. System will ask for confirmation from Gym instructor 5. Gym instructor will click on confirmation for delete the schedule details 6. System delete schedule successfully and updates the database 7. Use case ends
Post- condition	The schedule detail is deleted successfully
Alternative course of action	**A1 step S5**: If the Gym instructor click No on confirmation for delete the schedule details is not deleted.

Table 2.34 use case description for delete schedule

Use Case Description for prepare resources

Use case name	Prepare resources
Use case ID	UC-35
Description	This use case is to allow the Gym instructor to prepare and upload resources such as exercises music instruction guidelines, video tutorials.
Actor	Gym instructor
Pre- condition:	Gym instructor should be login in to the system to prepare resources to trainers
Basic course of action	1. Gym instructor log into the system 2. Gym instructor selects prepare resources link 3. System display the resource form detail 4. The Gym instructor select the resources that he/she wants to prepare. 5. Gym instructor will click on prepare link to prepare and upload resources. 6. Systems display the prepared resources. 7. Use case ends
Post- condition	The resources detail is prepared successfully
Alternative course of action	**A1 step S3**: If the Gym instructor not selects the resources prompt the message to select the resources.

Table 2.35 use case description for prepare resource

2.5.2 Sequence Diagram

Sequence diagrams model the dynamic aspects of a software system. The emphasis is on the sequence of messages rather than relationship between objects. Sequence diagrams provide more detail and show the message exchanged among a set of objects over time. Sequence diagrams are good for showing the behaviour sequences seen by users of a diagram shows only the sequence of messages not their exact timing. Sequence diagrams can show concurrent signals. A sequence diagram shows object interactions arranged in time sequence.

Login sequence diagram

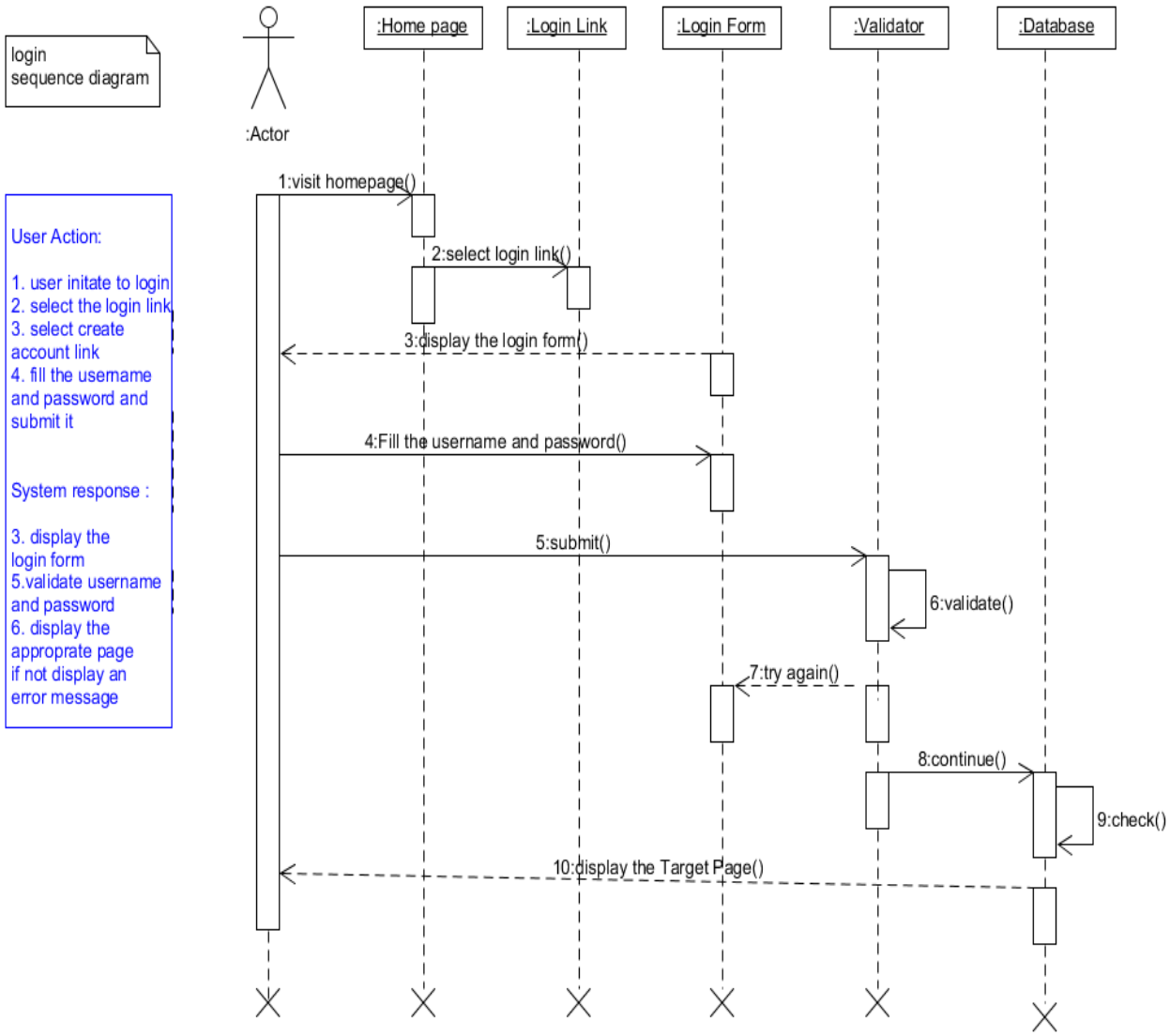


Figure 2.2 Sequence Diagram for login

Create account sequence diagram

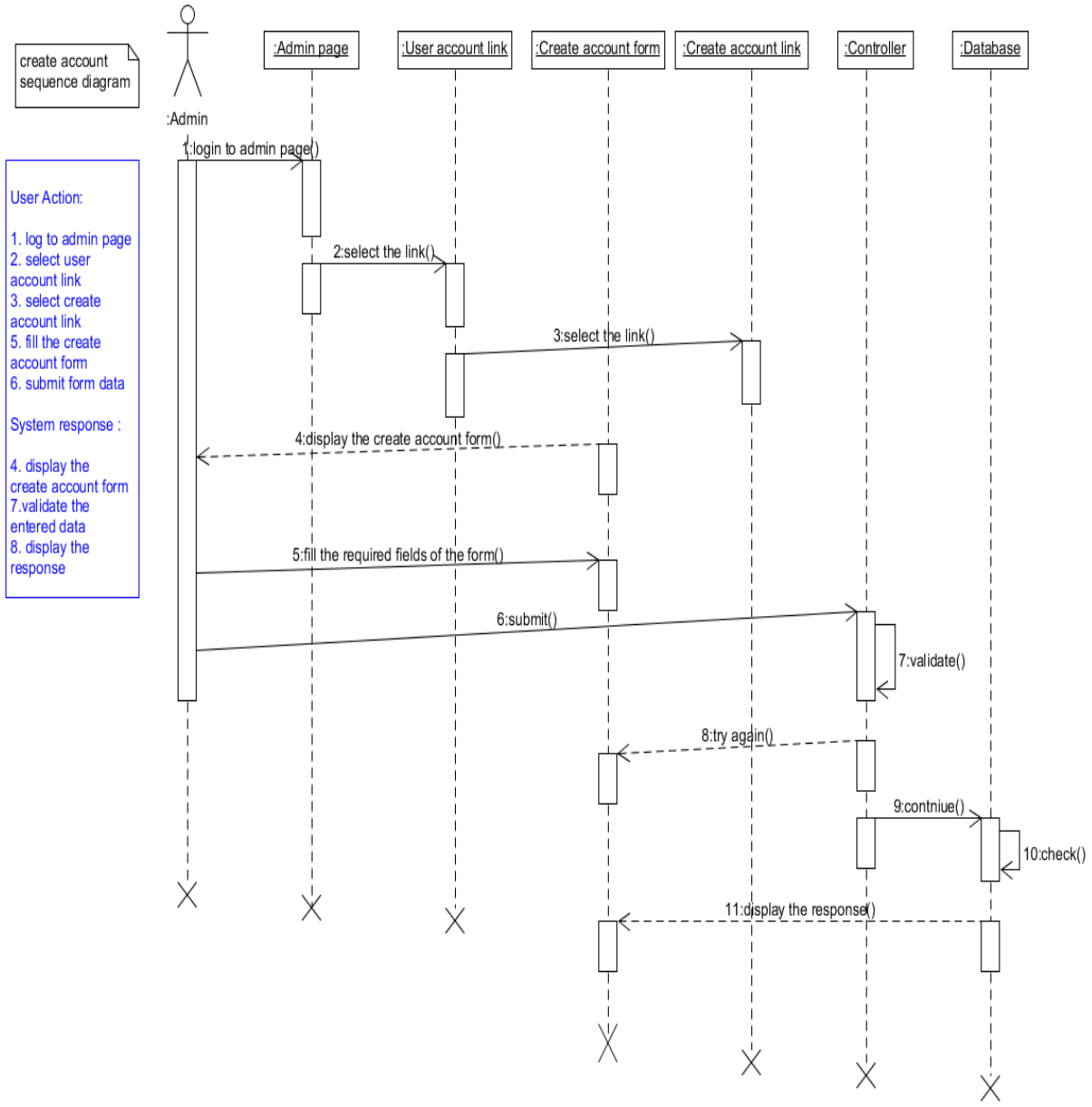


Figure 2.3 Sequence Diagram for create account

Search trainer sequence diagram

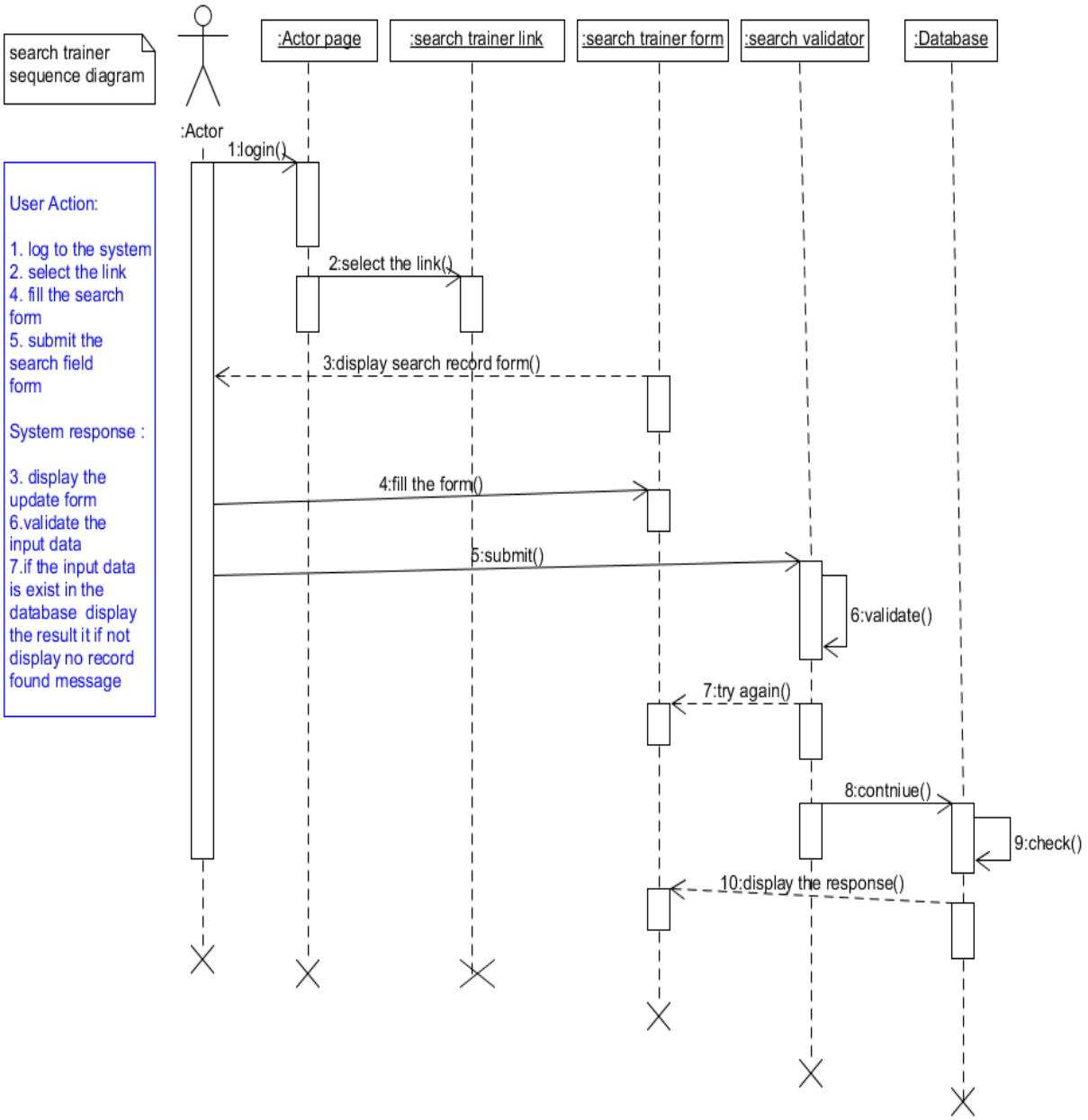


Figure 2.4 Sequence Diagram for search trainer

Update trainer sequence diagram

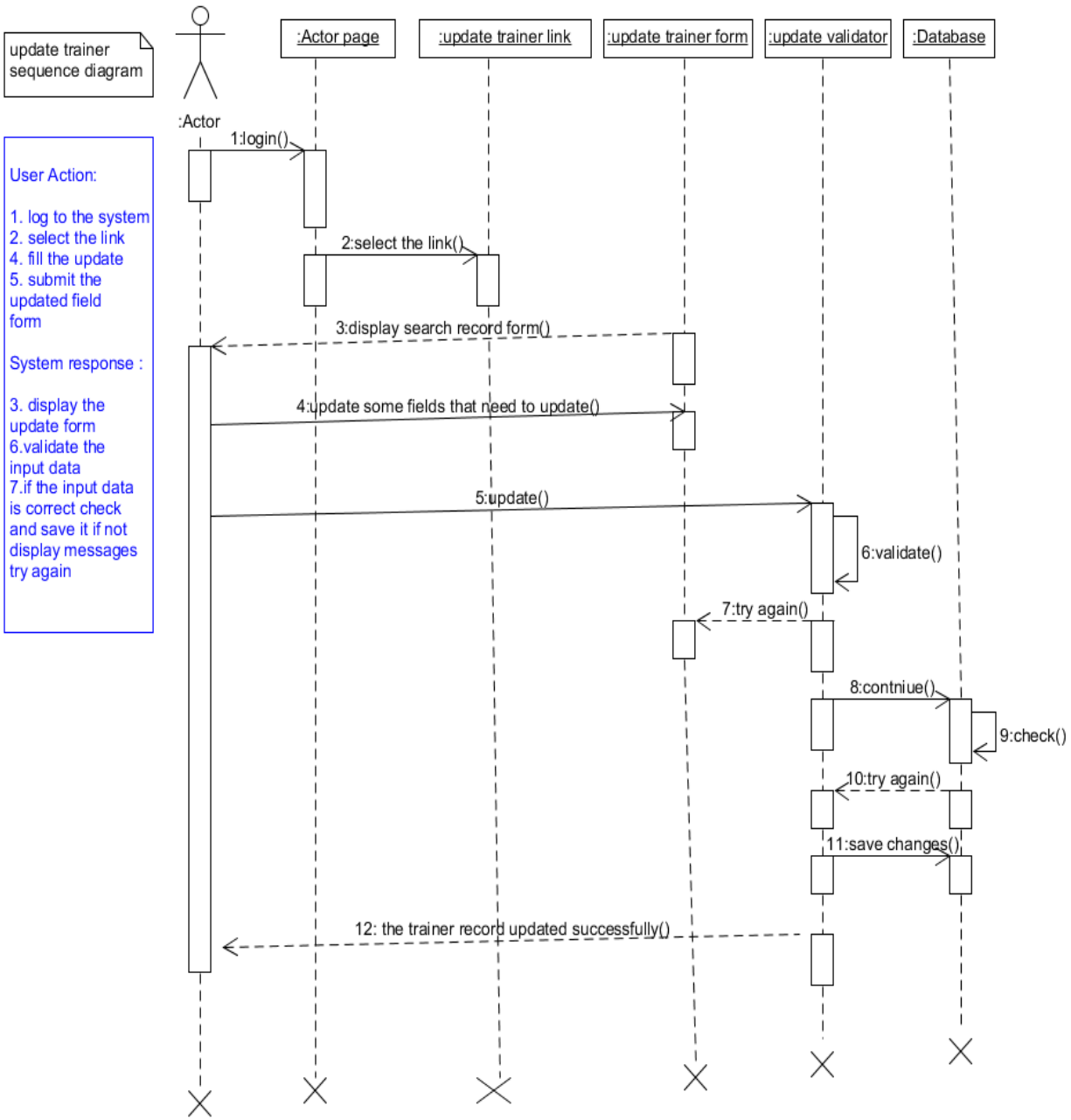


Figure 2.5 Sequence Diagram for Update Trainer

2.5.3 Activity Diagram

Activity diagram is basically a flow chart to represent the flow from one activity to another activity .The activity can be described as an operation of the system. The control flow is drawn from one operation to another. This flow can be sequential, branched or concurrent. This distinction is important for a distributed system. Activity diagrams allow you to think functionally. This diagram is used to model the activities which are nothing but business requirements. So the diagram has more impact on business understanding rather implementation details.

Login activity diagram

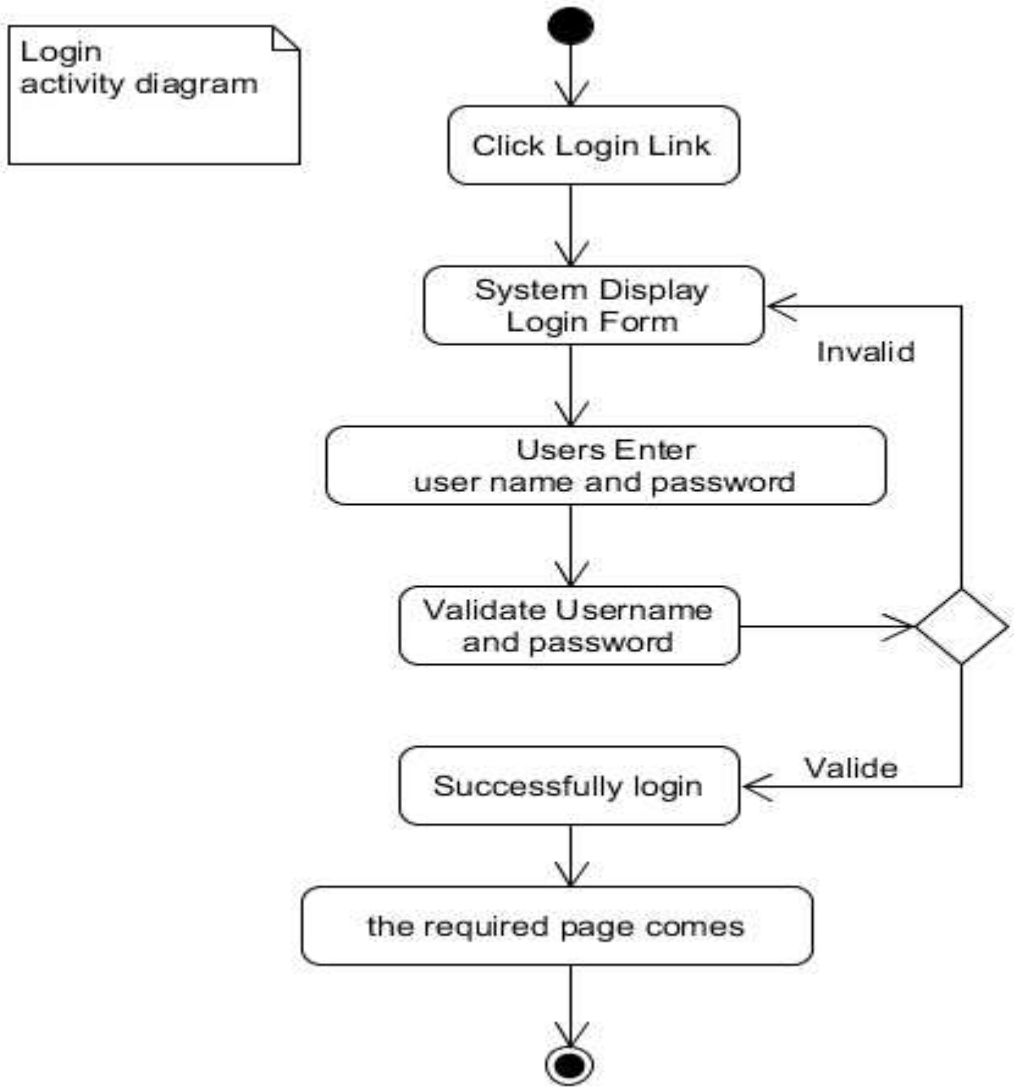


Figure 2.6 Activity Diagram for login

Change password activity diagram

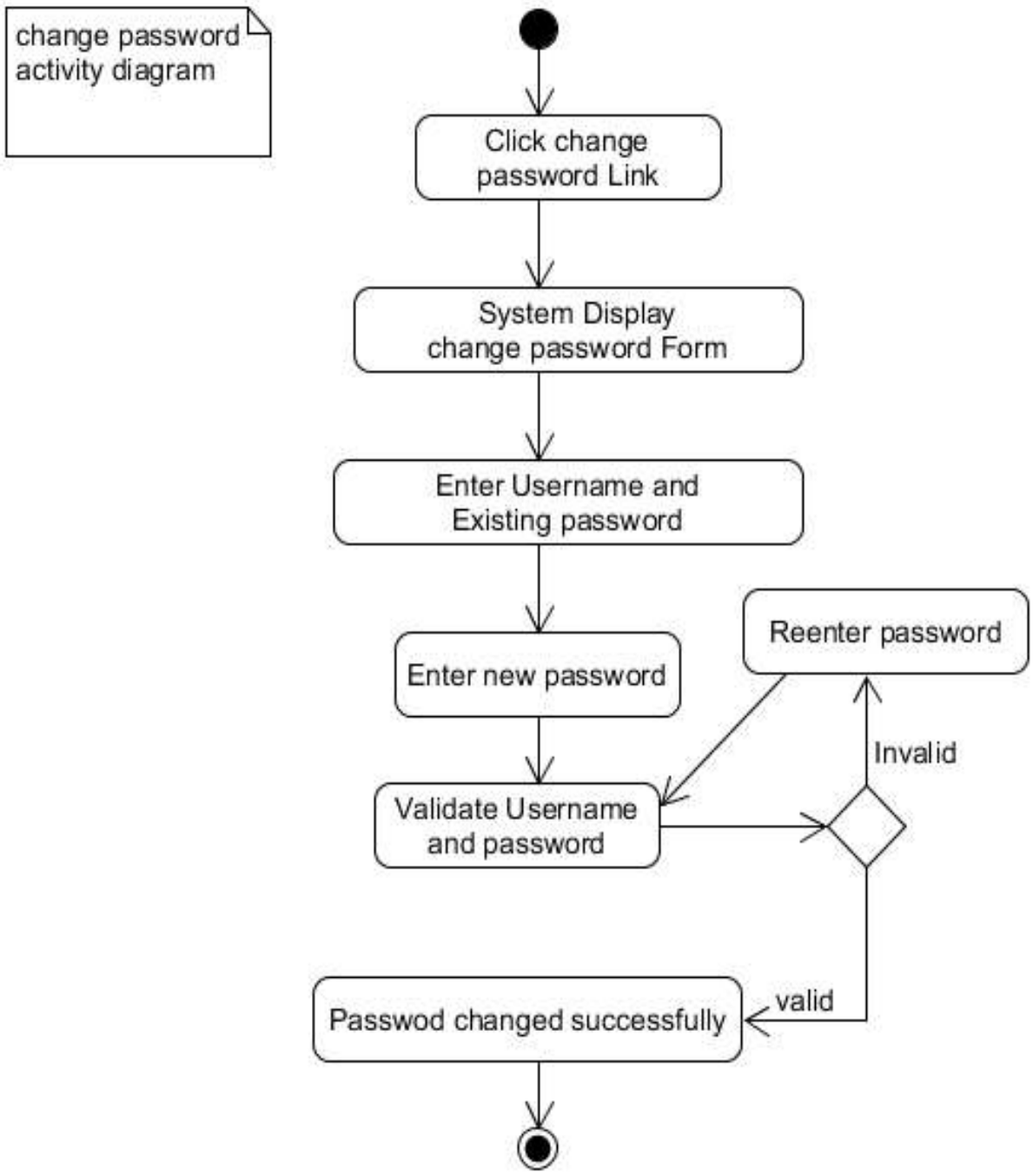


Figure 2.7 Activity Diagram for change password

Add trainer Activity diagram

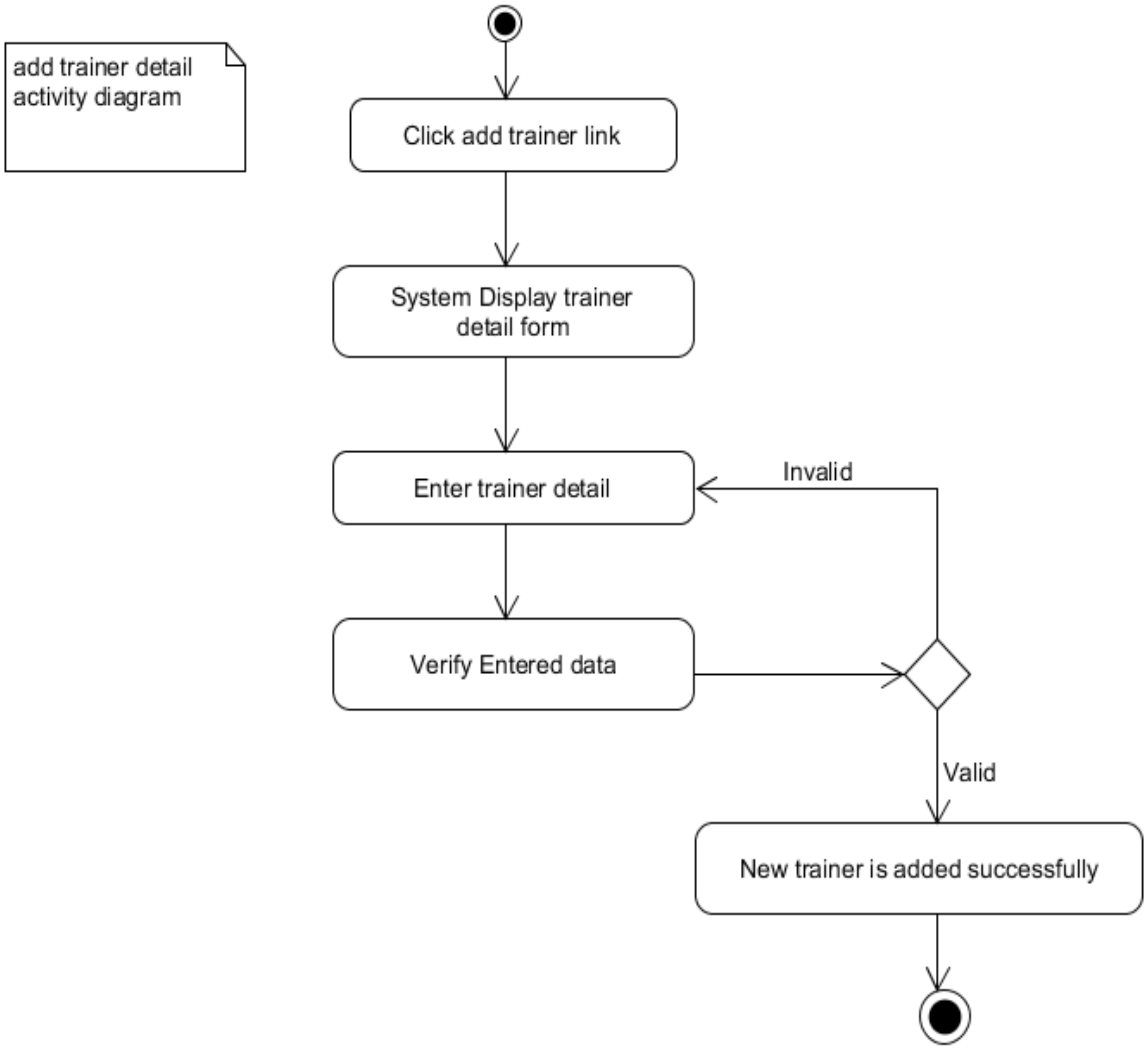


Figure 2.8 Activity Diagram for add trainer

Edit trainer Activity diagram

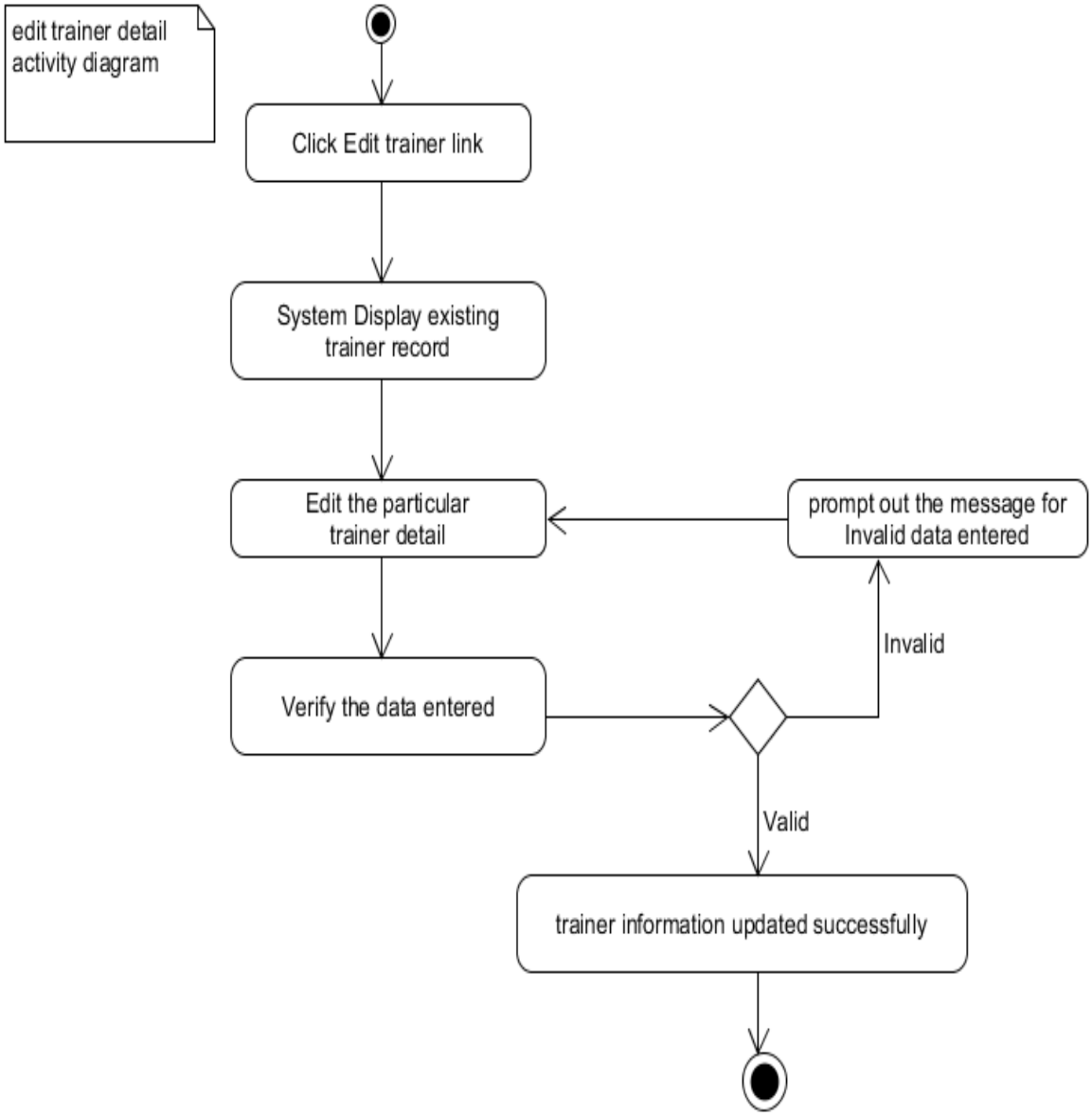


Figure 2.9 Activity Diagram for edit trainer

View trainer Activity diagram

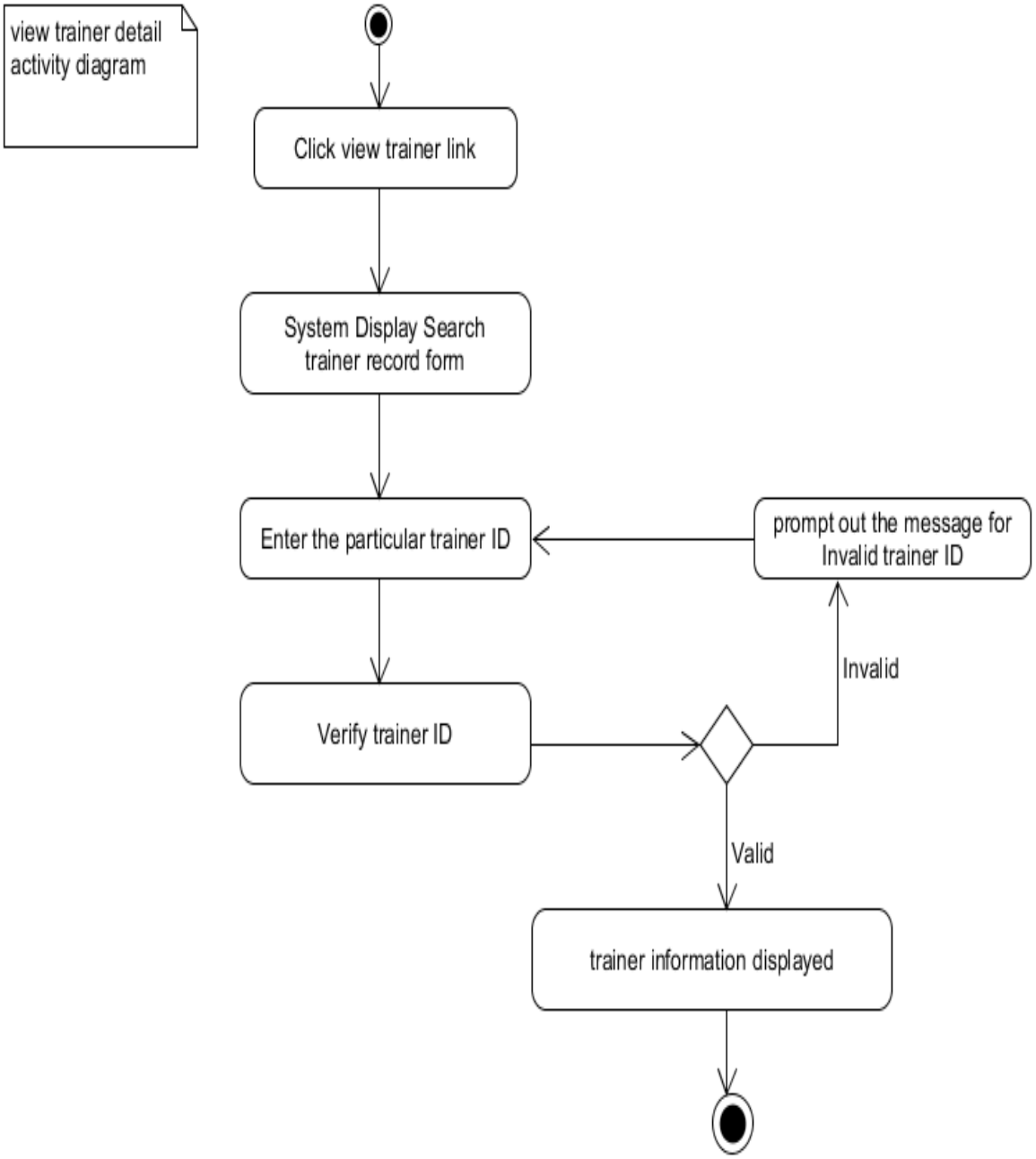


Figure 2.10 Activity Diagram for view trainer

Delete trainer Activity diagram

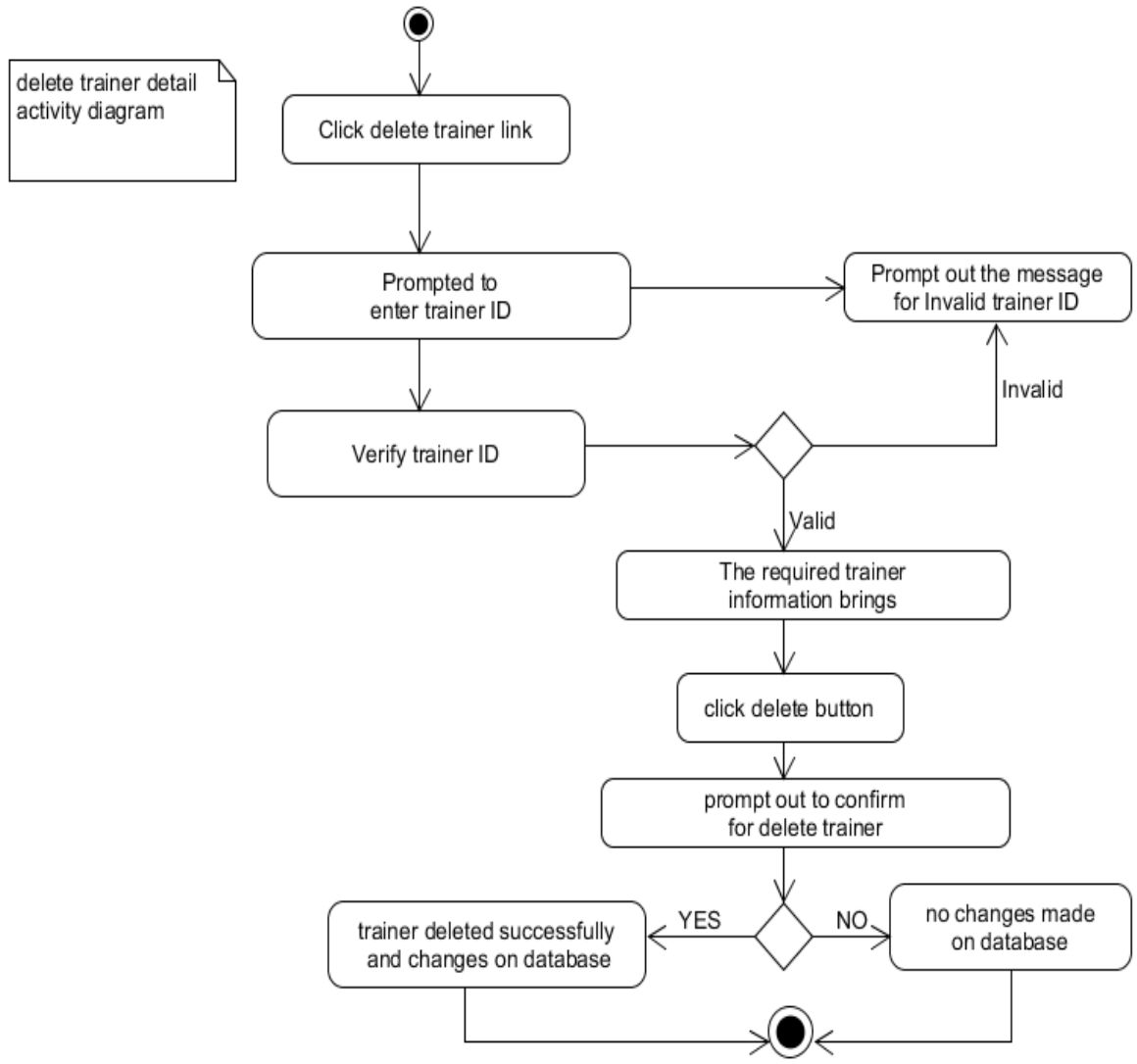


Figure 2.11 Activity Diagram for delete trainer

Generate report Activity diagram

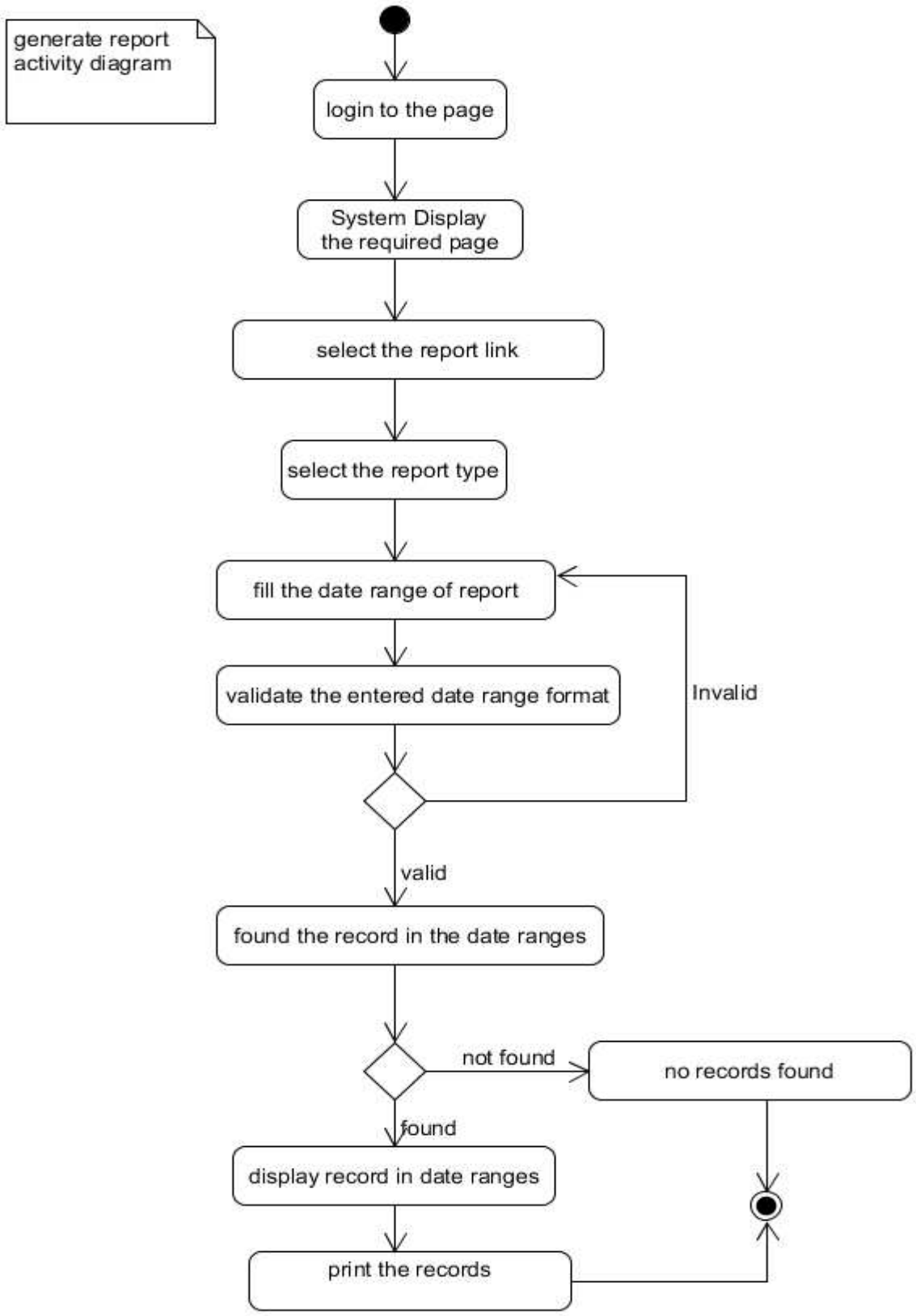


Figure 2.12 Activity Diagram for generate report

2.5.4 Analysis Class Model

Class diagram is static model that shows the classes and the relationships among classes that remain constant over the time. Class is the main building block of class diagram, which stores and manages information in the system. In the phase of analysis class modelling we just create classes with their attributes, methods, relationship, multiplicity and Role.

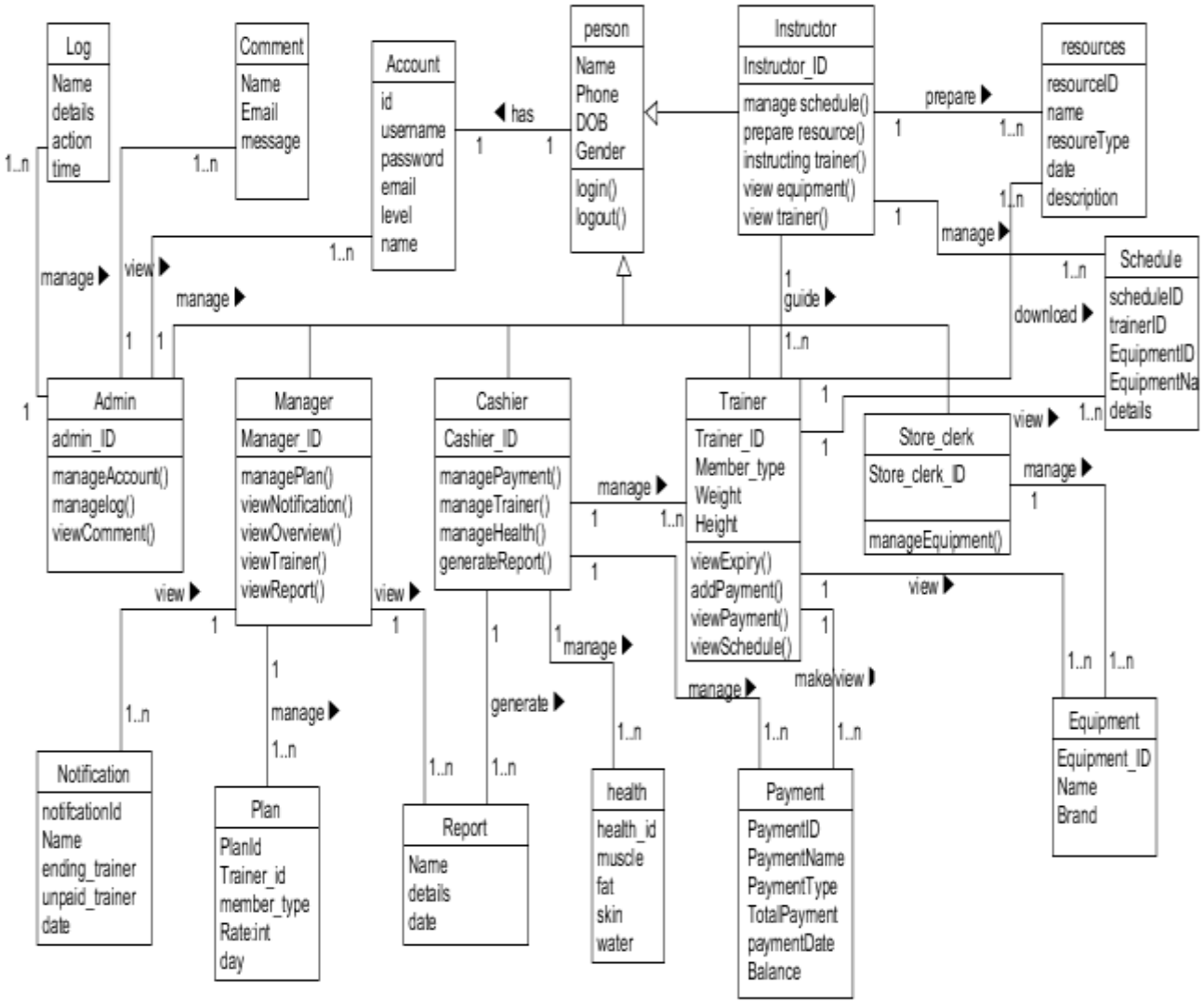


Figure 2.13 Analysis level class diagram

Chapter Three: System Design

3. Introduction

In this phase the overall procedures, activities and means of carrying out during the Design phase of the project are included. The following subtopics are discussed in this phase. These are component diagram, deployment diagram, class diagram, persistence diagram, user interface design, and algorithm design of the project.

3.1 Component diagram

Component diagram is a special kind of diagram in UML. It does not describe the functionality of the system but it describes the components used to make those functionalities. Component diagrams can also be described as a static implementation view of a system. Static implementation represents the organization of the components at a particular moment.

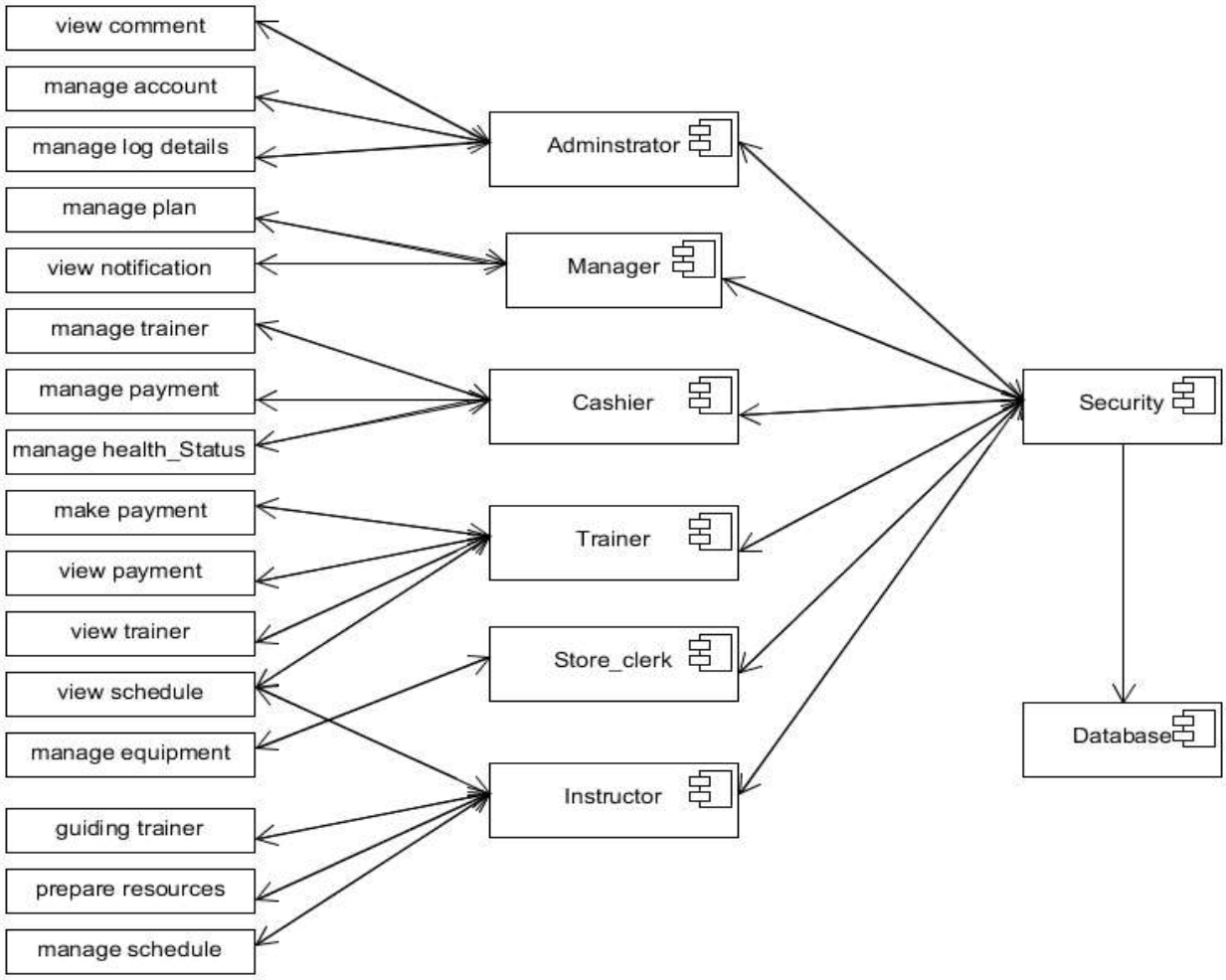


Figure 3. 1 Component Diagram

3.2 Deployment Diagram

One of the major tasks in system design deals with hardware/software mapping which deals with which components would be part in which hardware and so on. The web based part is run on a networked environment on different Operating System platforms. The client/server architecture of the system enables different clients to connect to the server remotely through Internet connection. Server side there is web server that is always connected with the internet for listening HTTP requests and accepts connection request and uses Apache HTTP server manipulates data from the database using PHP programs and answers user's request. There is a database server that has MYSQL program which enable to communicate with the web server using PHP.

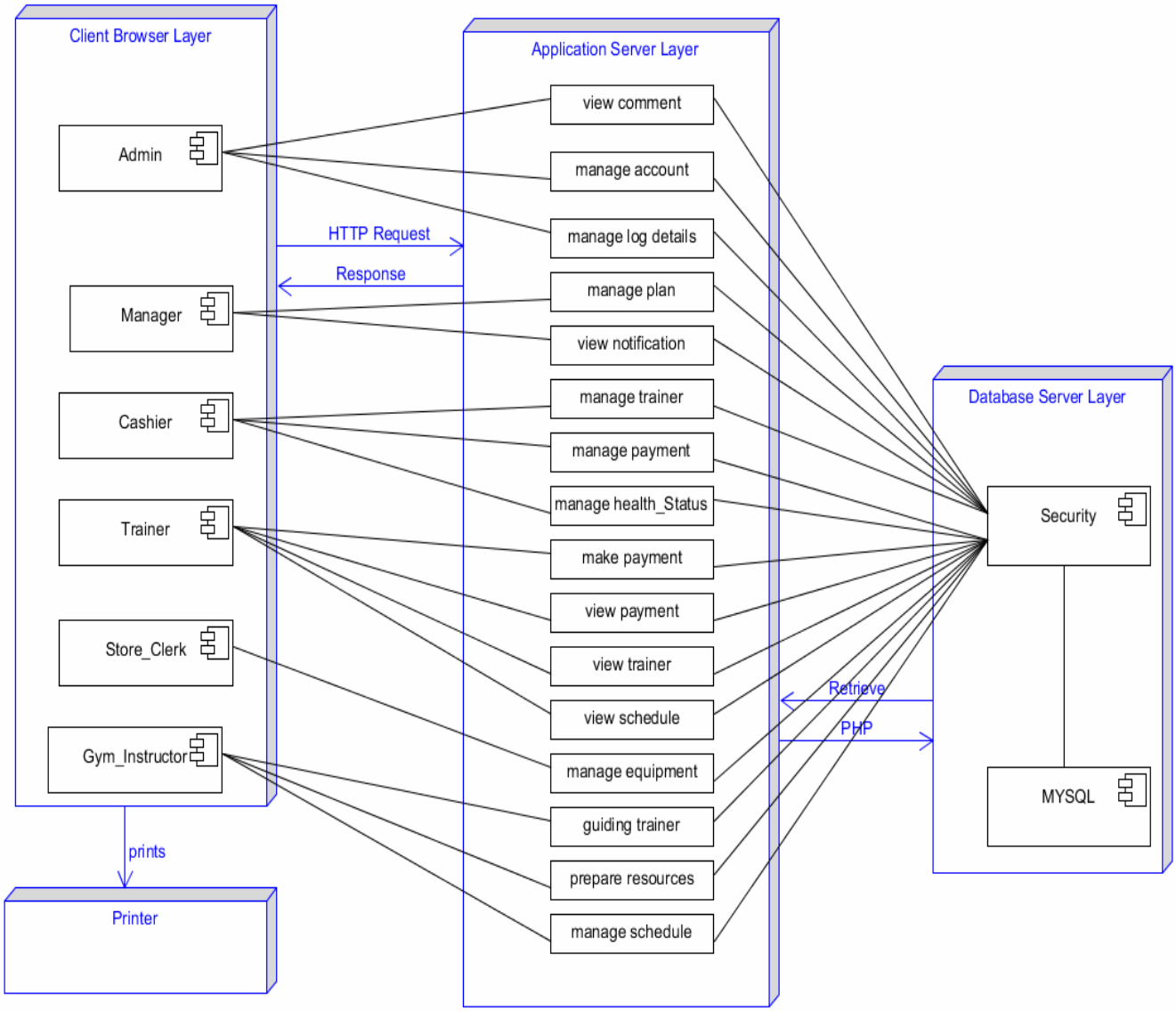


Figure 3. 2 deployment diagram

3.3 Design class model

Class models show the classes of the system, their inter-relationships, and the operations and attributes of the classes. Class diagram provide a graphical notation for modelling, classes with their attribute data types, methods with their return types and arguments and their data types, relationships, Access visibility, multiplicity.

Class diagram of BAHIR DAR GYM club management system

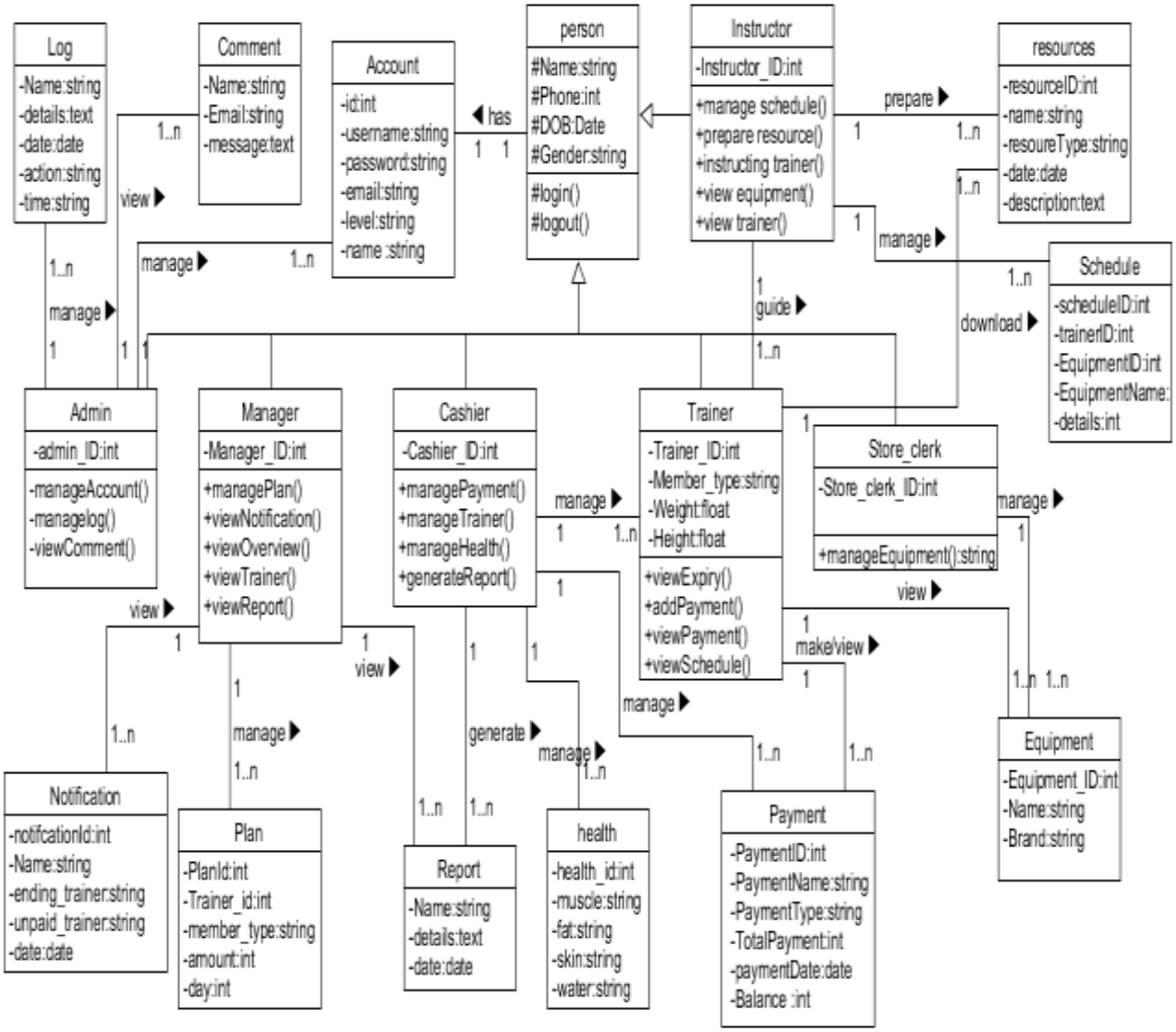


Figure 3. 3 design class Modelling

3.4 Persistent model

Persistence modelling is used to communicate the design of the database, usually the data base to both the users and the developers. It is also used to describe the persistence data aspect of the system. The following diagram indicates the persistence diagram of the system.

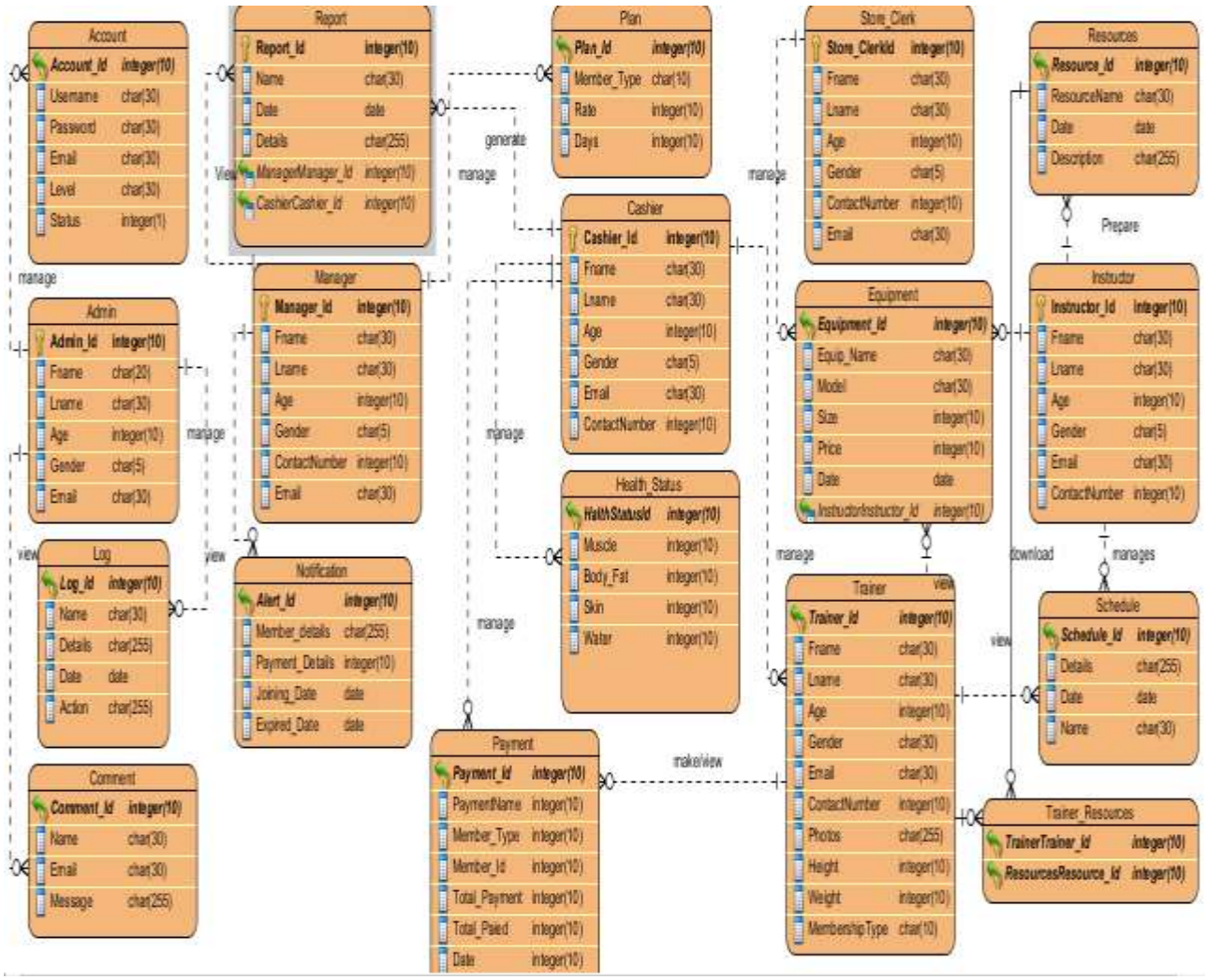


Figure 3. 4 Persistent Model

3.5 User Interface Design

User Interface (UI) Design focuses on anticipating what users might need to do and ensuring that the interface has elements that are easy to access, understand, and use to facilitate those actions. We have designed basic user interfaces for the system and we try to describe the pages and summarize some of the links and buttons after the interfaces using table format. In this system users will communicate with it through the following user interfaces.

I. Create Account

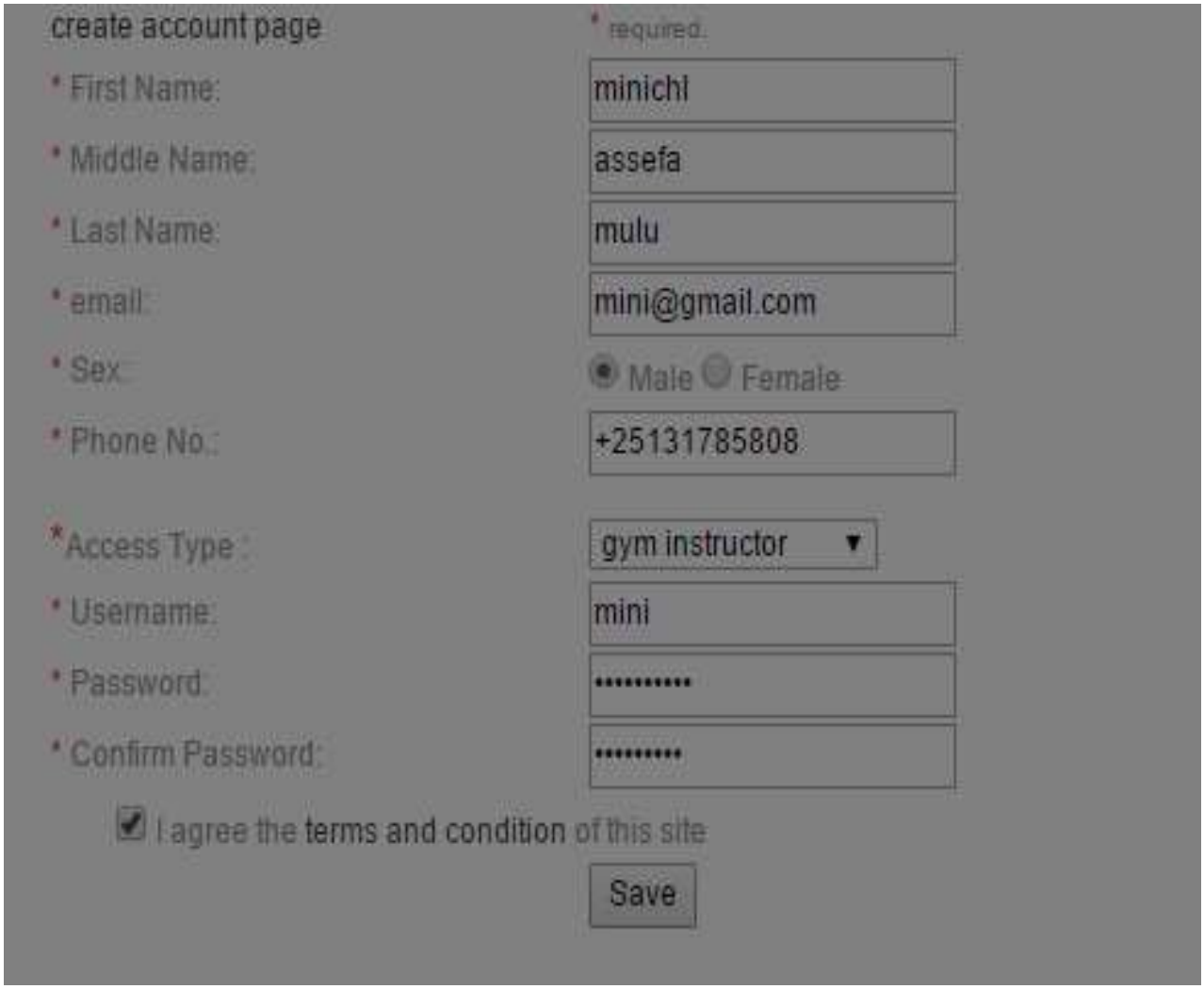


Figure 3. 5 User interface for create account

II. Home Page

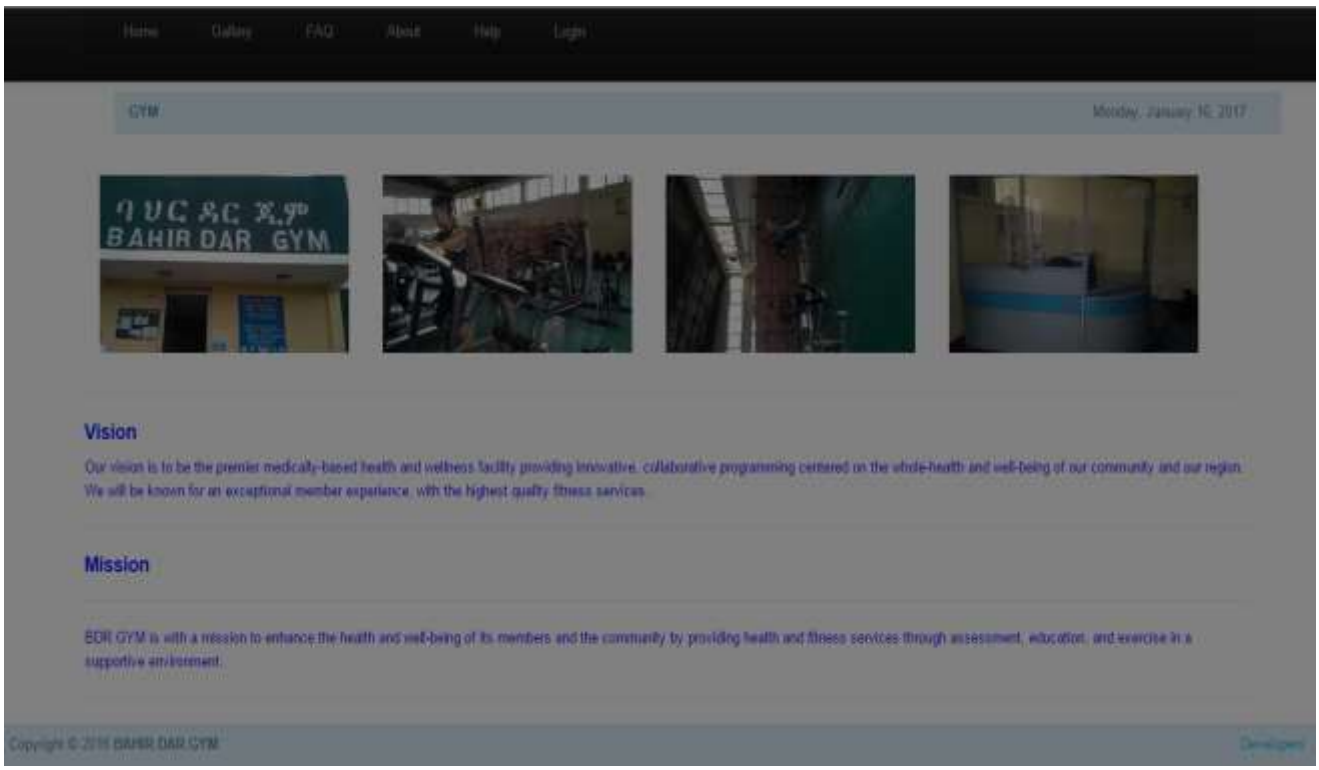


Figure 3. 6 User interface for home page

III. Log In form

Figure 3. 7 User interface for login

IV. Add payment form

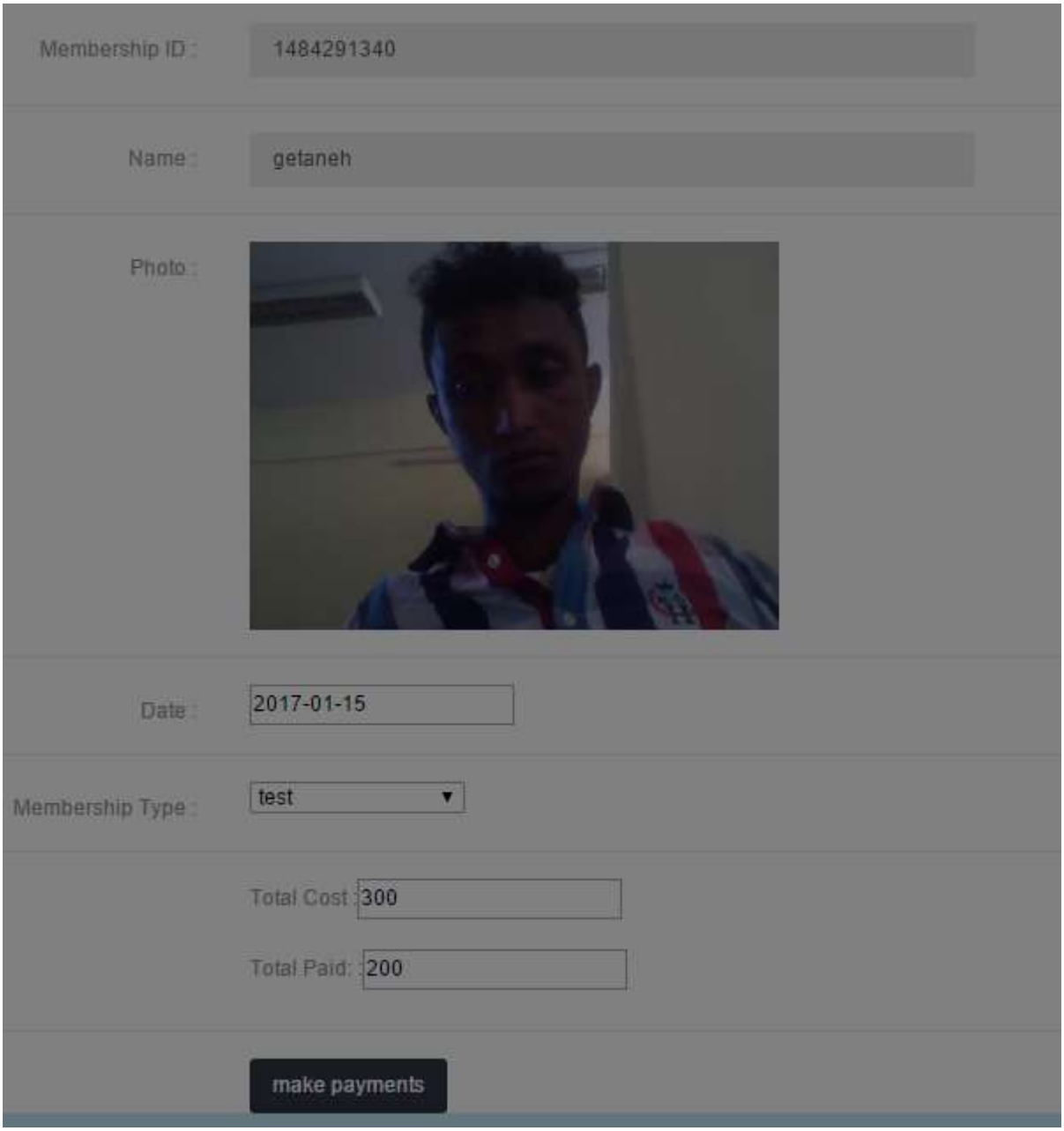


Figure 3. 8 User interface for add payment

V. View trainers form

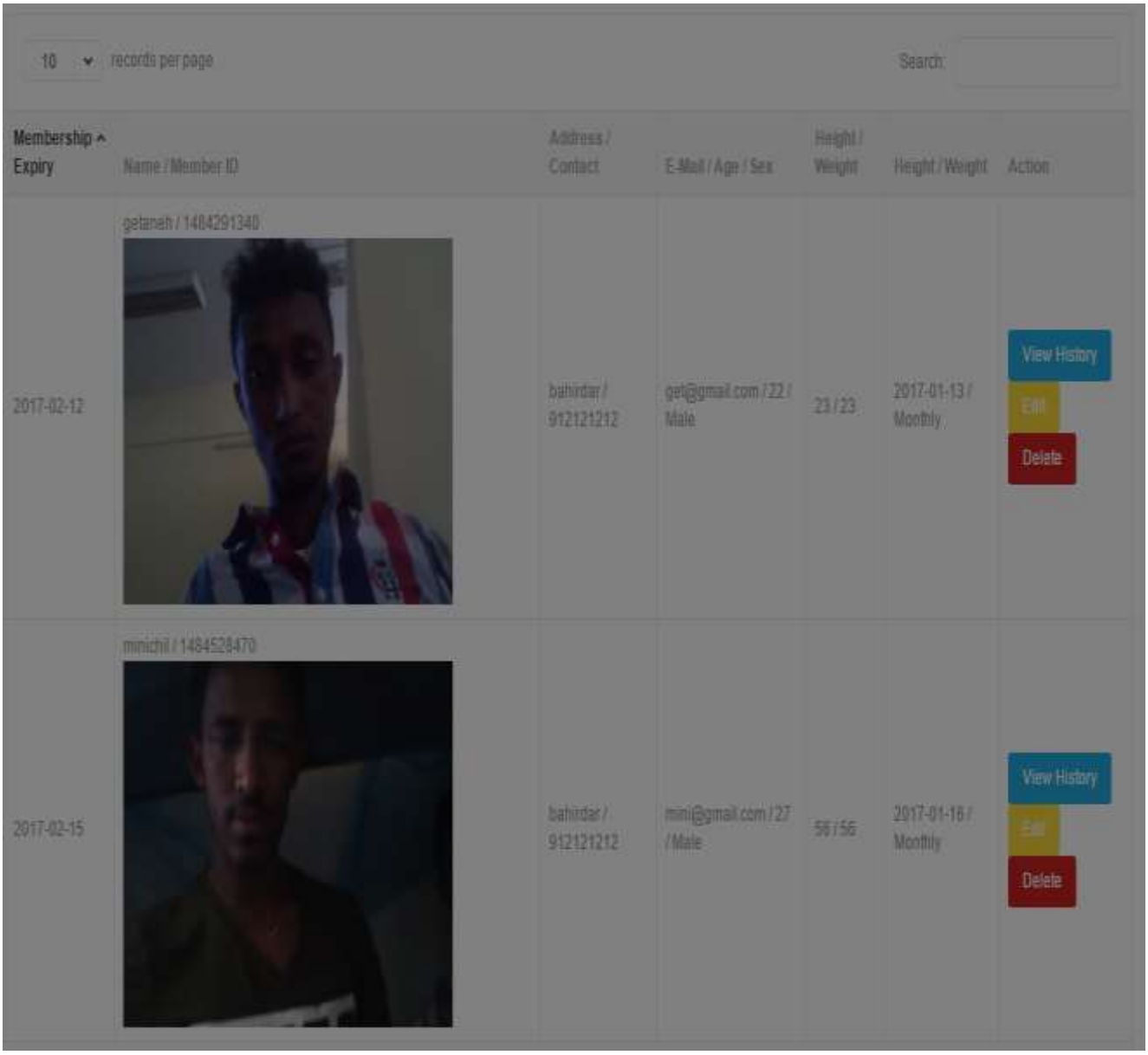


Figure 3. 9 User interface for view trainer

3.5 Algorithm Design

An algorithm is an ordered set of unambiguous, executable steps, defining a terminating process (Malik, 2011) may be described abstractly using human language (pseudo code).Using a programming language of your choice. Problem Analysis to Program Design, Fifth Edition, and D.S. Malik) we also write algorithm for some method in the following way:

Method name= login ();

Inputs:-

- ✓ Username
- ✓ Password

Begin

Prompt to enter username;

Prompt to enter password;

Retrieve username from database;

Retrieve password from database;

Retrieve user type from database;

Retrieve status from database;

If (entered username and password don't match to retrieved username and password)

{

Display error message "incorrect username or password"

Prompt to enter username and password again

}

The required page is come based on user level.

End

Method name create account ();

Input: -

- ✓ Username

- ✓ Password;
- ✓ Conformation password
- ✓ Email
- ✓ Level
- ✓ Status
- ✓ Sex
- ✓ Name

Begin

Prompt to enter username

Prompt to enter password

Prompt to enter conformation password

Prompt to enter email

Prompt to enter level

Prompt to enter status

Prompt to select sex

Prompt to enter name

If (fields are not filled)
{
Display error message “all fields are not field”
Prompt the user the unfilled fields
}
All entered fields stored in database;

Account is successfully created:

End

Method name=change password ();

Input

- ✓ Username
- ✓ old password

- ✓ new password
- ✓ conformation password

Begin

Prompt to enter username

Prompt to enter old password

Prompt to enter new password

Prompt to enter Confirmation of new password

Retrieve username from database

If (username do not match entered username)

{

Display error message “username doesn’t exist”

Prompt username again

}

Retrieve old password from database

Else If (old password do not match entered old password)

{

Display error message “old password do not match”

Prompt old password again

}

Else If (new entered password is not valid) {

Prompt user to enter valid password

}

Else

The password is successfully changed and database is updated:

End

Method add trainer ();

Inputs:-

- ✓ First name

- ✓ Last name
- ✓ Age
- ✓ Sex
- ✓ photos
- ✓ E-mail
- ✓ Phone number
- ✓ height
- ✓ weight
- ✓ membership type

Begin

Prompt user to enter first name

Prompt user to enter last name

Prompt user to enter age

Prompt user to enter sex

Prompt user to capture trainer photo

Prompt user to enter E-mail

Prompt user to enter phone number

Prompt user to enter height

Prompt user to enter weight

Prompt user to enter membership type

If (fields are not filled)

{

Display error message “all fields are not field”

Prompt user to enter the unfilled fields

}

If (entered first name is numeric)

{

Display error message “name cannot be numeric value”

Prompt the user to enter first name again

}

If (entered last name is numeric)

{

Display error message “name cannot be numeric value”

Prompt the user to enter last name again

}

If (entered age is not numeric)

{

Display error message “age must be numeric value”

Prompt the user to enter age again

}

If (E-mail format is not correct)

{

Display error message “E-mail format not correct”

Prompt the user to enter E-mail again

}

If (Phone format is not correct)

{

Display error message “Phone format not correct”

Prompt the user to enter phone number again

}

Insert all fields into the database

Trainer information is registered successfully

End

Method name Search trainer record ();

Input:-

- ✓ trainer id
- ✓ trainer name

Begin

Prompt to enter trainer id

Prompt to enter trainer name

Retrieve trainer id from database

Retrieve trainer name from database

Retrieve photos from database

Retrieve email from database

Retrieve phone number from database

Retrieve age from database

Retrieve height from database

Retrieve weight from database

If (the selected trainer id or name doesn't exist in the table list) {

Display error message "the selected item is doesn't exist"

Select trainer id or name again

}

Else

{

Display the searched information on client browser;

}

End

References

[1] Ambler. S, (2001).The Object Primer Second Edition. New York.

[2] BOOCH.G (1998).Object-oriented analysis and design.Welseley.Addison: USA.

[3] Malik. D.S, (2011) From Problem Analysis to Program Design, Fifth Edition,)

[4] Ribu .K (2001).Estimating object-Oriented Software Projects with Use case: Oslo

[5] Sons&Jhon (2005). System analysis and design to version 2, Sons&Jhon Wiley).USA

Appendices

A.Interview questions

We prepare the following questions and get answers from staff members and stakeholders in order to get more information about the system.

1. Is the organization private or government?
2. Who is the owner of the organization?
3. What type of system you are use till now manual, semi-automated, or automated?
4. Do your company using any existing system to control the trainer and payment Process?
5. Who are the main characters of using the system?
6. How many trainers and employees participate in your system?
7. Do you facing any difficulty or inaccuracy during payment with your trainer?
8. Do you wish to expand your business through Internet?
9. Do you think the current system is secure enough to protect your company data?
10. What type of the reports that you use currently for the company?
11. What is your role to improve wellness of the trainer?
12. How many membership type that your system have?
13. Do you provide any extra services to your trainer?

B. Existing System Form