KINGDOM OF SAUDI ARABIA
Ministry of Higher Education
Al-Imam Mohammad University
College of Computer & Information Sciences

المملكة العربية السعودية
وزارة التعليم العالي
جامعة الإمام محمد بن سعود الإسلامية
كلية علوم الحاسب والمعلومات

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Software Engineering (CS- 310)
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Project-Phase No: 1
Collage Tracking System
(Software Requirements Specification)

Submitted By

Ahmed majed Alotaibi (438020712) – Coordinator
Fahad abdulaziz Alshaya(439016350)
Ibraheem saleh Altuwayjiri(439013074)
Mohammed khaled Alnasser (439014350)
Khalid abdulaziz Alotaibi(439012737)

Supervisor

Dr.Sultan Alqahtani

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1. Introduction

This section is divided into subsections in which the first one describes the purpose of the project. The second and third subsections provide the scope of the project and the acronyms used, respectively. Finally, the last subsection lists the references used.

1.1 Purpose

In this SRS document, the project plan is described. The target of this project is also explained. In addition, the tasks of each team member of this project are presented. Moreover, the specifications and requirements of the project are presented.

1.2 Scope

The "college tracking system" is an application designed to help students and faculty staff to follow their schedule as well as their examination by offering a set of properties that include: classes location identification, teaching faculties schedules, emails, method of communications as well as office identification, also student's examination schedule. This application also provides university map and GPS to help students tracking their classes. It will be free to download and use by people belong to college of computer science. College tracking system will not have access to

student's marks and will not be connected to university website. In addition to that, this application just operates within the university local area network (LAN).

1.3 Definitions, Acronyms, and Abbreviations

Term	Definition
SRS	Software Requirement Specification
GPS	Global Positioning System
LAN	Local Area Network
CTS	College Tracking System
User	Anyone uses the application

1.4 Overview

This document contains the system requirements specifications of the project and it is divided into sections. Section 2 provides a general description of the product in addition to the assumptions made and dependencies. Section 3 describes the specific requirements of the product which includes the external interface requirements and functional/ non-functional requirements. The contributions of each team member are given in section 5. Finally, section 6 concludes the document.

2. General Description

This section will give a general description about the product. Here the system will be described how it's interconnect with GPS system, in order to facilitate its functionality. In addition, it will describe the consumer base and what functionality will be used to them. Lastly, the user characteristics will be presented as well.

2.1 Product Perspective

CTS is a mobile software that will cooperates with GPS system. CTS mobile application will be used to locate and show real-time status of the desired classrooms or offices. Furthermore, our application will connect with the GPS to provide directions for the users to the designated room. CTS mobile application should present the contact information for the faculty staff along with the student's schedule information.

2.2 Product Functions

The CTS is a tracking system as well as service system. Using the application interface, it will help the faculty staff and student to direct them to their classroom. It allows faculty staff and student adding or removing a course from schedule, also faculty staff can add or remove their exams. Students will be directed to the scheduled classroom using their schedule. In addition, available classrooms will be colored differently than occupied or unavailable rooms. Furthermore, office rooms will display the office number and the staff information. Lastly, students and faculty staff can see a

news list, which includes for example last uploaded exams or courses.

2.3 User Characteristics

There are three types of users that interact with the system: faculty staff, students and guests. For each of these three types of users have their different use of the system.

Faculty staff can use the application to add contact information, office number and classes schedule. Also, they can declare where the exams will be.

Students can use the application to add their classes schedule, they can receive alerts from the staff faculty, and they can search for classes, faculty staff and their information's.

Visitors can use only the application to search for classes and faculty staff.

2.4 General Constraints

Some limitations of using "Android studio" application, no previous experience on database designing and querying.

3. Specific Requirements

In this section we will define in detail the functional and non-functional requirements for the system.

## 3.1 External Interface Requirements

The following subsections will examine the various pages that will represent the CTS.

3.1.1 User interfaces

The first-time user of the application will see the role pick page. The user should select his role by one of the roles, see Figure 1.

After selecting the role, the user will see the log-in page. User can log-in to this page, see Figure 2.
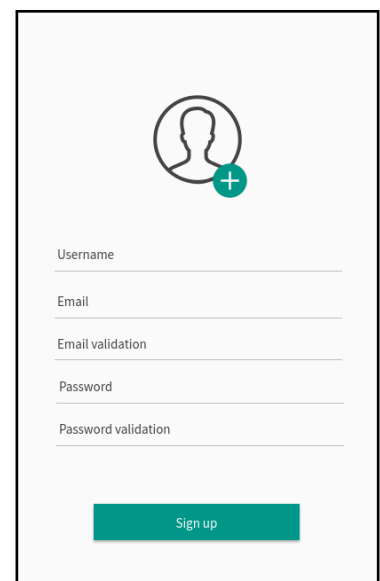
If the user doesn't have an account, the user can sign-up by clicking the sign-up button. After that will open the sign-up page, see Figure 3.
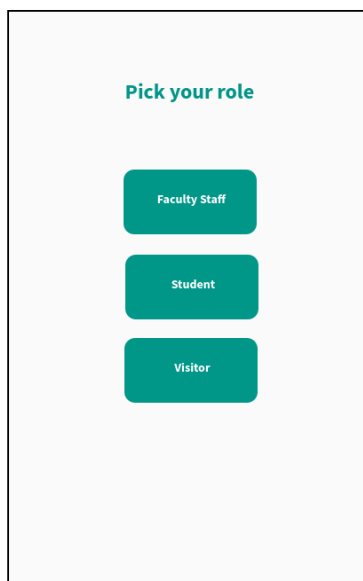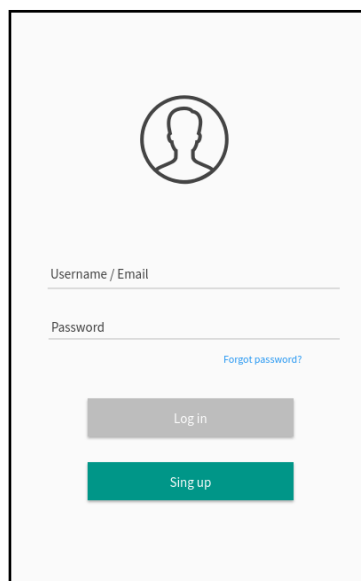
**Figure 1 – Role pick**   **Figure 2 – Log-in**   **Figure 3 – Sign-up page**

If the user can't remember the password, he can click "Forgot password?" on the sign-in page. It 'll lead the user to a page that asks the user to enter username and email, See figure 4

After the user entered his account, the home page will appear. It contains buttons that represent classrooms, faculty staff, exams, schedule, home, and me (user profile). See figure 5.
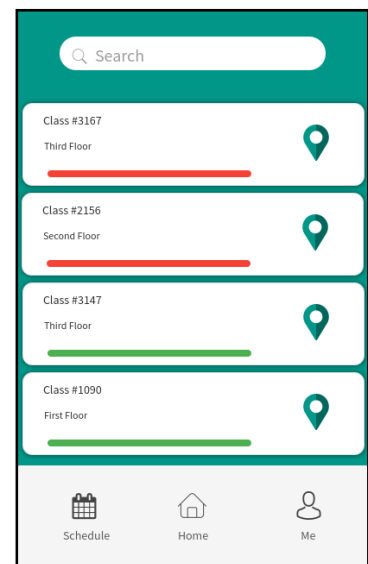
The classroom button opens a page that enables the user to search for classrooms. As a result of using the search bar, it 'll appear information about the classroom that have been searched like, the class number, floor number, and direction button that leads the user to its location, See Figure 6.
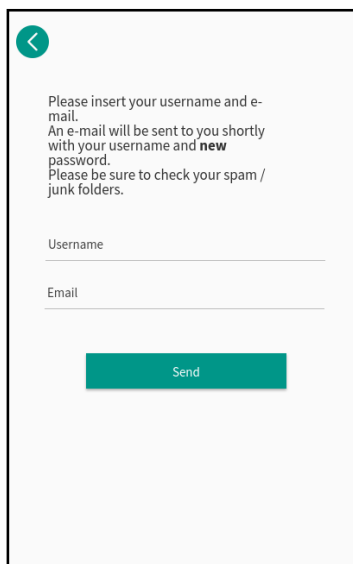
Figure 4 – Forget password page

Figure 5 – Home page

Figure 6 – Classrooms page

The faculty staff button will open a page that enables the user to search for faculty staff and their information. By using the search bar, it'll provide the result of faculty information that has been searched for, See figure 7.

The Exams button will open the page that can let the user see and search for exams. On the exams page, there is two buttons that can add and remove exams. Faculty staff user is the only user that can add and delete exams, See figure 8.
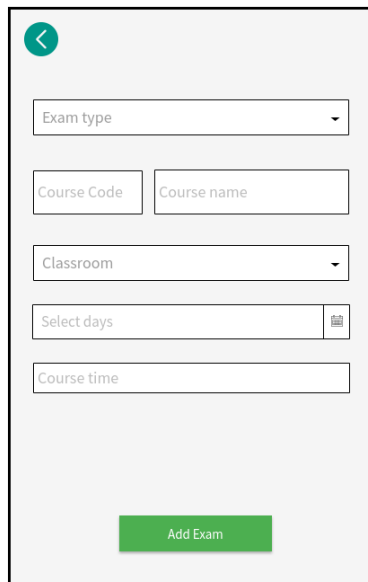
Figure 7 – Faculty Staff page
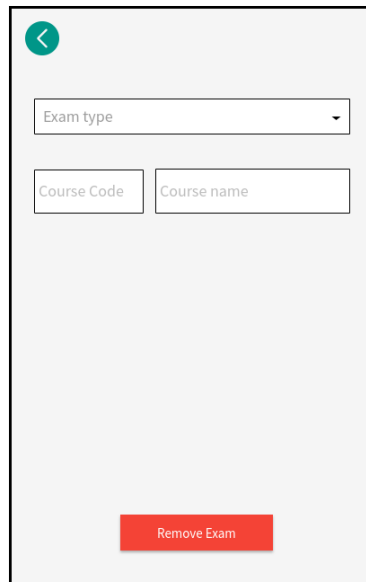

Figure 8– Exams page

The add exam button opens a page that lets the user add exams and its information, See figure 9.

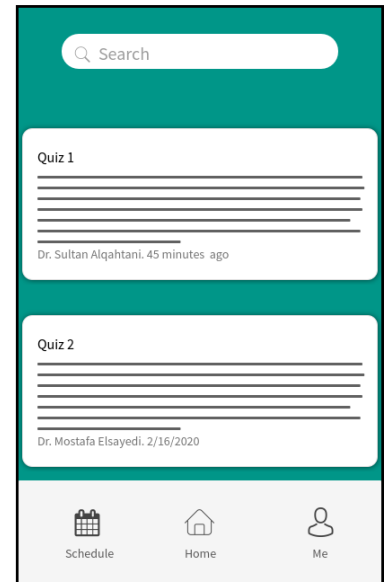The remove exam button opens a page that lets the user remove exams, See figure 10.

The News button on the home page opens a page that lets the user see the news, See figure 11.

**Figure 9 – Add exam**

Figure 10 – Remove exam page

Figure 11 – News page

Schedule button opens a page that lets the user add, remove and see schedule courses. There are two buttons on this page, See figure 12.

The first button is the add button. It enables the user to add course information and add it to schedule slut, See figure 13.

The second button is the remove button. It enables the user to remove a course by providing course code and course name, See figure 14.
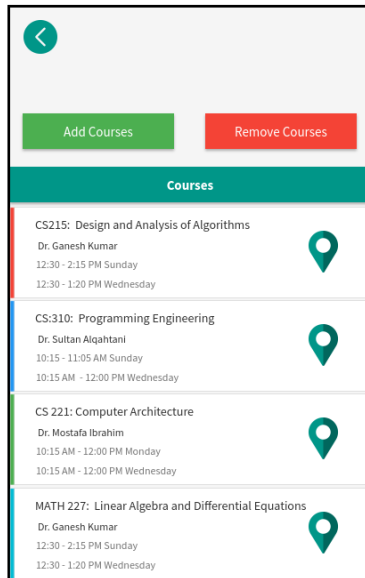
Figure 12 – Schedule
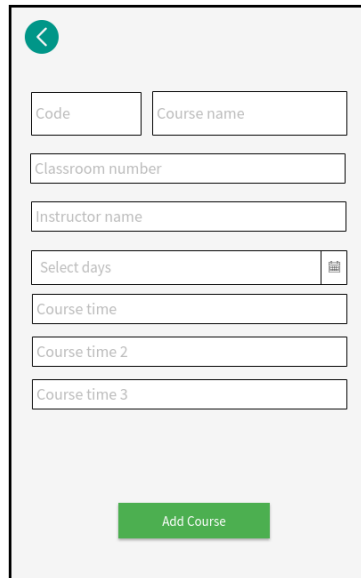
Figure 13 – add course page
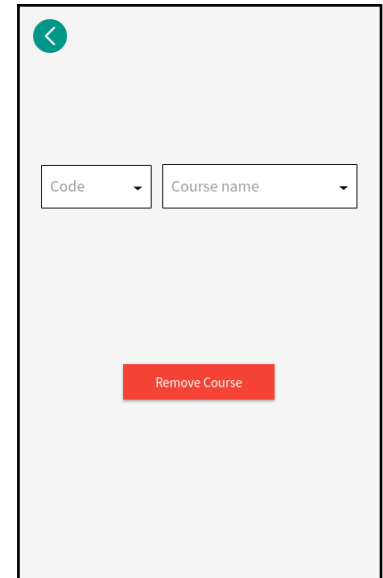
Figure 14 – remove course page

The Me button on the home page opens the profile page. The page contains user information. The user can edit the information by clicking the edit button and he can log-out by clicking the log-out button, See figure 15. Edit button opens a page

that enables the user to edit his information, See figure 16.

Figure 15 – Me page   **Figure 16 – Edit me page**

3.1.2 Hardware interfaces

This application works on Android mobiles and Android tablets. No other hardware is required.

3.1.2 Software interfaces

Since this application is a mobile application, it will only need an Android version 8.0 or higher in order to perform probably.

3.1.3 Communication interfaces

The application communicates with the GPS application to provide a geographical information about the user location and to direct user to it destination.

3.2 Functional Requirements

This section includes the functional requirements of the system.

3.2.1 <Functional Requirement or Feature #1>

3.2.1.1 Title: Choose role.

3.2.1.2 Introduction: System allows user to choose his role (faculty staff, student and visitor).

3.2.1.3 Inputs: Role name.

3.2.1.4 Processing: By choosing the role name system will direct the user to his log in page.

3.2.1.5 Outputs: Log in page.

3.2.1.6 Error Handling: There is no user input to cause an error.

3.2.1.7 User Interface: Figure 1

3.2.2 <Functional Requirement or Feature #2>

3.2.2.1 Title: Log in.

3.2.2.2 Introduction: System allows the user to log in.

3.2.2.3 Inputs: Username, password.

3.2.2.4 Processing: By entering username and password system will logged in the user based on his role which selected previously.

3.2.2.5 Outputs: Home page.

3.2.2.6 Error Handling: Error: Wrong username or password Error message: Make sure the username or password is correct.

3.2.2.7 User Interface: Figure 2

3.2.3 <Functional Requirement or Feature #3>

3.2.3.1 Title: Search by classroom.

3.2.3.2 Introduction: System allows the user to search for a specific classroom.

3.2.3.3 Inputs: Classroom number.

3.2.3.4 Processing: By entering classroom number the system will present a map to direct the user to the classroom.

3.2.3.5 Outputs: Map.

3.2.3.6 Error Handling: Error: Wrong classroom number Error message: Make sure the classroom number is correct.

3.2.3.7 User Interface: Figure 6

3.2.4 <Functional Requirement or Feature #4>

3.2.4.1 Title: Search by faculty staff name.

3.2.4.2 Introduction: System allows the student to search for a specific faculty staff.

3.2.4.3 Inputs: Faculty staff name or faculty staff e-mail address.

3.2.4.4 Processing: By entering faculty staff name or e-mail address the system will present the faculty staff schedule for today, which contains the classroom number and the time.

3.2.4.5 Outputs: Faculty staff schedule.

3.2.4.6 Error Handling: Error: Wrong faculty staff name or e-mail address Error message: Make sure the faculty staff name or e-mail address is correct.

3.2.4.7 User Interface: Figure 7

3.2.5 <Functional Requirement or Feature #5>

3.2.5.1 Title: Search for exams.

3.2.5.2 Introduction: System allows the student to search for a specific exam.

3.2.5.3 Inputs: Course name or course code.

3.2.5.4 Processing: By entering the course name or course code the system will present a map to direct the student to the required exam classroom.

3.2.5.5 Outputs: Map.

3.2.5.6 Error Handling: Error: Wrong course name or course code, Error message: Make sure the course name or course code is correct.

3.2.5.7 User Interface: Figure 8

3.2.6<Functional Requirement or Feature #6>

3.2.6.1 Title: Add course to schedule.

3.2.6.2 Introduction: System allows the student and the faculty staff to add their courses to the schedule.

3.2.6.3 Inputs: Classroom number, course code, course name, time, date.

3.2.6.4 Processing: By entering the classroom number, course code, course name, time and date the system will add this course slut to the schedule.

3.2.6.5 Outputs: Confirmation message (Schedule added successfully).

3.2.6.6 Error Handling: Error: Time conflict, Error message: Make sure the time of course is not conflict.

3.2.6.7 User Interface: Figure 13

3.2.7<Functional Requirement or Feature #7>

3.2.7.1 Title: View schedule.

3.2.7.2 Introduction: System allows student and faculty staff to view their schedule.

3.2.7.3 Inputs: Click "view schedule" button.

3.2.7.4 Processing: By clicking "view schedule" button, student and faculty staff schedule will be displayed.

3.2.7.5 Outputs: Schedule.

3.2.7.6 Error Handling: Error: Empty schedule, Error message: No courses have been added.

3.2.7.7 User Interface: Figure 12

3.2.8<Functional Requirement or Feature #8>

3.2.8.1 Title: Add exam.

3.2.8.2 Introduction: System allows faculty staff to add their exams on the system.

3.2.8.3 Inputs: Course name, course code, time, date and classroom number.

3.2.8.4 Processing: By entering course name, course code, time, date and classroom number system will add this exam on exams list.

3.2.8.5 Outputs: Confirmation message (Exam added successfully).

3.2.8.6 Error Handling: Error: conflict on classrooms, Error message (please choose another classroom).

3.2.8.7 User Interface: Figure 9

3.2.9<Functional Requirement or Feature #9>

3.2.9.1 Title: View news.

3.2.9.2 Introduction: System allows user to view news list.

3.2.9.3 Inputs: Clicking "News" button.

3.2.9.4 Processing: By clicking "News" button a list of news will be displayed.

3.2.9.5 Outputs: News list.

3.2.9.6 Error Handling: none.

3.2.9.7 User Interface: Figure 11

3.2.10<Functional Requirement or Feature #10>

3.2.10.1 Title: Reset password.

3.2.10.2 Introduction: System allows student and faculty staff to reset their password in case of "forget password".

3.2.10.3 Inputs: E-mail address.

3.2.10.4 Processing: By entering e-mail address system will send a mail to that e-mail address containing a link to reset the password.

3.2.10.5 Outputs: Confirmation message, message (password reset successfully).

3.2.10.6 Error Handling: Error: Wrong e-mail address, Error message (Make sure the e-mail address is correct).

3.2.10.7 User Interface: Figure 4

3.2.11 <Functional Requirement or Feature #11>

3.2.11.1 Title: Sign up.

3.2.11.2 Introduction: System allows student and faculty staff to create an account.

3.2.11.3 Inputs: Username, e-mail address, password and their validations.

3.2.11.4 Processing: By entering username, e-mail address, password and their validations system will create an account with the previous credentials.

3.2.11.5 Outputs: Confirmation message, message (Account created successfully), then the system will direct the user to the log in page.

3.2.11.6 Error Handling: Error: Invalid e-mail address, Error message (Make sure the e-mail address is correct)

Error: Used e-mail address, Error message (User already exiest).

3.2.11.7 User Interface: Figure 3

3.2.12 <Functional Requirement or Feature #12>

3.2.12.1 Title: Log out.

3.2.12.2 Introduction: System allows student and faculty staff to log out of the system.

3.2.12.3 Inputs: Click "Log out" button.

3.2.12.4 Processing: By clicking "Log out" button the student and faculty staff account will be logged out.

3.2.12.5 Outputs: Confirmation message, message (Logged out successfully), then the system will forward the user to the role page.

3.2.12.6 Error Handling: none.

3.2.12.7 User Interface: Figure 15

3.2.13<Functional Requirement or Feature #13>

3.2.13.1 Title: Remove course.

3.2.13.2 Introduction: System allows student and faculty staff to remove their courses.

3.2.13.3 Inputs: Course name and course code.

3.2.13.4 Processing: By entering the course name and course code system will allows student and faculty staff to remove a specific course.

3.2.13.5 Outputs: Confirmation message, message (Course removed successfully).

3.2.13.6 Error Handling: Error: Invalid course name or code, Error message (Make sure the course name or code is correct).

3.2.13.7 User Interface: Figure 14

3.2.14<Functional Requirement or Feature #14>

3.2.14.1 Title: Remove exam.

3.2.14.2 Introduction: System allows faculty staff to remove their exams.

3.2.14.3 Inputs: Course name and course code.

3.2.14.4 Processing: By entering the course name and course code system will allows faculty staff to remove a specific exam.

3.2.14.5 Outputs: Confirmation message, message (Exam removed successfully).

3.2.14.6 Error Handling: Error: Invalid course name or course code, Error message (Make sure the course name or course code is correct).

3.2.14.7 User Interface: Figure 10

3.2.15<Functional Requirement or Feature #15>

3.2.15.1 Title: View direction.

3.2.15.2 Introduction: System allows student and faculty staff to get the direction to their classrooms by viewing location.

3.2.15.3 Inputs: Clicking "Location" icon.

3.2.15.4 Processing: By clicking the location icon on the view schedule page, system will direct the student and faculty staff to their classrooms.

3.2.15.5 Outputs: Direction map.

3.2.15.6 Error Handling: none.

3.2.15.7 User Interface: Figure 12

3.2.16<Functional Requirement or Feature #16>

3.2.16.1 Title: Add info.

3.2.16.2 Introduction: System allows student and faculty staff to add an information about them.

3.2.16.3 Inputs: Click "Add" button.

3.2.16.4 Processing: By Clicking "Add" button a free text label will appear to let the student and faculty staff write their information.

3.2.16.5 Outputs: Confirmation message, message (Info added successfully).

3.2.16.6 Error Handling: none.

3.2.17 <Functional Requirement or Feature #17>

3.2.17.1 Title: Edit info.

3.2.17.2 Introduction: System allows student and faculty staff to edit their information.

3.2.17.3 Inputs: Click "Edit" button.

3.2.17.4 Processing: By Clicking "Edit" button "information label" will appear so student and faculty staff can edit their information.

3.2.17.5 Outputs: Confirmation message, message (Info updated successfully).

3.2.17.6 Error Handling: none.

3.2.17.7 User Interface: Figure 16

3.3 Non-Functional Requirements

- **High availability:** (no frequent down time)
- **Response time:** (less than 3 seconds for responding time)
- **Ease of use:** (simple screens, clear functionality buttons and color presentation).
- **Secure information:** (by encrypting the login information)

4. Team Members Contribution

Names	Roles	Contribution
Ahmed Alotaibi	Project manager	- 3 - 3.2 and its sub-topics - 3.3 and its sub-topics - 5
Mohammed Alnassar	System Analyst	- 2 - 2.1 - 2.2
Fahad Alshaya	Software Developer	- 1.3 - 1.4 - 2.4 - editing (2 and its sub-topics, 1, 1.1, and 1.2)
Ibraheem Al-tuwayjiri	Software Designer	- 1 - 1.1 - 1.2
Khalid Alotaibi	Tester	- 2.3 - 3.1 and its sub-topics - 4

5. Conclusion

In terms of helping the students, faculty staff and visitors of computer science college, we are developing a mobile application called "College Tracking System" which helps them on classrooms direction, schedules and exams. In the first stage of this document we had a brief scope of the project and its purpose. In advantage to that, we explained in detail the product functionality and the user Characteristics. Furthermore, Specific Requirements section consists of three important subsections which are External Interface Requirements, functional requirements as well as non-functional requirements. External Interface Requirements refers to users, hardware and software interfaces, such as the layout design as well as the operating system that is used. Functional requirements section defines in detail the functions on our system such as the processing way, input, output also the error handling. Similarly, we describe the non-functional requirements with some particular examples. In conclusion, a table of Team Members Contribution will present the role besides the Contribution for each team members.