CENG 491

SOFTWARE REQUIREMENTS SPECIFICATION REPORT

For

Best-Eleven Football Manager

DEATH-MATCH

PROJECT GROUP MEMBERS

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1. Introduction

1.1 Problem Definition

Online games are becoming more and more popular recently with the increasing internet user numbers and football manager games are also very popular in last decade and they have lots of fans. On the other hand, Facebook and Facebook applications is the most attractive part of the internet with the huge number of participants. However, there is not any popular football manager game in Facebook like the games Farmville or Texas Hold'em Poker.

1.2 Purpose

This document specifies the Software Requirements Specification (SRS) for Best-Eleven Football Manager Game that will be developed by team members under the Computer Engineering Design I course. It describes the content of the system, both functional and non-functional requirements for the software, design constraints and system interfaces. This document can be used by the user of the game in order to understand the functionality of the game.

1.3 Project Scope

In this project our goal is to create an interactive, multiplayer game which will be played on Facebook. The game is a football management game like Hattrick and SoccerManager game series. However, in Facebook applications, this type of games is rare. So our main purpose is to design a football manager game which will be played on Facebook. Differently from the known popular online manager games, this game also will have visual effects, which will be done with flash. Within the scope of the project the general goals are as follows:

- To implement a multiplayer environment

- Provide virtual reality by using flash animations

- To implement a simple and user-friendly interface

- Integrating AI into the game

1.4 User and Literature Survey

Online football manager games are usually script games and have not high level graphics. The most popular ones are,

Hattrick.org: 833.286 monthly active users

Soccermanager.com: 325.018 monthly active users

While our project will address 200 millions Facebook users, there is only one reasonable football manager game application in Facebook named "Top Eleven Football Manager" and have 496.376 monthly active users.

1.5 Definitions and Abbreviations

SRS: Software Requirements Specification

AI: Artificial Intelligence

1.6 References

IEEE Std. 830-1998: IEEE Recommended Practice for Software Requirements Specifications.

1.7 Overview

This SRS is organized according to specifications in IEEE Recommended Practice 830-1998. This report contains functional and non-functional requirements for the software, design constraints, and system interfaces.

2. Overall Description

2.1 Product Perspective

Back in the days before graphical user interfaces became popular in manager PC games like Championship Manager and Football Manager on the other hand online manager games does not provide graphical user interfaces. In most of the online manager games, the matches were seen as only textual messages which were difficult for the user to follow and understand the game. The game will be including 2D animation and have multiplayer option.

2.2 Product Functions

- We will use an object oriented programming language which is PHP. For creating game interface, adding sound, creating 2D animations, we will use some open source libraries.

- The graphics will be designed in Flash.

- A dynamic match engine will be added.

- A good AI will be added to game. At least during the games players will not do

nonsense things.

- Database will be dynamic. For instance, new teams and footballers can be added to database.

- Training feature will be different than the normal management games. All players from the team will be trained at most 2 specific attributes in a week. There will be one training update at the end of the week. During this update, attributes of the players will be improved according to given training skill.

- Firstly matches will be simulated in commentary mode. Then, 2D goal replays will be added.

- Transfers will be open bidding and there will not be any transfer season, the players added into transfer list anytime.

- There will be Multilanguage support in the game. Of course there will be two languages for the beginning. Intended languages are Turkish and English. If the game becomes popular other languages will be added.

- There will be a forum for the interaction of the users. In this forum users can meet each other and talk about transfer issues.

2.3 Constraints, Assumptions and Dependencies

- The demos and full working version of the game will be available on the internet. So in order to play the game an internet connection and Facebook account is required.

- Flash Player is required in order to play the game.

- Flash Player Minimum System requirements :
    - Intel® Pentium® II 450MHz or faster processor (or equivalent)
    - 128MB of RAM

- Since the game will be designed on web platform, no other platforms except from Facebook will run the game.

3. Specific Requirements

3.1 Interface Requirements

We describe the interface requirements by giving various use cases.
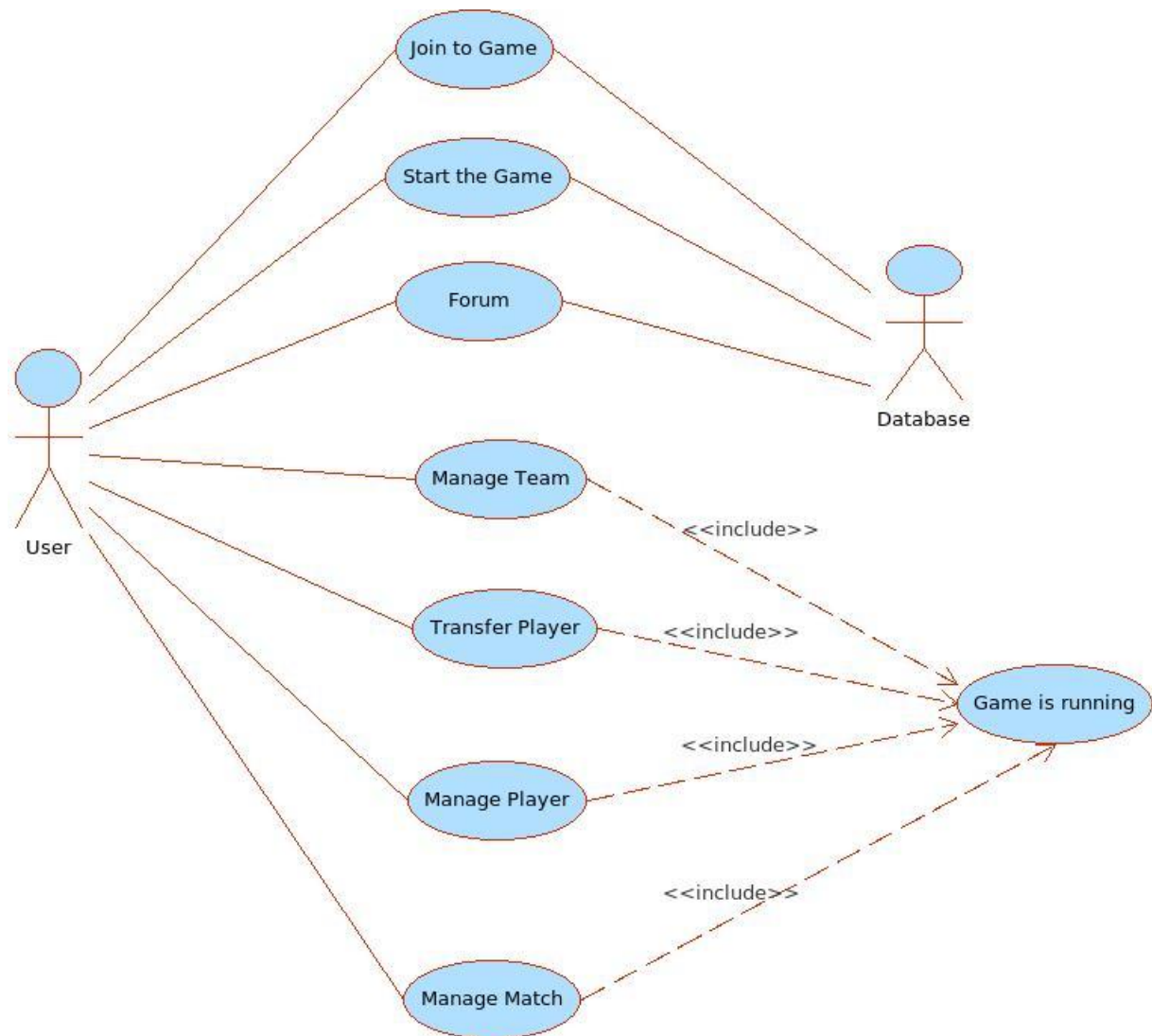
Use Case 1: Join to game

> ➢ User will reach application web-page in Facebook and click go to application

> ➢ System asks user for permission and user select allow

> ➢ Create team page appear

- ➢ User filled or select information fields which are :

  - Team name

  - Region

  - Fan group name

  - Stadium name

  - Team colors

- ➢ After clicking confirm button team added to database

Use Case 2: Forum

- ➢ When user will select forum tab, different forum categories appears for selection

- ➢ After selecting category, there is two alternative read existing threads or add new thread

- ➢ If one of the existing thread selected user can read posts and add new post

Use Case 3: Start to Play

- ➢ When user start to game there are different menus to select as:

  - Manage Player

  - Manage Team

  - Manage Matches

  - Forum

Use Case 4: Manage Player

> On a team squad, any player can be selectable to be analyzed.

> When a player selected its profile will appear on the screen. There are two types of attributes, ones will never change by training or randomly and other ones will. Non-Changeable attributes are:

- Name / Surname

- Age

- Preferred foot

- Nationality

- Influence

- Specialities (Some of the players will have one or two of these attributes)

  ❖ Quick

  ❖ Header

  ❖ Unpredictable

  ❖ Long- Shooter

  ❖ Set-Piecer

  ❖ Strong

  ❖ Creative

Changeable attributes are:

- Goalkeeper Ability

- Defending

- Playmaking

- Winger

- Scoring

- Technique

- Passing

- Experience

- Stamina

- Form

➢ Form which is one of the changeable attribute will change randomly. Stamina will change by playing matches between specified periods. Experience will change by total matches played in player's entire carrier. Rest of the changeable attributes will be improved by training sessions and will start to decrease after ages around 30.

➢ Moreover each player has estimated value and wage they will also be shown here.

➢ Each player will be added to transfer list from here.

Use Case 5: Manage Team

➢ User will access different team pages from here such as:

- Economy

- Stadium

- Staff

- Training

➢ In Economy page, total incomes and outcomes of two weeks will be seen and compared.

➢ In Stadium page, recent seat plan of stadium will be seen and stadium improvements will be managed from here.

➢ Club staffs can be seen here and can be changed from here.

➢ Training updates will be once a week. Two different training schedules can be given at the same time, however, one of them will be full effective and the other one will be half effective. Training schedule will be set from here.

Use Case 6: Manage Match

➢ The matches will be seen and chosen from here in form of fixture as sorted.

➢ When one of the previous matches is chosen, statistics of this match will be retrieved.

➢ When one of the future matches is chosen, tactics page of this match will be retrieved.

➢ Matches will be watched by selecting the match which is currently playing.

Use Case 7: Transfer Player

➢ User can search player through the transfer market with selected attributes.

➢ User can observe the transfer-listed players and select them from here. They can make bid for these players. Transfers will be as open bidding system. Users can make bid until deadline for selected players.

3.2 Functional Requirements

Login to facebook

Facebook Response

1. Facebook — Facebook Response

Access to game

Access to forum

2. Game Process

3.Forum — Forum Response

User Data

Match Data

Game data

Game Data

Database

4. Match Engine

Current data

Current result

5.AI

Graphical Result

Audial Result

Audio Control

6.Sound Engine

7.Graphic Engine

Audial Request

Commentary mode Flash Animation
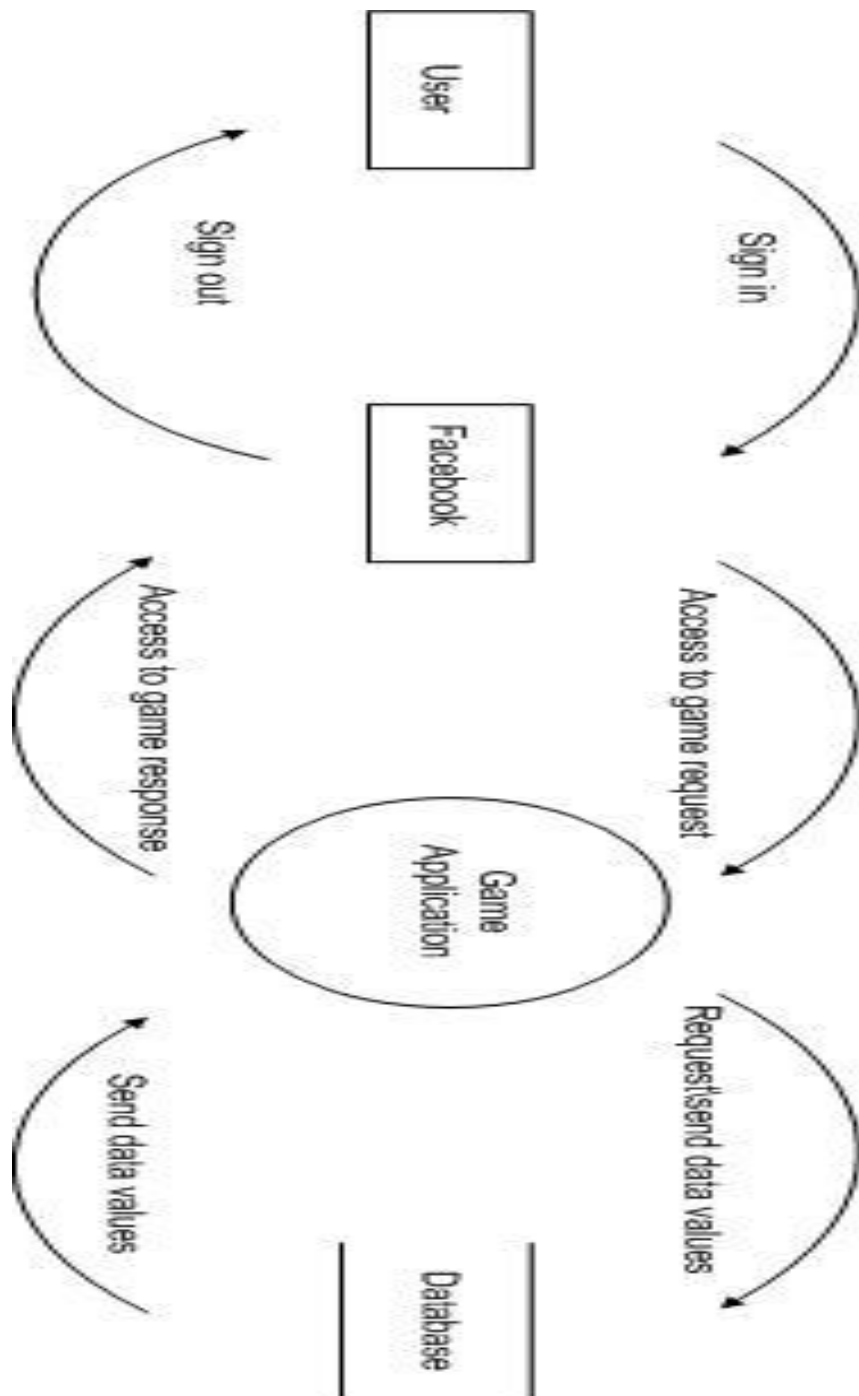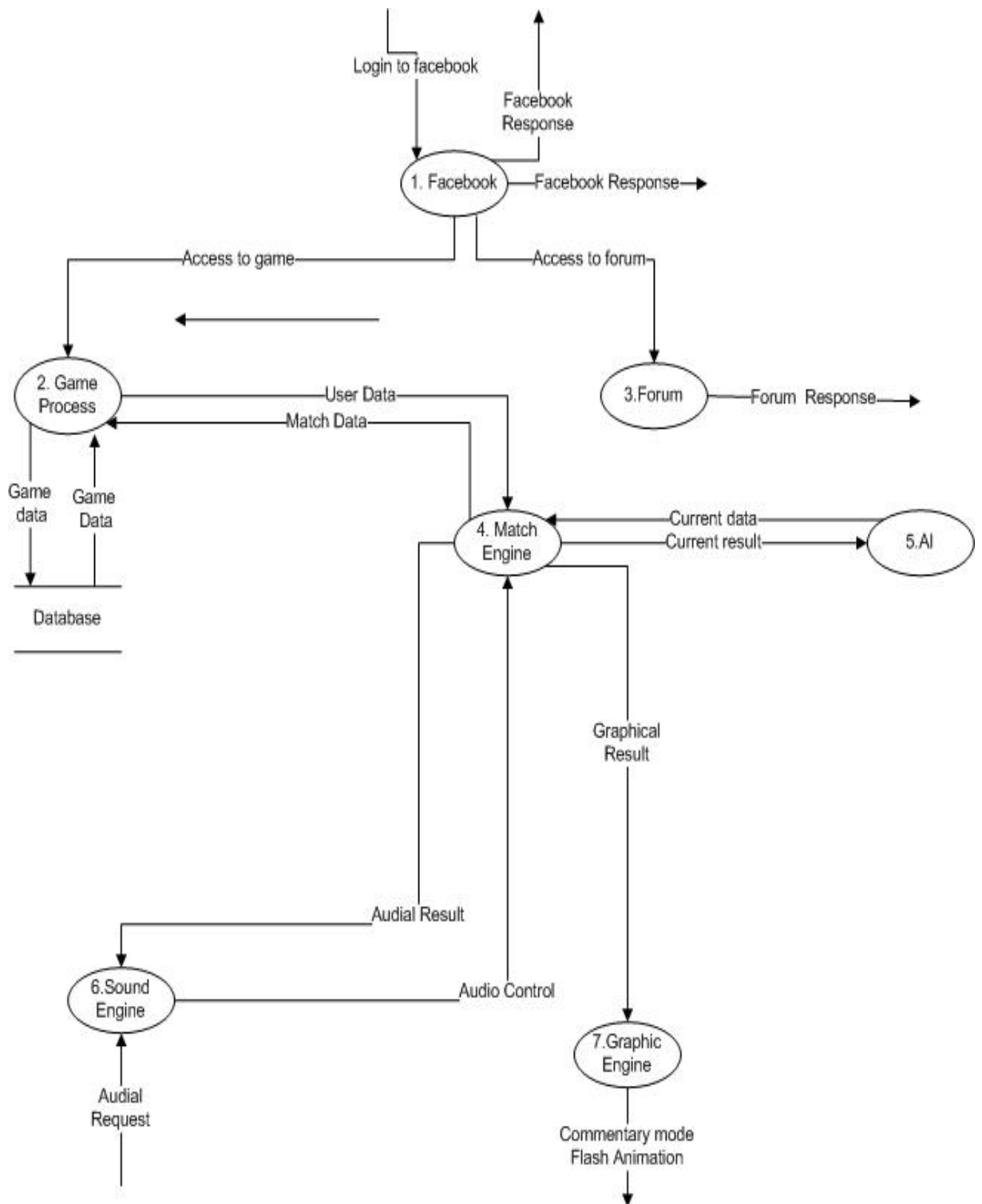
3.3 Non-Functional Requirements

3.3.1 Performance Requirements

The game will be available for all Facebook users. No special knowledge or skills except from, a little sympathy to football should be required on the part of the users. Specifically, since the initial database of the game includes the random players for each team, first of all, teams will have equal powers. The user will play the game as a Facebook application with a well-designed interface.

Since the game will be designed on web platform, no other platforms except from Facebook will run the game. At first, our goal is to support 1000 users to play the game simultaneously.

3.3.2 Design Constraints

In our project, we will use PHP and Flash as programming language. To play our game, users must have at least Intel® Pentium® II 450MHz or faster processor (or equivalent), 128MB of RAM and to play the sounds of our game, users should have a sound system. Every user must have a web browser and a Facebook account to play the game.

4. Data Model and Description

Our game will have a database which keeps accounts for each user and every account will have a unique team and players.

4.1 Data Description

There will be four data objects in our game database, which are:

- Account

- Team

- Player

- Match

4.1.1 Data objects

Each user will have an account which will have:

- ❖ Team Name: A unique name for team.

- ❖ Region: The region where the team from.

- ❖ Fan Group Name: A unique name for Fan Group.

- ❖ Stadium Name: A name for stadium.

- ❖ Team Colors: Two colors which represent the team.

Each account will have one team which includes:

- ❖ Economy: Total incomes and outcomes of two weeks for team.

- ❖ Stadium: Stadium capacity for team.

- ❖ Staff: Team staff members.

- ❖ Training: Training schedule for team.

Each team will have players which will have:

- ❖ Name / Surname: Name and Surname of the player.

- ❖ Age: Current age of the player.

- ❖ Preferred Foot: Right, Left or Both, depending on the choice of the player.

- ❖ Nationality: Player's nation.

- ❖ Influence : Leadership skill of the player

- ❖ Specialities: Extra skills for the player.

- ❖ Goalkeeper Ability: A skill needed by goalkeepers.

- ❖ Defending: A skill needed by defenders.

- ❖ Playmaking: A skill needed by midfielders.

- ❖ Winger: A skill needed by wing players.

- ❖ Scoring: A skill needed by forward players.

- ❖ Technique: A skill represents ball technique for the player.

- ❖ Passing: A skill represents passing ability for the player.

- ❖ Experience: A skill represents match experience of the player.

❖ Stamina: A skill effects condition of the player.

❖ Form: A skill effects rating of the player.

Matches will have:

❖ Statistics: Previous match information for the team.

❖ Tactics: Formations of the team for the future matches.

4.1.2 Relationships

In our game, each user will have an account for the game and this account will
have a unique team. Each team will contain a number of players which will be given
when the team is created. Each team will play matches every week which will be
shown in match page.

4.1.3 Complete Data Model
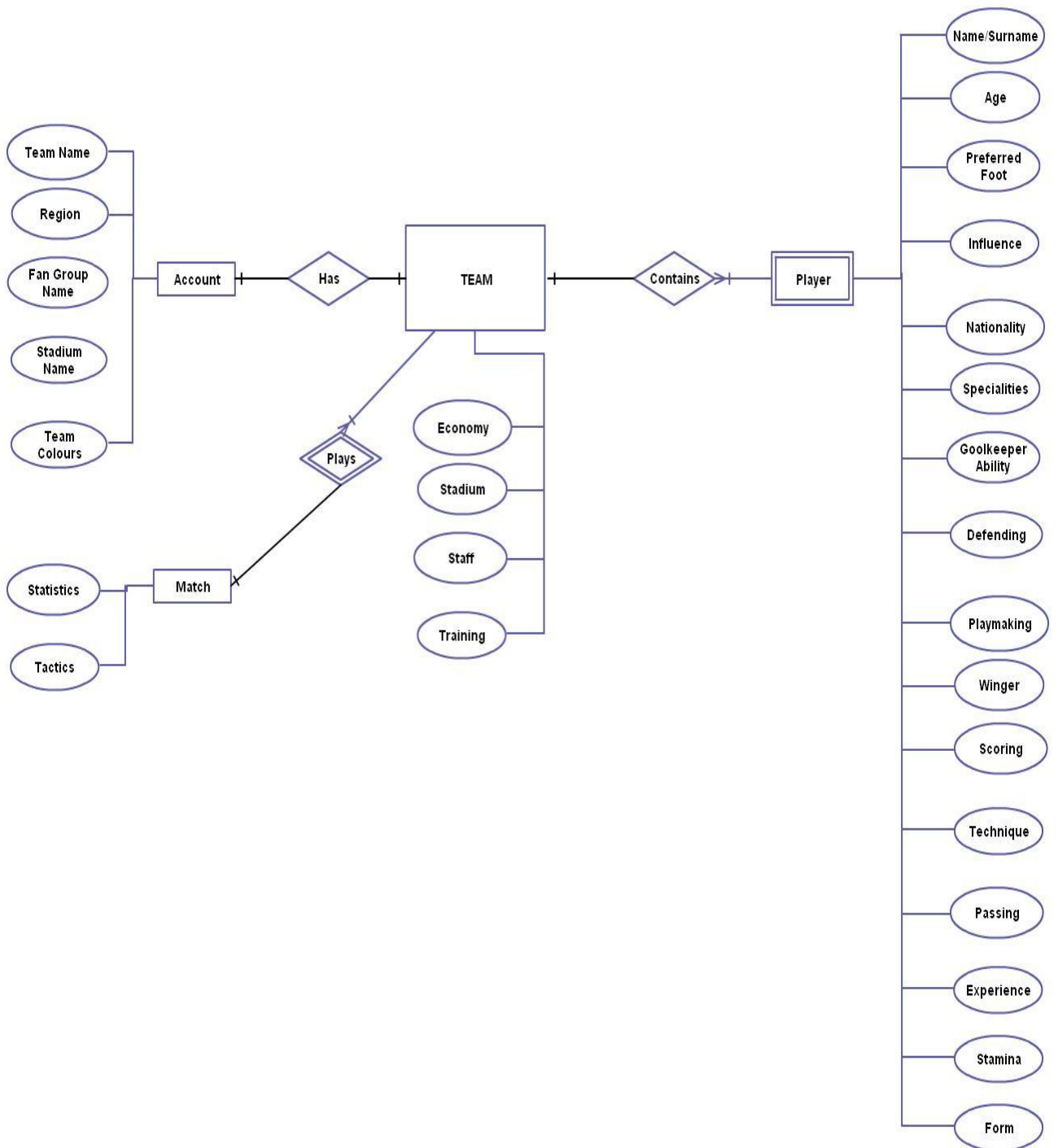
4.1.4 Data Dictionary

There is no Data Dictionary available for now. However to familiarize the users to the game a guideline including the hints will be embedded to the application.

5. Behavioral Model and Description

There will be one initial, one final and five other states to run our game. Initial state is Login state, final state is Logoff state and the other states are:

- User Logged In
- Managing Team
- Transferring Player
- Managing Player
- Managing Match

5.1 Description for Software Behavior

Firstly, in order to login to game, users should login to Facebook with their Facebook account. After logging into Facebook, users are able to login our game. When users logging into our game, login() function is executed to start the game and they enter to User Logged In state. In this state, addTeam() function creates a new Team and this function returns to User Logged In state. manageTeam(Team T) provides users to be able to change team information

in Managing Team state and this state returns to User Logged In state with T.syncTeam() function.

To be able to transfer a player, transferPlayer(Player P) function is called and it provides users to enter Transferring Player state and this state returns to User Logged In state with P.syncTPlayer() function. managePlayer(Player P) provides users to be able to enter to Managing Player state and this state returns to User Logged In state with P.syncPlayer() function. Another state reached from the User Logged In state is Managing Match state and manageMatch(Match M) function provides it. M.syncMatch() function is called to return to User Logged In state. To logging off the game, logoff() function is called from User Logged In state and users are able to quit game with execution of this function.

5.2 State Transition Diagrams
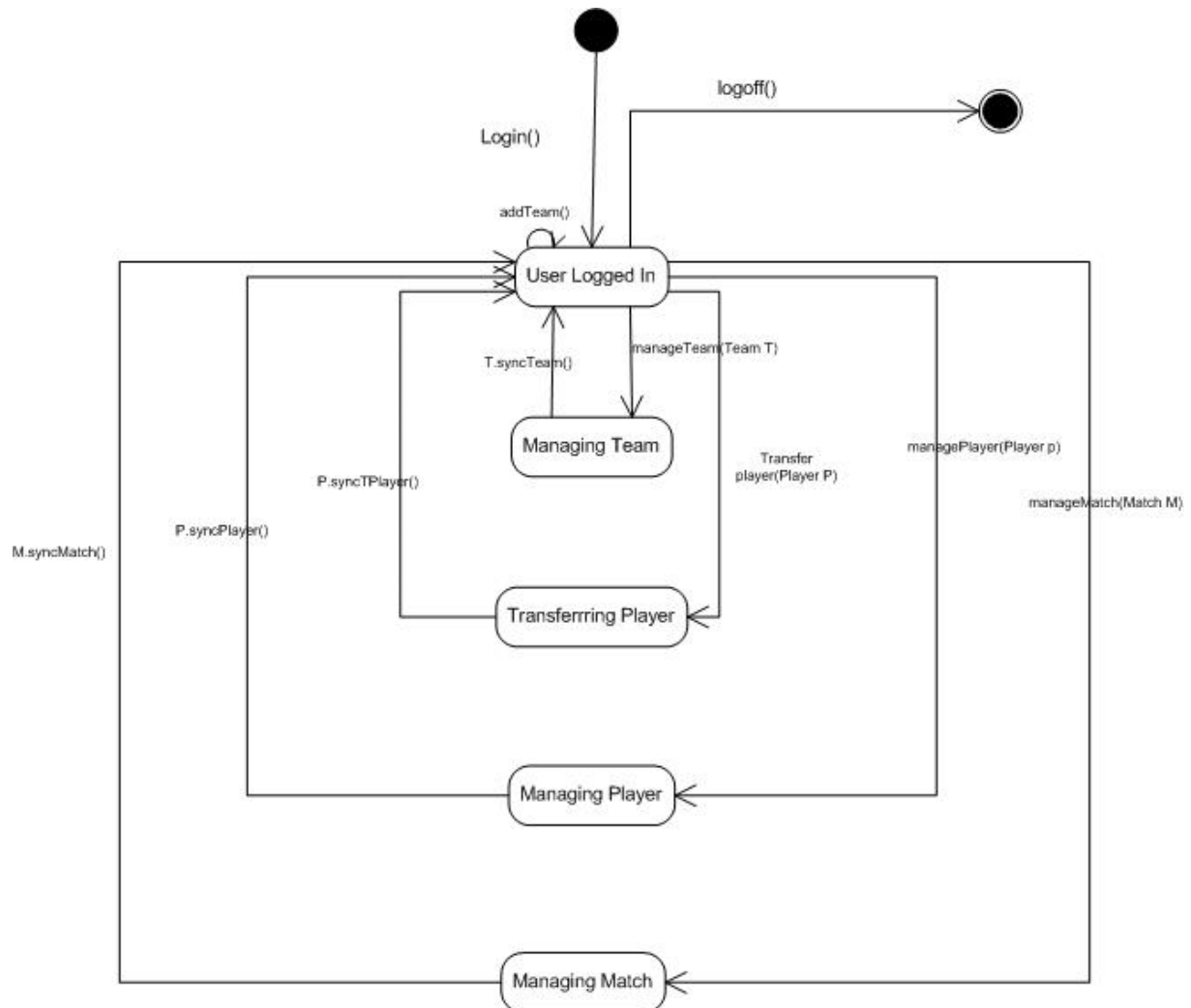
6. Planning

6.1 Team Structure
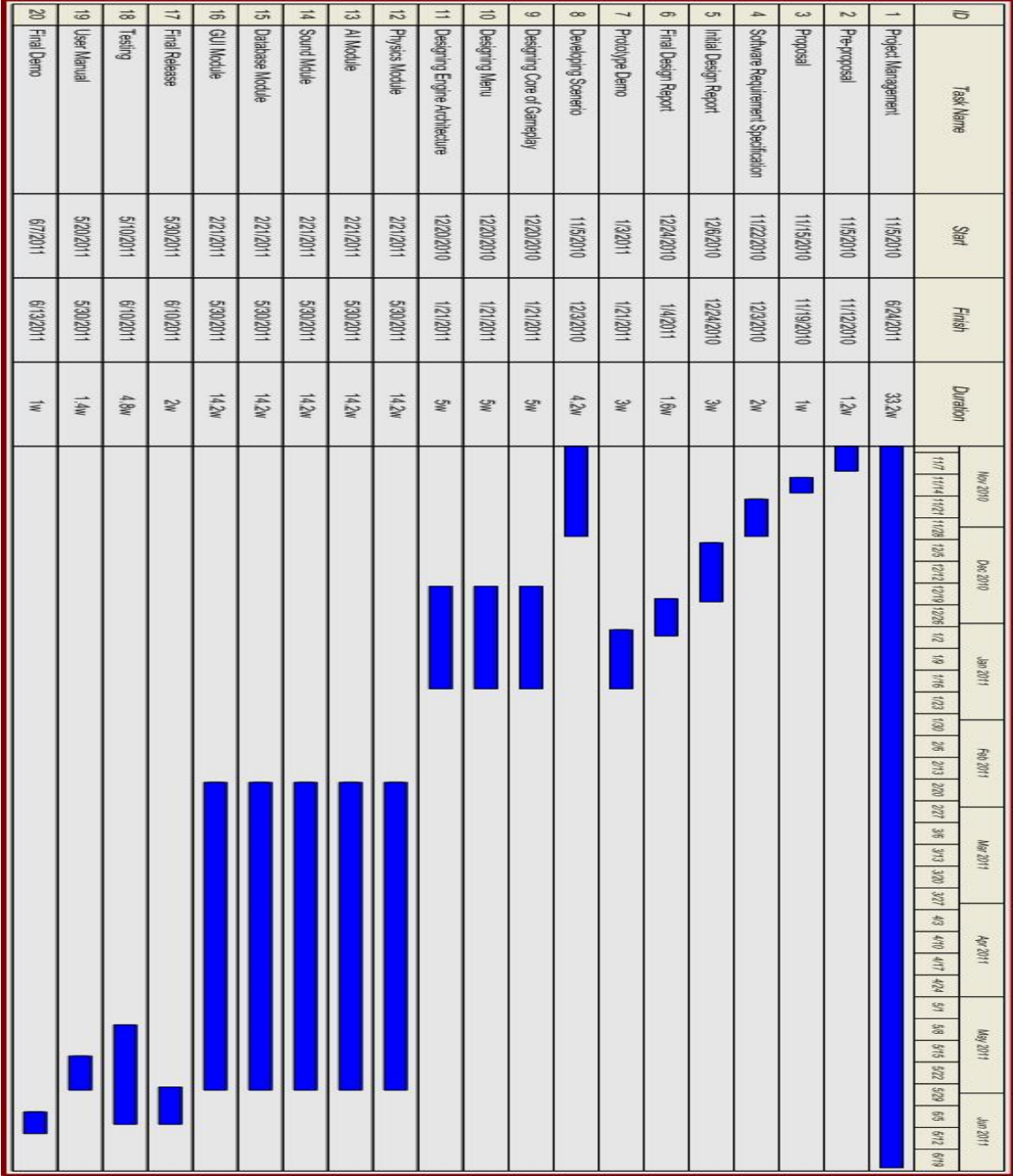
Ahmet UĞUR   : Holy Organizer, Skill Hunter

İsmail Samet SORKUN   : Flash Master

Mehmet E. ŞENER   : Driver, Key Point

Murat Ezgi BİNGÖL   : Algorithm Guru

6.2 Estimation (Basic Schedule)

ID	Task Name	Start	Finish	Duration
1	Project Management	1/15/2010	6/24/2011	33.2w
2	Pre-proposal	1/15/2010	11/12/2010	1.2w
3	Proposal	11/15/2010	11/19/2010	1w
4	Software Requirement Specification	11/22/2010	12/3/2010	2w
5	Initial Design Report	12/6/2010	12/24/2010	3w
6	Final Design Report	12/24/2010	1/4/2011	1.6w
7	Prototype Demo	1/3/2011	1/21/2011	3w
8	Developing Scenario	1/15/2010	12/3/2010	4.2w
9	Designing Core of Gameplay	12/20/2010	1/21/2011	5w
10	Designing Menu	12/20/2010	1/21/2011	5w
11	Designing Engine Architecture	12/20/2010	1/21/2011	5w
12	Physics Module	2/21/2011	5/30/2011	14.2w
13	AI Module	2/21/2011	5/30/2011	14.2w
14	Sound Module	2/21/2011	5/30/2011	14.2w
15	Database Module	2/21/2011	5/30/2011	14.2w
16	GUI Module	2/21/2011	5/30/2011	14.2w
17	Final Release	5/30/2011	6/10/2011	2w
18	Testing	5/10/2011	6/10/2011	4.8w
19	User Manual	5/20/2011	5/30/2011	1.4w
20	Final Demo	6/7/2011	6/13/2011	1w

6.3 Process Model

During our development of the project we will be using Extreme Prototyping. We choose this prototyping because it is most convenient one for developing web application for our team.

7. Conclusion

This Requirement Analysis Report describes the content of the system, both functional and non-functional requirements for the software, design constraints and system interfaces. This report specifies the Software Requirement Specification, which are organized according to specifications in IEEE Recommended Practice 830-1998, for Best-Eleven Football Manager Game and can be used by the user of the game in order to understand the functionality of the game.