



# Agile Project Manager

I3302 E

Server-side Web Development

Realized by :

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# Acknowledgements

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# Summary

Within my chemistry study, I will discuss every thing related to the project from the agile project domain to the implementation and delivery of the website. I will start with showing how important agile is and why every company should embrace this methodology. I will also explain my project's objectives while providing a light comparison between my software and some other similar applications. Then I will highlight the main features implemented in the application and discuss the overall design .

Afterwards I shall address the database design, giving a brief explanation of its structure, then talking about how I implemented it. Some diagrams will better help illustrate the points.

Finally comes the implementation where I will show the different techniques used with the constraints and security implemented in the application.

# Chapter 1.

## Preliminary Study

### 1.1 Introduction

#### *Manifesto for Agile Software Development*

We are uncovering better ways of developing software by doing it and helping others do it.

Through this work we have come to value:

**Individuals and interactions** over processes and tools

**Working software** over comprehensive documentation

**Customer collaboration** over contract negotiation

**Responding to change** over following a plan

That is, while there is value in the items on the right, we value the items on the left more.

Agile is the ability to create and respond to change.  
It is a way of dealing with, and ultimately

succeeding in, an uncertain and turbulent environment.

The authors of the Agile Manifesto chose “Agile” as the label for this whole idea because that word represented the adaptiveness and response to change which was so important to their approach.

It's really about thinking through how you can understand what's going on in the environment that you're in today, identify what uncertainty you're facing, and figure out how you can adapt to that as you go along.

One thing that separates Agile from other approaches to software development is the focus on the people doing the work and how they work together. Solutions evolve through collaboration between self-organizing cross-functional teams utilizing the appropriate practices for their context.

There's a big focus in the Agile software development community on collaboration and the self-organizing team.



## 1.2 Project Objectives

This project is intended to help coaches in the management of their teams work. It allows them to generate surveys about certain topics they are concerned about and possibly have great benefit for the overall working process. The main objectives can be summarized as :

- An efficient way of managing different teams and keeping track of the members joined in every team with all information about each one of them.
- Organizing projects as subprojects and keeping information about each one of them.
- Helping the coaches understand better the state of their teams by asking different questions, which the members can reply to.
- Allowing coaches to test the agility of their teams and comparing it from team to another through the generated statistics.

### 1.3 Similar applications

There are some applications that provide similar services, such as :

#### 1. [Agilean](#)

The main features of Agilean include project planning, execution, monitor, impediments and response plan, stand up meeting automation, release management, retrospective analysis, and visualized reports.

#### 2. [Trello](#)

I guess many of you could hear about Trello, one of the most used and well-known project management application. It has both free and premium accounts that give you a great chance to use most of the common functions. The structure of Trello is based on the kanban methodology. All the projects are represented by boards, that contain lists. Every list has progressive cards that you are made as drag-and-drop. Users that are related to the board, can be assigned to cards..

### 3. JIRA

JIRA is a tool developed for bug tracking, issue tracking and project management to software and mobile development processes. The JIRA dashboard has many useful functions & features which are able to handle different issues easy. Some of the key features and issues: issue types, workflow's, screens, fields, issue attributes. Some of the features you won't find elsewhere. The dashboard on JIRA can be customized to match your business processes.

As we can notice in the above table, no existing application meets all the requirement needed in a complete and efficient application, like the one we are developing.

#### 1.4 Features

The website offers so many different and useful features:

- ✓ The users can create accounts and provide profile images for better identification.
- ✓ The coaches can create as much as teams as they want.
- ✓ Every team has a coach, scrum master, product owner, developers and analysts...
- ✓ The coaches can create as many projects as they want and assign as many teams as they want for each one of them.
- ✓ The coaches can create single questions or questionnaires which contains set of questions.
- ✓ The single questions are assigned for a team and are of three types:
  - Rate Questions : 5 star rating
  - Numerical Value Questions
  - Multiple choice questions
- ✓ The questionnaires contain a set of 5 star questions, and each one can be assigned for as many teams as the coach wants.

- ✓ *The coach can generate surveys about the answered questions, and the answers can be plotted in a radar graph for better clearance.*
- ✓ *All users get relevant notifications about different actions taken by their coaches.*

## 1.5 Design

Any guest can create an account, but he can't really use the website until someone assigns a role for him, his role is NULL.

The screenshot shows a form titled "Creating an agile project user account" on a purple background. The form contains the following fields and values:

- full name: Abdullah Haidar
- username: abd13
- password: (masked with dots)
- phone: 67/543322
- email: theahmaster7@gmail.com
- image: Choose File No file chosen
- speciality: ProjectManager (dropdown menu)

A yellow "create account" button is located at the bottom right of the form.

Figure 1 Create Account

All inputs are checked for validity:

The screenshot shows the same form as Figure 1, but with validation errors displayed in red text to the right of each field:

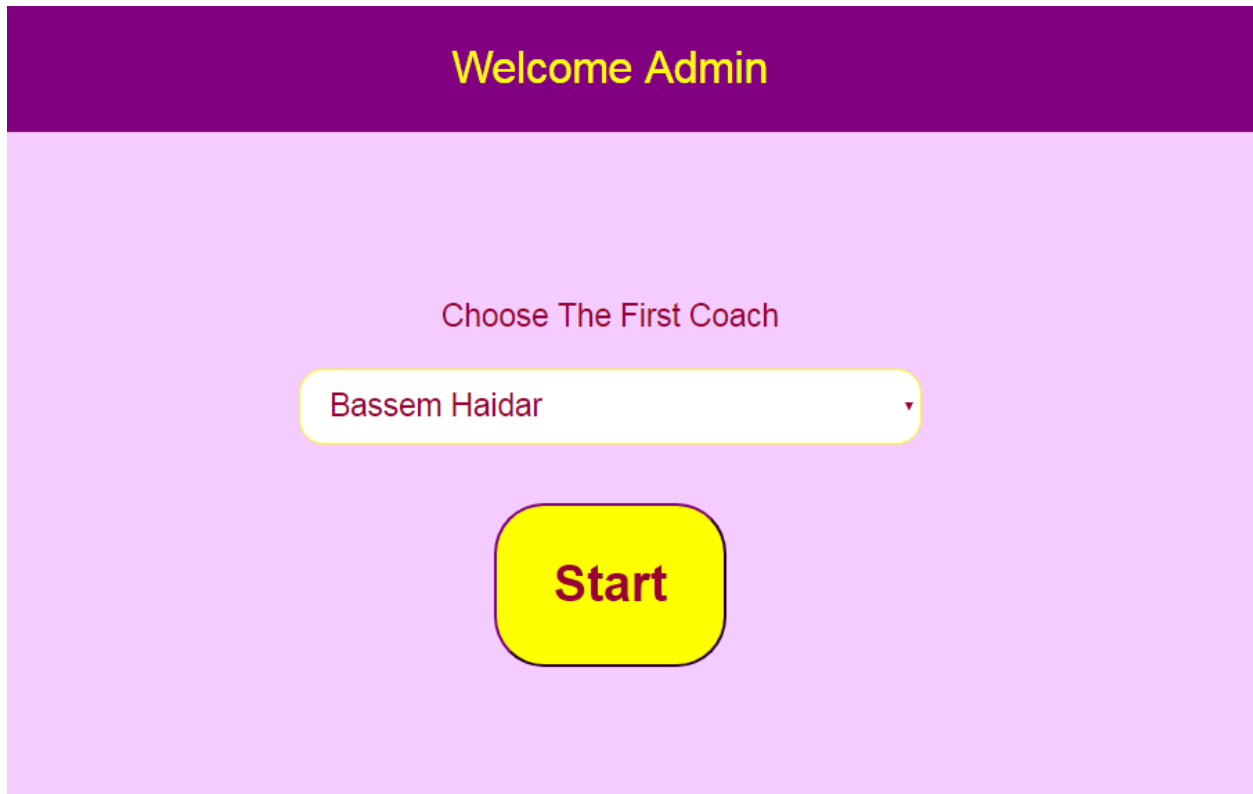
- full name: AbdullahHaidar (error: please enter a valid name)
- username: abdullah (error: user name already taken)
- password: (masked with dots) (error: Passwords must be minimum eight characters, at least one uppercase letter, one lowercase letter, one number and one special character)
- phone: 67,543322 (error: please enter a valid phone number)
- email: theahmaster7gmail.com (error: please enter a valid email)
- image: Choose File No file chosen (error: choose an image)
- speciality: ProjectManager (dropdown menu)

The yellow "create account" button remains at the bottom right.

Figure 2 Create Account Validation

## The admin

The admin assigns the first coach:



The image shows a web interface for an admin. At the top, there is a dark purple header bar with the text "Welcome Admin" in yellow. Below this, the background is a light purple. In the center, there is a text prompt "Choose The First Coach" in dark purple. Underneath the prompt is a white rounded rectangular input field with a yellow border, containing the text "Bassem Haidar" and a small downward arrow on the right. Below the input field is a large yellow rounded rectangular button with a dark purple border and the word "Start" in dark purple.

Figure 3 Admin Page

Once done the admin's job is over:

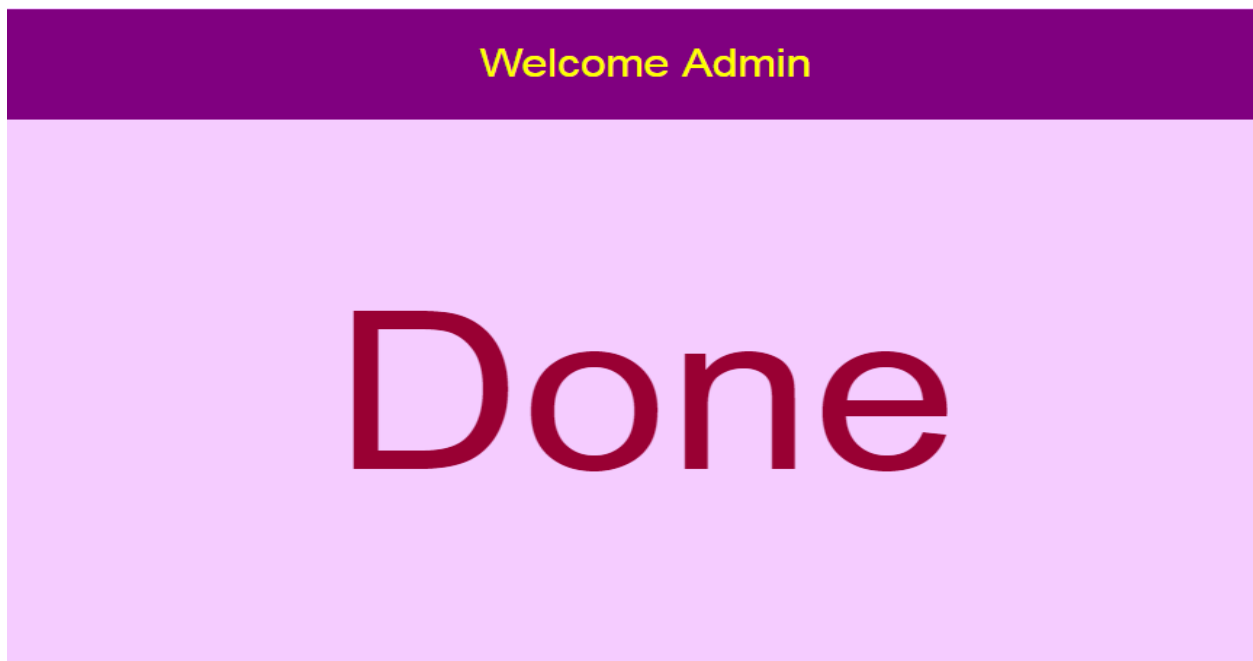


Figure 4 Admin Jobs Done

The coaches:

Home

Project

Team

Ask Questions

Questionnaire

Answer Questions

Statistics

<i><b>Id</b></i>	24
<i><b>Name</b></i>	Bassem Haidar
<i><b>Username</b></i>	bassem
<i><b>Email</b></i>	bassem@gmail.com
<i><b>Mobile</b></i>	+961 238745
<i><b>Speciality</b></i>	ProjectManager
<i><b>Role</b></i>	coach




Figure 5 Coach Page



*The coaches can create as many projects as they want, the project can be a subproject of a parent project.*

Home Project Team Ask Questions Questionnaire Answer Questions Statistics

[Enter the following information to create a new project](#)

Project Title

Start Date

End Date

Duration in month

Department

Parent Project

Description

**Create Project**

Figure 6 Create Project

*If the coach doesn't has team yet he will be prompted to create one :*

**Create a new team**

Enter a team title

Select a scrum master:

Select a product owner:

Select a project:

**Create Team**

Figure 7 Create Team

He can proceed to add members to the team , or create a new one:

Home Project Team Ask Questions Questionnaire Answer Questions Statistics

Select a team Team1 New Team

Remove Kamal Haidar Add

Team Members

Rami Baida Abdullah Haidar Amira Baltajy Ali Rahal

Figure 8 Add or Remove Members

Remove Kamal Haidar Add

Members to add

**Project Managers**

Kamal Haidar

Nidal Ali

**Developers**

Jad Mrad

George Saab

**Analysts**

Hussein Hijazy

Safaa Diab

Members to remove

Rami Baida

Abdullah Haidar

Amira Baltajy

Ali Rahal

Rami Baida Ali Rahal

Figure 9 Add or Remove Members list

The coach can ask single questions or multiple questions in a questionnaire.

### A) Single Questions:

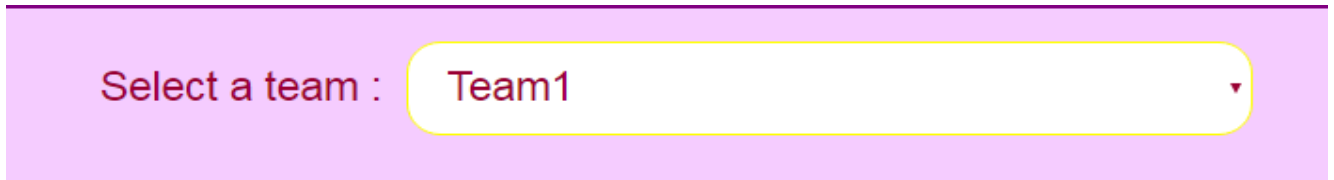
A screenshot of a user interface element. It features a light purple rectangular background. On the left, the text "Select a team :" is displayed in a dark red font. To its right is a white rounded rectangular dropdown menu with a thin yellow border. Inside the menu, the text "Team1" is visible in a dark red font. A small dark red downward-pointing triangle is located at the right end of the menu.

Figure 10 Select team

He has three types two choose from :

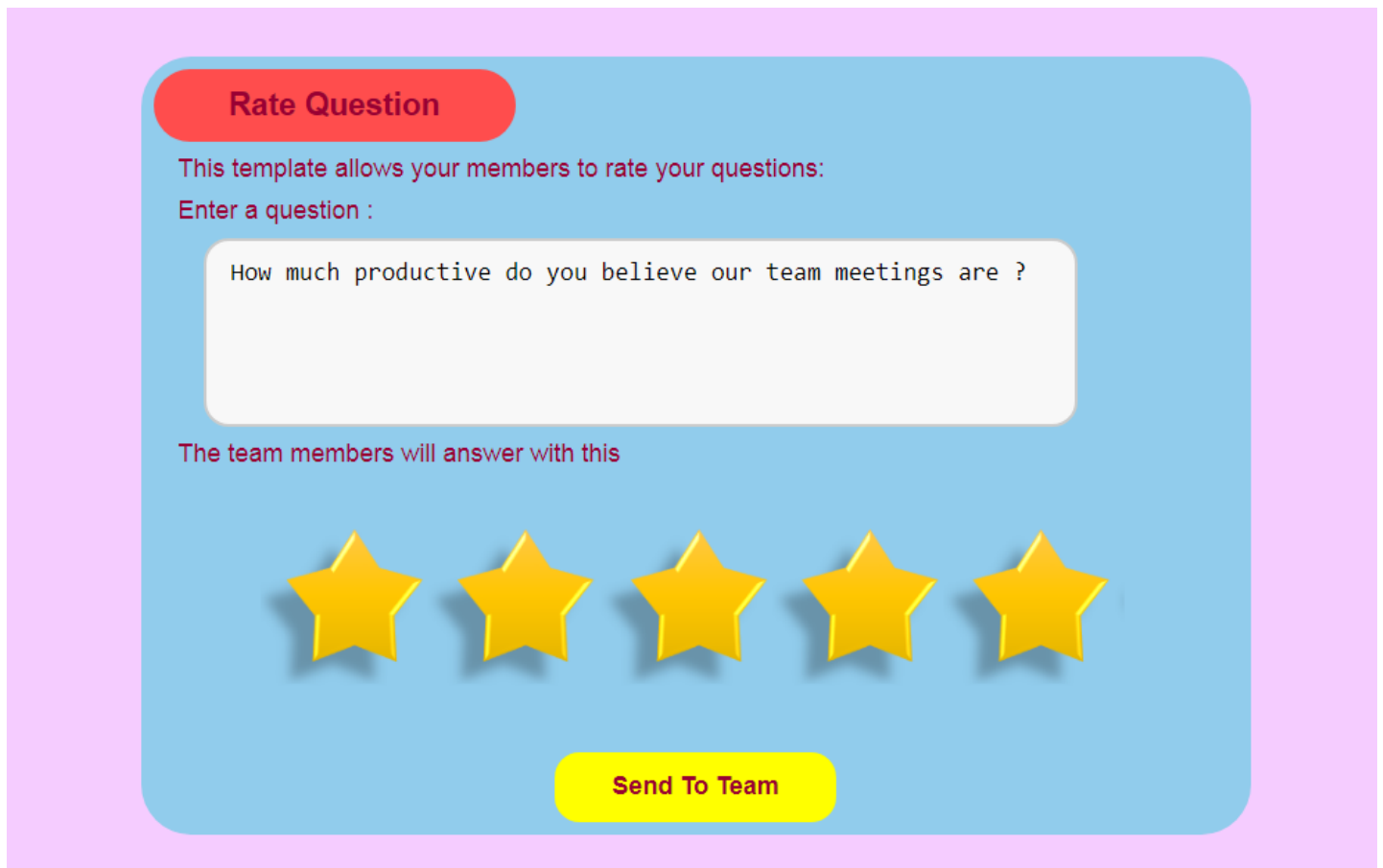
A screenshot of a questionnaire template. The background is light purple. In the center is a light blue rounded rectangle. At the top of this rectangle is a red rounded button with the text "Rate Question" in white. Below the button, the text "This template allows your members to rate your questions:" is shown in dark red. Underneath is the prompt "Enter a question :" in dark red. A white rounded text box contains the question "How much productive do you believe our team meetings are ?". Below the text box, the text "The team members will answer with this" is displayed in dark red. At the bottom of the blue rectangle is a row of five yellow 3D stars. Below the stars is a yellow rounded button with the text "Send To Team" in dark red.

Figure 11 5 star question

### Numeric Value Question

This template allows your members to answer with numeric values:

Enter a question :

How much tasks you carry out without overly depending on other team members ?

Please Answer with a percentage of 100

The team members will anser with this

Answer :

Send To Team

Figure 12 Numerical Value Question

### Options Question

Ask your team a question and then provide options so they can select one from

Enter a question :

How much did you make suggestions, sought feedback, showed interest inteam decision making and planning ?

Please choose the option that you deem most relevant.

Enter as many options as you want , each one on a separate line

Not once

Rarely

Sometimes

Send To Team

Figure 13 Multiple Choice Question

## B) Questionnaires:

**Title** Questionnaire1

**Description**

We want to collect some information to help in our team agility assessment

**Select the teams to ask :**

- ☐ Team1
- ☐ Team2
- ☐ Team3

**Next**

Figure 14 Create Questionnaire

**Filter by :** Member Questions

- ☐ How much productive do you believe our team meetings are ?
- ☐ How much is your in this team clear for you ?
- ☐ How much aware are you of your teammates unique capabilities ?
- ☐ How much do you believe you have learned from this team that you probably would not have learned working alone.
- ☐ How many changes this team need to be made to improve its performance on the project ?
- ☐ How well did you do in functioning as a team?
- ☐ How much were you fully prepared for the teamwork most of the time?
- ☐ How much do you contribute in the discussions held during meetups ?
- ☐ How much do you understand the requirements for the task handed to you ?
- ☐ Participated in identifying and defining problems and working toward solutions ?
- ☐ How much did you make suggestions, sought feedback, showed interest inteam decision making and planning ?
- ☐ How much did you follow through in completing your own contributions to team project
- ☐ How cooperatively did you work with others
- ☐ How much tasks you carry out without overly depending on other team members ?
- ☐ How much sensitively did you react to verbal and nonverbal cues of other team members
- ☐ How much consistently did you went above and beyond; tutored teammates, carried more than your fair share of the load ?

**Send To Team**

Figure 15 Choose Questions

He can filter the questions in two ways :

1. Questions for ordinary members (not coaches responsible of teams):

- ❖ How much productive do you believe our team meetings are ?
- ❖ How much is your in this team clear for you ?
- ❖ How much aware are you of your teammates unique capabilities ?
- ❖ How much do you believe you have learned from this team that you probably would not have learned working alone?
- ❖ How many changes this team need to be made to improve its performance on the project ?
- ❖ How well did you do in functioning as a team
- ❖ How much were you fully prepared for the teamwork most of the time
- ❖ How much do you contribute in the discussions held during meetups

- ❖ How much do you understand the requirements for the task handed to you ?
- ❖ Participated in identifying and defining problems and working toward solutions
- ❖ How much did you make suggestions, sought feedback, showed interest in team decision making and planning ?
- ❖ How much did you follow through in completing your own contributions to team project
- ❖ How cooperatively did you work with others
- ❖ How much tasks you carry out without overly depending on other team members
- ❖ How much sensitively did you react to verbal and nonverbal cues of other team members
- ❖ How much consistently did you went above and beyond; tutored teammates, carried more than your fair share of the load ?

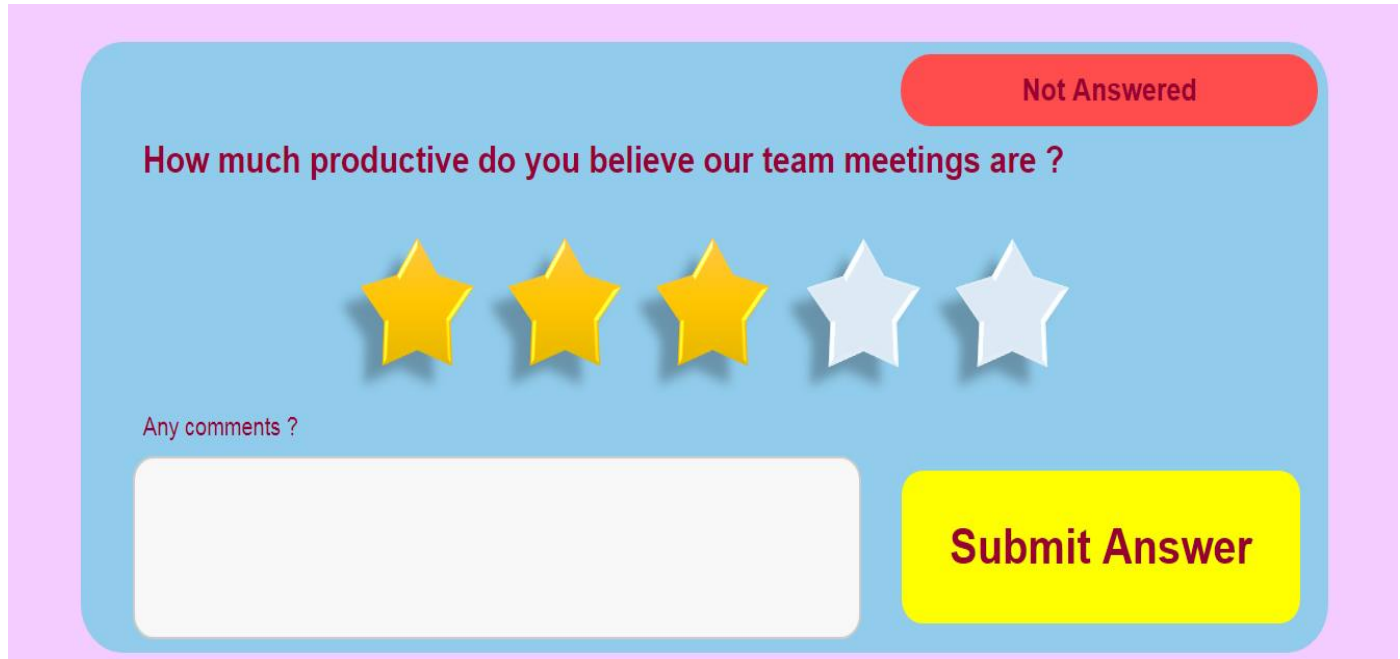
2. Questions he might ask if has a team of coaches (about their teams ...):

- ❖ Overall, how effectively did your team work together on this project?
- ❖ Does everyone of your team members clearly understand their roles ?
- ❖ Does your team has a meaningful, shared purpose ?
- ❖ How effective are the solution results provided by your team for solving problems
- ❖ What percentage of your team participated actively and was fully prepared most of the time
- ❖ How much of the team members participated actively most of the time?
- ❖ How much of your team members were fully prepared for the teamwork most of the time
- ❖ Do you think the team basically agrees on the goals we are trying to accomplish?
- ❖ During team meetings, how much of the most important—and difficult—issues are put on the table to be resolved.";



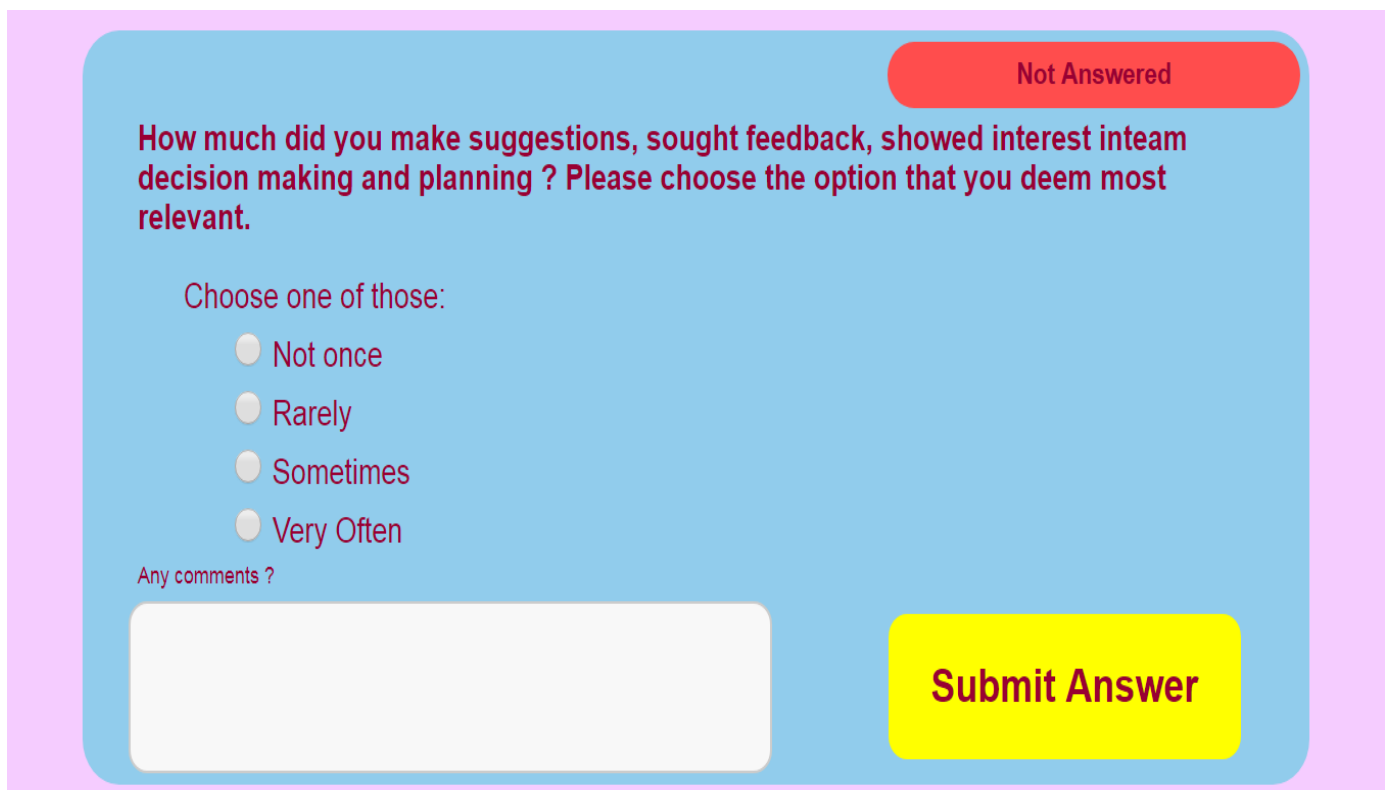
## The members:

They can answer all the questions send to their teams :



The interface shows a question: "How much productive do you believe our team meetings are ?". Below the question are five stars; the first three are yellow and the last two are grey. To the right of the stars is a red button labeled "Not Answered". Below the stars is a text input field with the placeholder "Any comments ?". To the right of the input field is a yellow button labeled "Submit Answer".

Figure 16 Answer 5 star Question



The interface shows a question: "How much did you make suggestions, sought feedback, showed interest inteam decision making and planning ? Please choose the option that you deem most relevant." Below the question is a list of four options, each with a radio button: "Not once", "Rarely", "Sometimes", and "Very Often". To the right of the list is a red button labeled "Not Answered". Below the list is a text input field with the placeholder "Any comments ?". To the right of the input field is a yellow button labeled "Submit Answer".

Figure 17 Answer Mutliple Choice Question

Questionnaire1

We want to collect some information to help in our team assessment

1 - How much productive do you believe our team meetings are ?

★ ★ ★ ★ ★

2 - How much is your in this team clear for you ?

★ ★ ★ ★ ★

3 - How much aware are you of your teammates unique capabilities ?

★ ★ ★ ★ ★

Figure 18 Answer Questionnaire

### Statistics:

*The coach may generate statistics about all questions and questionnaires:*

### Rate Questions:

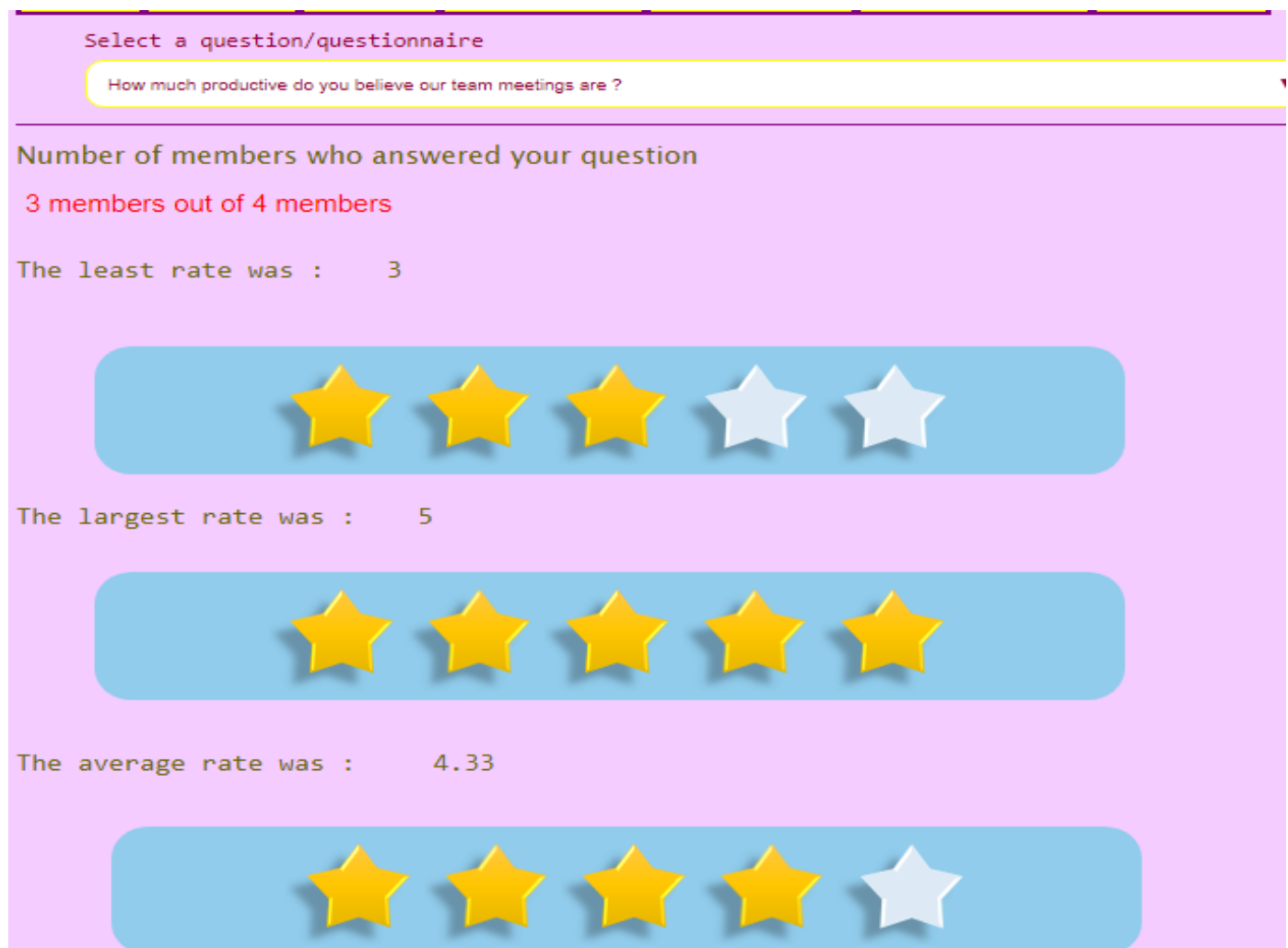


Figure 19 Stats 5 star Questions



Figure 20 Comments on Questions

## Numerical Value Questions:

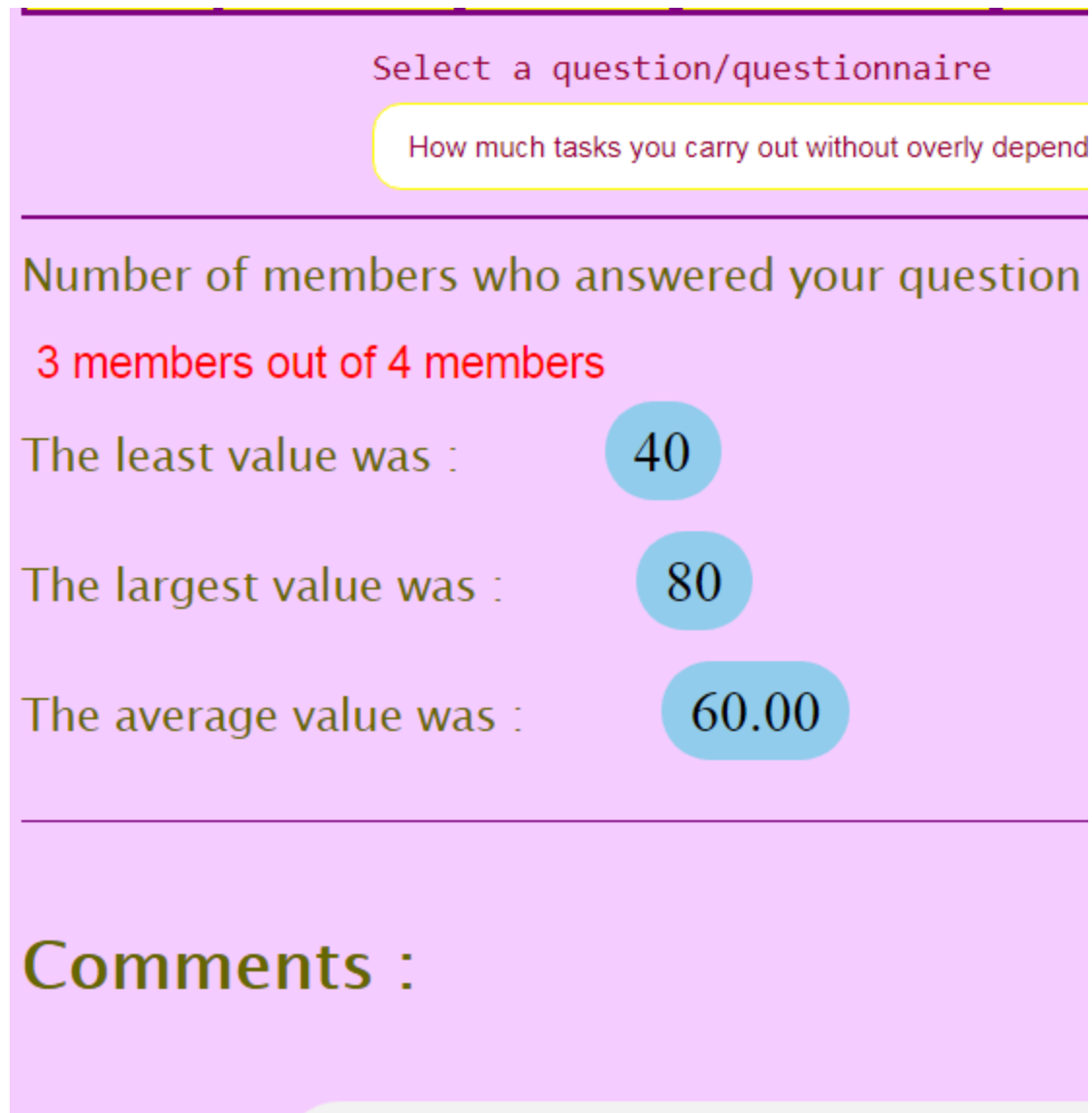


Figure 21 Stats on Numerical Questions

## Mutliple option Questions :

For every option he can see the percentage of members how voted for it:

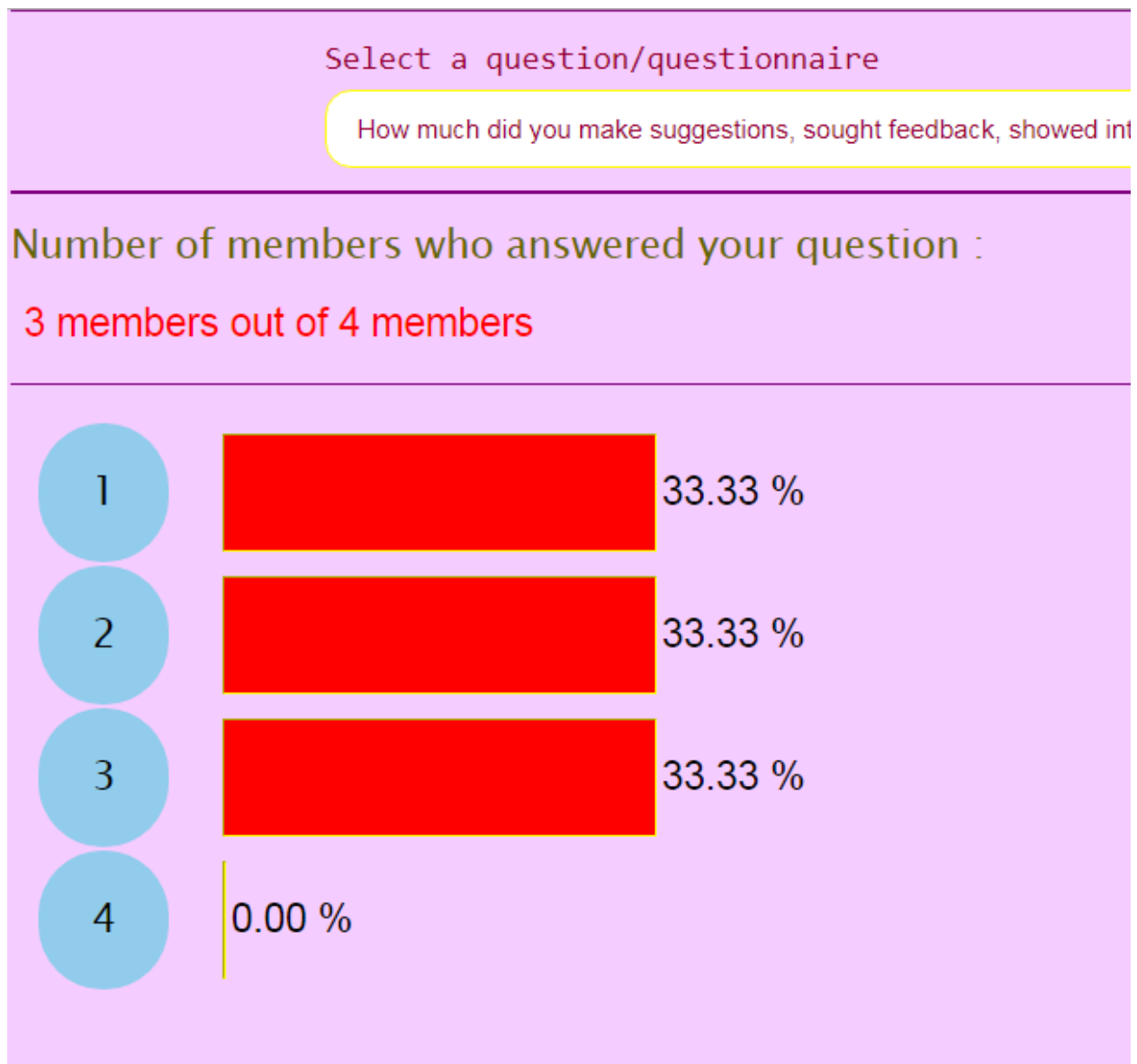


Figure 22 Stats on Multiple Questions

## Questionnaires

*After selecting a question he selects the team or all teams:*

### One team

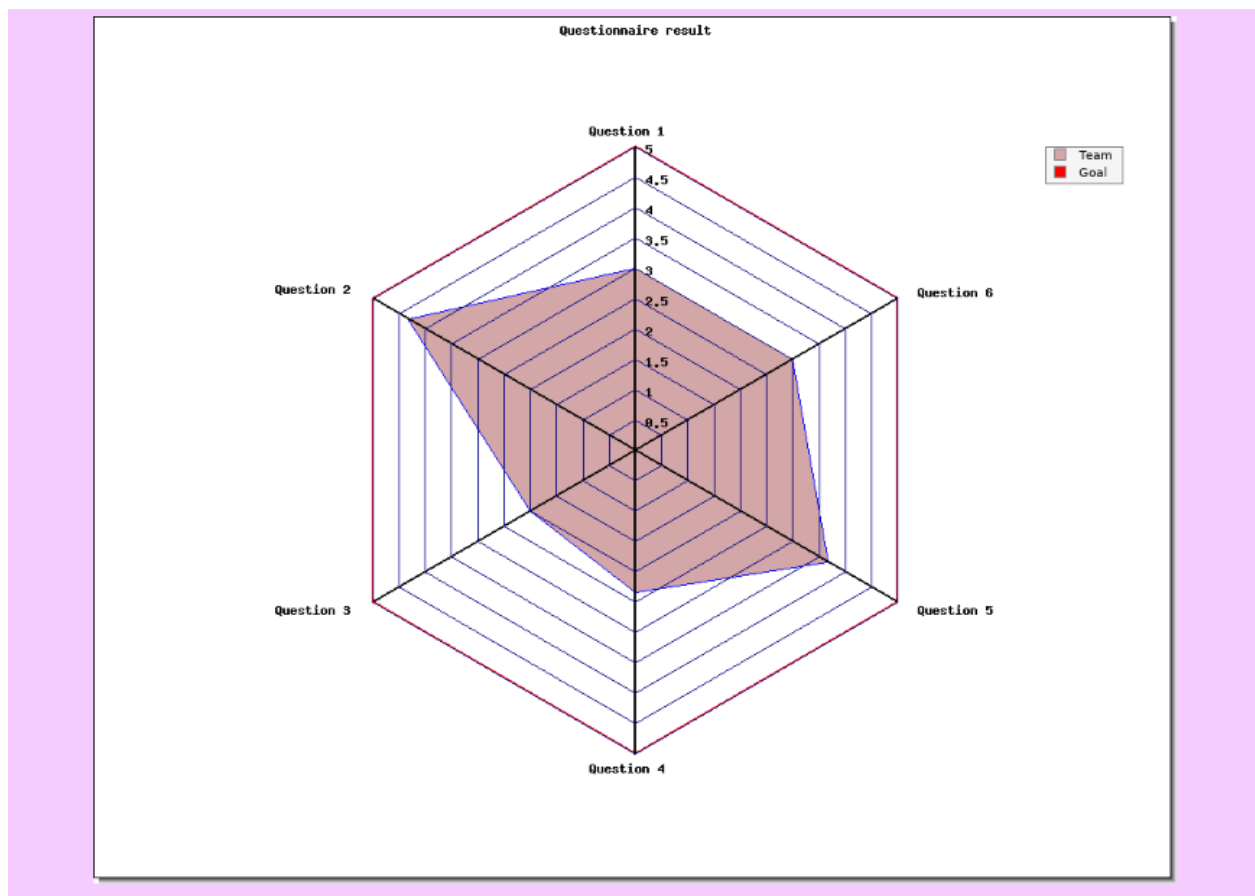


Figure 23 radar plot for one team

As well as statistics for every question in the questionnaire:



Figure 24 stats for a question of a questionnaire

## All Teams

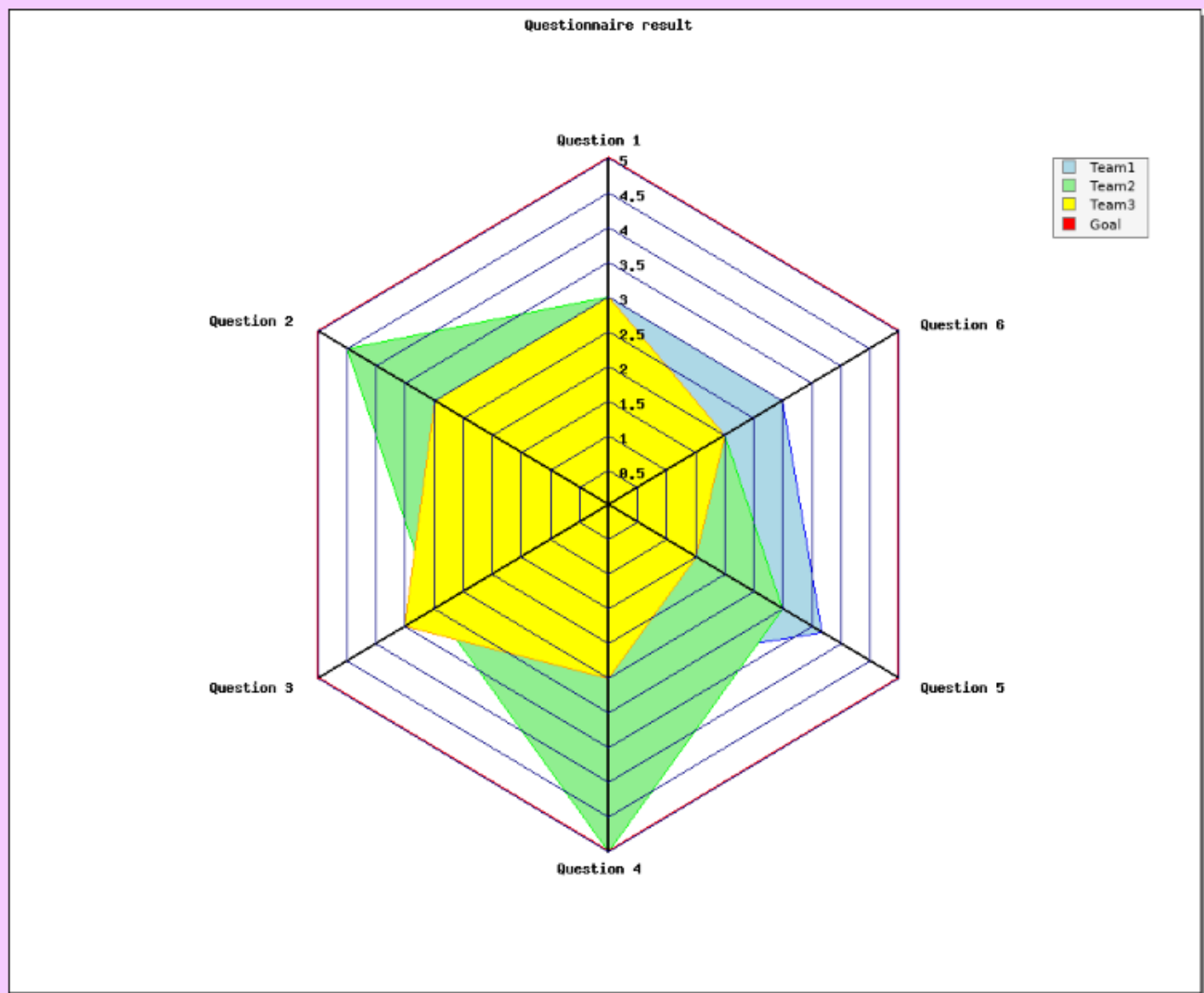


Figure 25 Radar Graph for stats of multiple teams

The color fills can be removed for better clarity :

☒ Do not show fill colors

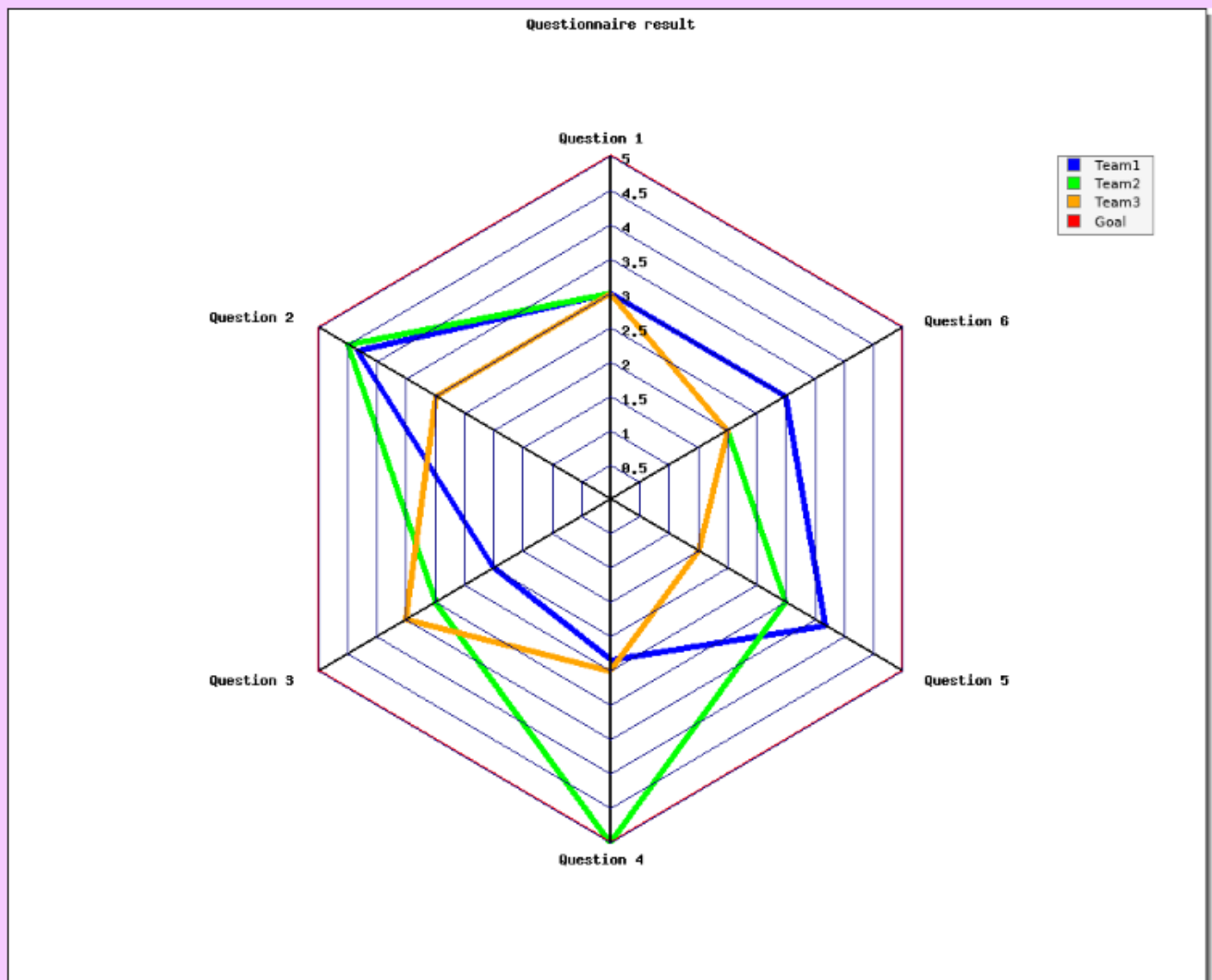


Figure 26 Removing colors from plot graph



# Chapter 2 Database

## 2.1 Introduction

The database stores information about all the members. It also contains the information about the projects, teams questions and their respective answers.

## 2.2 Implementation

All users are stored in one table Members.

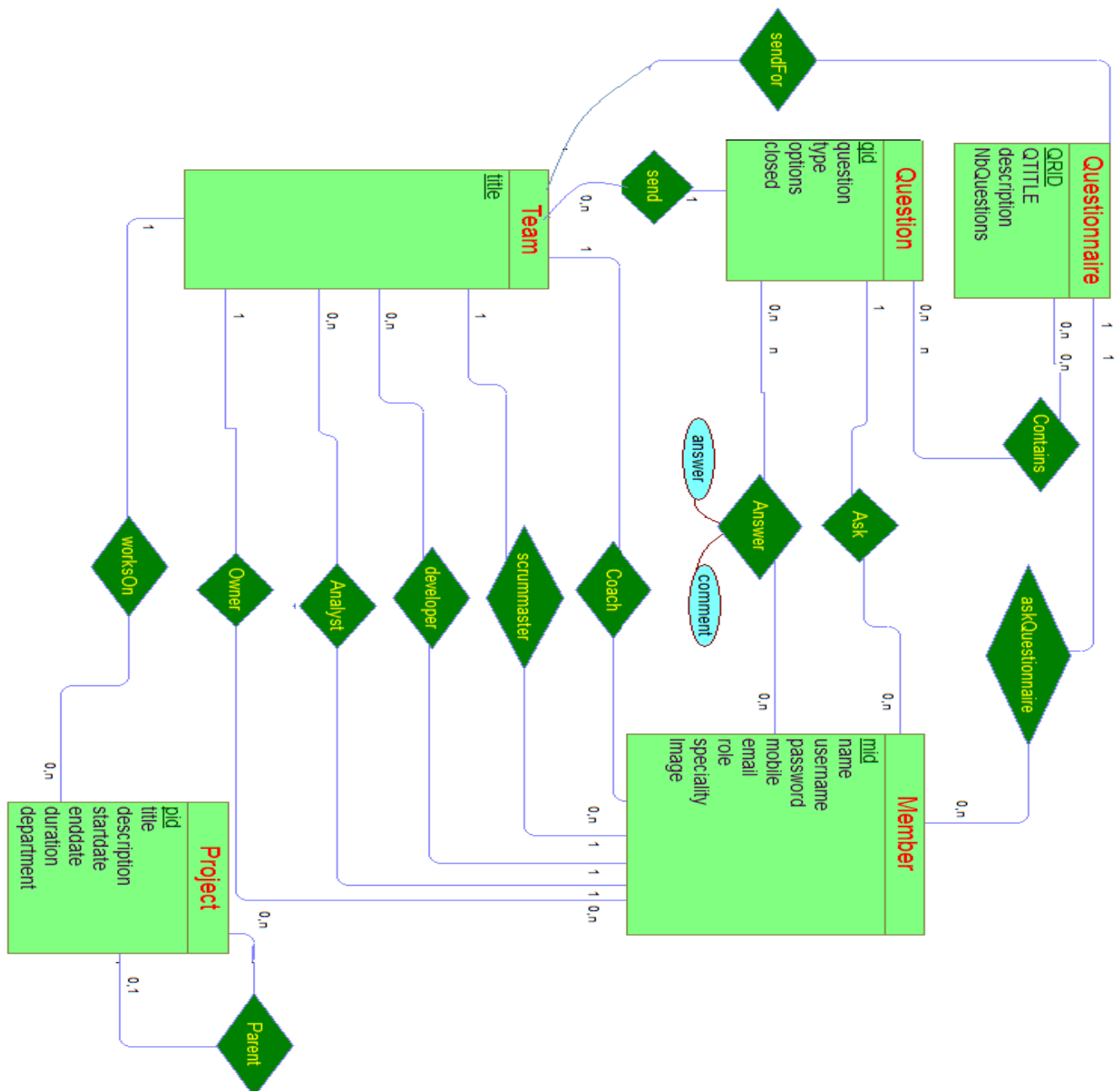
Each member has an MID (auto-incremented) , Name , unique username, birthdate , specialty and a role in the project.

The team has at most one coach but the coach can have many teams. The team has only one scrum master and the scrum master is responsible for only one team. Each team has one product owner and a group of developers and analysts.

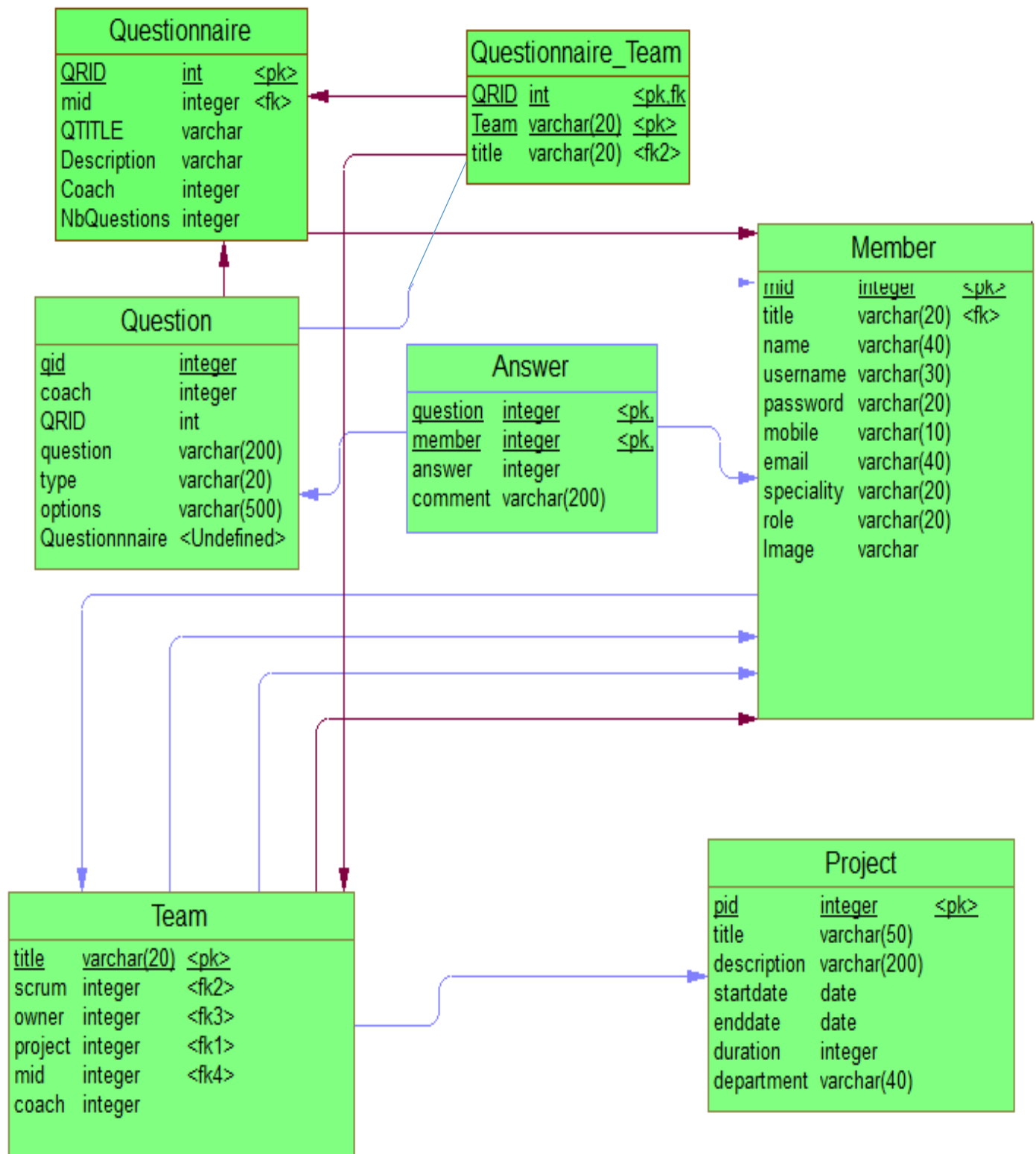
The project can be assigned to different teams, but a team is responsible for only one project at a time.

The questions has one coach and one team, and can be answered by several members. The questionnaires contain several questions and can be assigned to different teams.

## 2.3 Entity Relational Diagram:



## 2.4 Relational Data Model



# Chapter 3

## Implementation

### 3.1 Introduction

The Laravel Framework was used in the implementation of the project. Laravel is a web application framework with expressive, elegant syntax. ... Laravel attempts to take the pain out of development by easing common tasks used in the majority of web projects, such as authentication, routing, sessions, and caching.

### 3.2 Technique

Some of the techniques implemented using Laravel.

#### A. Middleware:

Some of the middleware used :

- ❖ verifyLogin that verifies the login is valid
- ❖ verifyCreate that verifies if the input entered in the create account page is valid.

❖ `verifyTeam` that checks if the coach already has a team or not in order to redirect hi to the right page.

### B. Model-View-Controller Pattern:

When building PHP applications, it may be okay to have a lot of files flying around in very very small projects. However, when the project becomes even slightly bigger than five files or entry points having a structure can drastically improve maintainability.

When you have to work with codebases that have no architecture, it will become extremely grueling, especially if the project is big and you have to deal with unstructured code laying everywhere. Using MVC can give your code some structure and make it easier to work with.

### C. Routes :

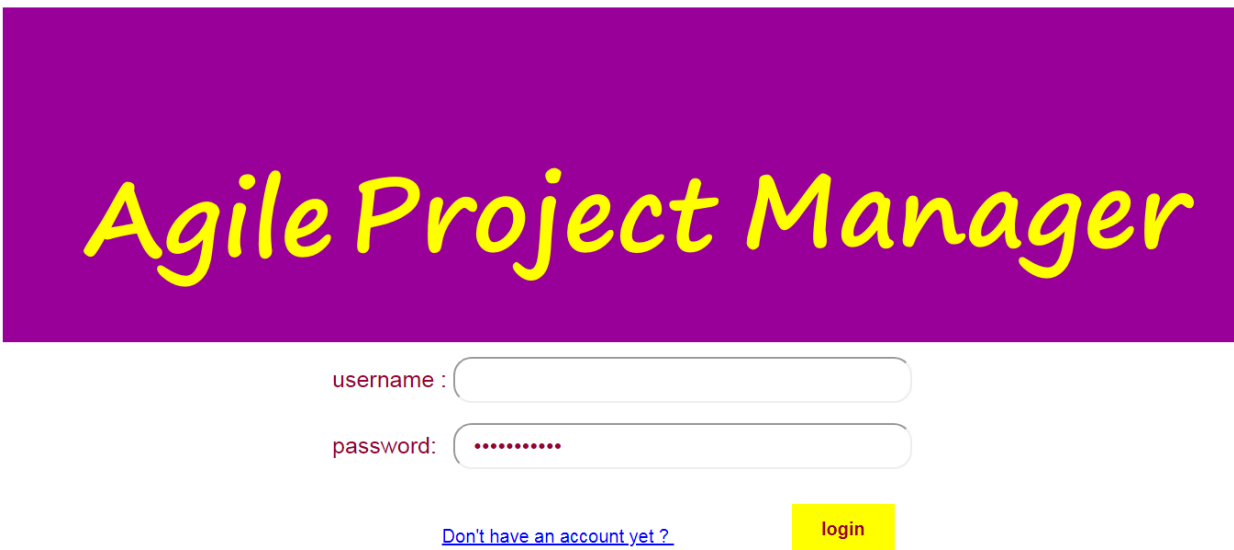
For every page we specify a route with the access method : `get`, `post`, `resource`, `any`, ....

The regex expressions has also been used to check if the inputs are valid.

### 3.3 Security

We insure security through many ways:

#### 1.Authentication:



Agile Project Manager

username :

password:

[Don't have an account yet ?](#)

2. Ensuring password are strong using regex.

3.The use of prepared statements to prevent SQL injections.

4.We use post method as much as possible and try to avoid sending sensitive data through get method.

