



SIM5202 ADVANCED SOFTWARE ENGINEERING

FACULTY OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

“SOFTWARE REQUIREMENT SPECIFICATION”

By:

Shirin Nazemoroaya (GS29086)

Nazanin Manafi (GS31020)

Ava Moradi (GS31026)

Meysam Karimi (GS33205)

LECTURER: DR.MARZANAH BT A JABAR

Approval Signatures

Approved by:

Dr Amghezi
Head of research center

Prepared by:

Shirin Nazemoroaya
Project Manager

Table of Contents

1. INTRODUCTION.....	6
1.1 .. Purpose	6
1.2 .. Intended Audience and Reading Suggestions	6
1.3 .. Project Scope.....	6
1.4 .. Product Perspective	7
1.5 .. Operating Environment.....	9
1.6 .. Design and implementation constraint.....	9
1.7...User Documentation.....	9
2. SYSTEM FEATURES (REQUIREMENT)	10
2.1 .. List of requirement.....	10
2.2 .. Use Case Description.....	12
2.2.1Use Case Insert Personnel	12
2.2.2Use Case insert department	13
2.2.3Use Case insert project	13
2.2.4Use Case Assign Projects.....	14
2.2.5Use Case Ranking	15
2.2.6Use Case Personnel Salary Report	16
2.2.7Use Case <i>Estimate the duration of the project</i>	17
2.2.8Use Case <i>Reportage</i>	17
2.2.9Use Case <i>Report of Personnel in each department</i>	18
2.2.10 Use Case <i>Report of the projects in each department</i>	19
2.2.11 Use Case <i>Personnel in each project</i>	

3. EXTERNAL INTERFACE REQUIREMENT	20
3.1 .. User Interface.....	20
3.2 .. Hardware Interfaces.....	37
3.3 .. Software Interfaces	37
3.4 .. Communications Interfaces	37

Document Change Control

Revision Number	Date of Issue	Author(s)	Notes
Version_1.0	5/3/2012	Shirin nazemoroaya	
Version_2.0	15/3/2012	Ava moradi	
Version_3.0	22/3/2012	Nazanin manafi	

1. INTRODUCTION

1.1 Purpose

This project is conducted in order to manage all of the projects that are defined in the research center. All personnel are registered by the administrator with this application using the pannel in order to assign projects and define the department where they should start the project. Therefore the administrator can estimate the duration of the projects based on the personnel information such as working experiences and teaching experiences and also calculate the amount of salary for each personnel.

1.2 Intended Audience and Reading Suggestions

This requirement document expected to be read by the following audience:

- Developers: will read this document in order to refer before developing the system
- Users: will check whether all they need inside the system is identified in this document
- System Analysts: to analyze the requirement for the development

1.3 Project Scope

The scopes of this system are as follows:

This system allows the IT administrator to:

- Insert personnel, projects and department's information.
- Assign projects to personnel.
- Ranking the personnel.
- Estimation and calculation the duration of a project.
- Insert personnel information such as personnel ID, Name, Type of personnel (researcher or Apprentice), teaching experience, number of publications, working experience, salary and others.
- Insert department's information such as name, maximum number of required staff, address, field of research and etc.
- Insert project's information such as project ID, Project Start Date, duration of project and others.

This system allows the Research Center Manager (RCM) to:

- View overall report of list of personnel in each department, a list of projects in each department, list of personnel which participated in each project.
- View report of salary for each personnel in each department.
- View the estimation of the duration of projects
- View thr report of the ranking the personnel in department and projects which are assigned to personnel

OVERALL DESCRIPTION

Product Perspective

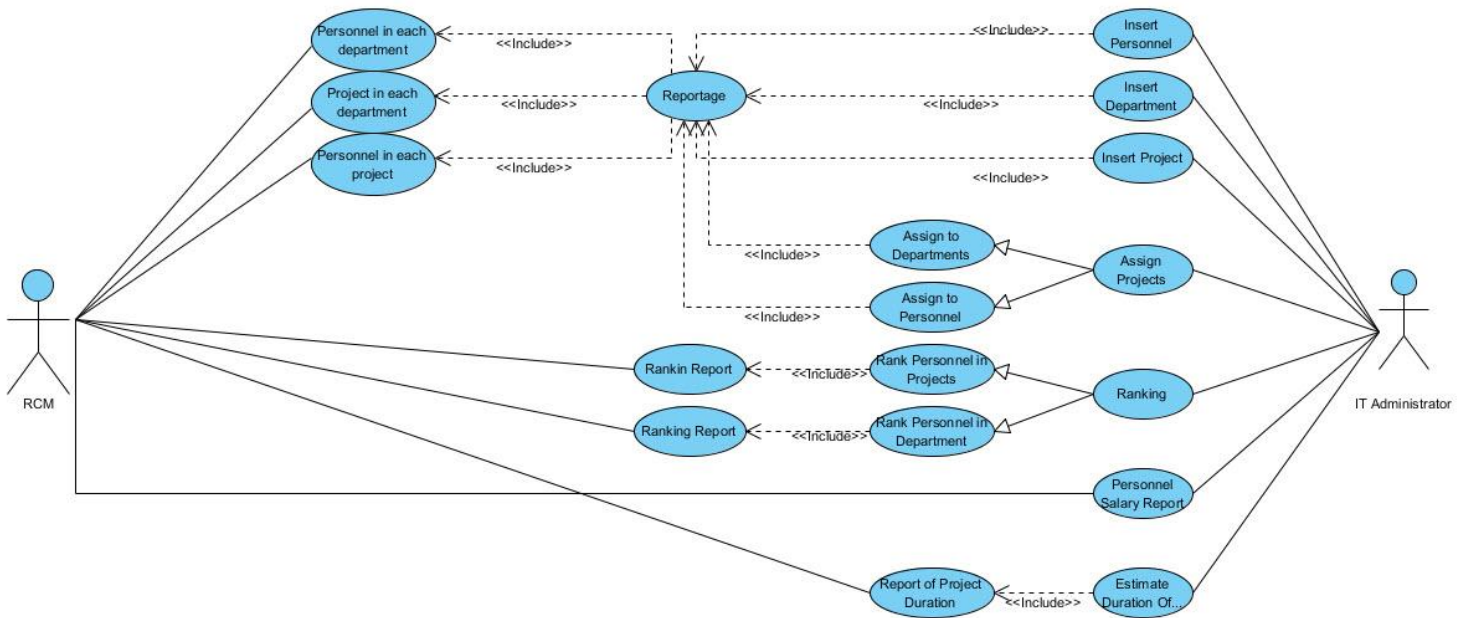




Figure 1.0 shows Overall Use Case Diagram

1.1 Summary

Name	Description
 Insert Project	IT administrasor inserts the information about the project such as: Name, Subject, Required time, Start Date and etc.
 Report of Project	RCM can view the report of the durion of projects.














Duration	
 Personnel Salary Report	RCM can view the report of personnel's salary.
 Assign to Personnel	IT administrator can assign projects to personnel.
 Rank Personnel in Projects	IT administrator can calculate the rank of the personnel in each project by having the information which are inserted in the basic information part.
 Report Of Assignment	RCM can view the report of all assignments which IT administrator done in insertion part.
 Ranking Report	RCM can view the report of Ranking of personnel.
 Insert Personnel	IT administrator inserts the information about the personnel such as: Name, Personnel ID, Salary and etc.
 Estimate Duration Of Project	IT administrator calculate the duration of the project based on research experiences and working experiences.
 Ranking	IT administrator rank the personnel.
 Rank Personnel in Department	IT administrator rank the personnel in each department based on a specific formula.
 Assign to Departments	IT administrator assign the personnel in a department.
 Insert Department	IT administrator inserts the information about the departments such as: Name, Max No. of required personnel, Field of activity and etc.
 Assign Projects	IT administrator assign personnel to projects based on their working and research experience.
 Ranking Report	RCM can view the report of ranking of the personnel in projects and departments.

Table 1.0 Use Case Description

1.2 Operating Environment

“Management of a research center projects” is a windows application. The Microsoft.Net is required for development. The data will be stored in Oracle database in the human resource database.

Hardware	: HR server which comprises the development, testing and the application server
Operating System	: Window 7
Internet Connection	: Network cable and wireless access point
Performance	: The system should generate the appropriate report and can be viewed and printed when necessary

1.3 Design and implementation constraint

The constraints in design and implementation phase can be instead as follows:

- Access to the application
 - The It administrator and RCM need to install the application on their own system and accessing to the application is not available everywhere
- Security consideration
 - Username and password are not used in this application.
- Corporate / regulatory policies
 - The change of workflow in administration will be affected.
- Specific technologies, tools and database to be used
 - Oracle is needed in developer workstation for database development and administration that enables to perform daily tasks efficiently and accurately.

1.4 User Documentation

Along with this staff attendance system, the user will be equipped with the user manual. The characteristic of user manual are as follows:

- This user manual will be entitled to all users.
- This user manual will consist of step by step approach to use system.
- Along with this user manual, there will be a guideline on how to install the system.

2. SYSTEM FEATURES (REQUIREMENT)

2.1 List of requirement

IDENTIFIER	REQUIREMENT	USE CASE	USER
SRS_REQ_001	IT administrator should run the application and insert the information.	SRS_UC_001 Insert	- IT administrator
SRS_REQ_002	IT administrator should run the application and insert the Personnel information.	SRS_UC_002 Insert Personnel	- IT administrator
SRS_REQ_003	IT administrator should run the application and insert the Department information.	SRS_UC_003 Insert Department	- IT administrator
SRS_REQ_004	IT administrator should run the application and insert the Project information.	SRS_UC_004 Insert Project	- IT administrator
SRS_REQ_005	IT administrator should run the application and assign the Project to departments and personnel.	SRS_UC_005 Assign Projects	- IT administrator
SRS_REQ_006	IT administrator should run the application and rank the personnel.	SRS_UC_006 Ranking	- IT administrator
SRS_REQ_07	RCM should run the project and	SRS_UC_007	- RCM

	view the salary report of the personnel.	Personnel Salary Report	
SRS_REQ_08	RCM should run the project and view the report of the project duration estimation.	SRS_UC_008 Report of Estimate Duration Of Project	- RCM
SRS_REQ_09	RCM should run the project and view the assignment report.	SRS_UC_009 Report of Assignment	- RCM
SRS_REQ_011	RCM should run the project and view the report of ranking.	SRS_UC_011 Ranking Report	- RCM

2.2 Use Case Description

2.2.1 Use Case Insert Personnel



Figure 2.0 Use Case Diagram for Insert

Actor: IT Administrator

Use case: IT administrator should run the application and insert the personnel information.

Scenario:

Flow of events

1. This use case begins when the main form appears on screen.
- IT administrator needs to insert personnel information such as personnel ID, Name, Type of personnel (researcher or Apprentice), teaching experience, number of publications, working experience, salary and others.

Alternative

* Error message will occur if the desired department is full, Error message "The department is full!" will be show on the screen.

2.2.2 Use Case Insert Department

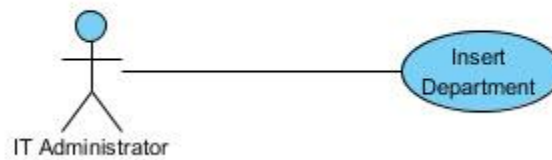


Figure 3.0 Use Case Diagram for Insert Department

Actor: User

- IT Administrator

Use case: IT administrator should run the application and insert the Department information.

Scenario:

Flow of events

1. This use case start when user clicks on “Department Registration” button in screen.
2. *Insert* department’s information such as name, maximum number of required staff, address, field of research and etc.

2.2.3 Use Case Insert Project



Figure 4.0 Use Case Diagrams for Insert Project

Actor: IT Administrator

Use case: IT administrator should run the application and insert the Project information.

Scenario:

Flow of events

1. This use case begins when user click on the 'Insert Project' button on the form.
2. Insert project's information such as project ID, Project Start Date, duration of project and others.

2.2.4 Use Case Assign Projects



Figure 5.0 Use Case Diagram for Assign Projects

Actor: IT Administrator

Use case: IT administrator should run the application and assign the Project to departments and personnel.

Scenario:

Flow of events

1. This use case begins by clicking on "Assign Projects" menu.
2. Choose to assign the personnel to "Departments" or to "Project" in the menu.
3. In Assign Project screen, it needs to choose the department.
4. Choose the "Project".
5. After that you can see the name of the personnel and you can assign projects to personnel.
6. Press the "Submit" button.

Alternative

* Error message will occur the project is full, error message "This Project is full" will be show on the screen.

2.2.5 Use Case Ranking



Figure 6.0 Use case Diagram Ranking

Actor: IT Administrator

Use case: IT administrator should run the application and rank the personnel.

Scenario:

Flow of events

1. This use-case begins by clicking on "Ranking" menu.
2. To start we can choose among 4 options:
 - The list of personnel with their rank in the department
 - The personnel with the highest rank in each department
 - The list of personnel with their rank in the project
 - The personnel with the highest rank in each project

3. If you choose “The list of personnel with their rank in the department” we should choose the department and then press the “Show” button and you can see the personnel ID, Name and Rank.
4. If you choose “The personnel with the highest rank in each department” we should choose the department and then press the “Show” button and you can see the personnel information with the highest rank.
5. If you choose “The list of personnel with their rank in the project” we should choose the department and then press the “Show” button and you can see the personnel ID, Name and Rank.
6. If you choose “The personnel with the highest rank in each project” we should choose the department and then press the “Show” button and you can see the personnel information with the highest rank.

2.2.6 Use Case Personnel Salary Report



Figure 7.0 Use case Diagram Personnel Salary Report

Actor: IT Administrator and RCM

Use case: It Administrator insert the salary information in the basic information form and in this step salary is calculated and RCM could run the system in order to view the salary report of the personnel.

Flow of Event

1. This use case started by choosing the “Salary” from the menu.
2. Click on the “List of personnel and their salaries”, select the desired department, and press the “Show” button.
3. The payment statement will be display.

2.2.7 Use Case Estimate the duration of the project

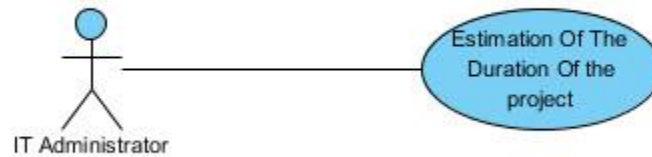


Figure 8.0 Use case Diagram Estimate the duration of the project

Actor:IT Administrator

Use case: IT Administrator Estimate the duration of projects by using a specific formula.

Flow of event

1. This use case started when administrator select "Estimate the time of project" button.
2. You should select the project code and press the "Results" button.

2.2.8 Use Case Reportage

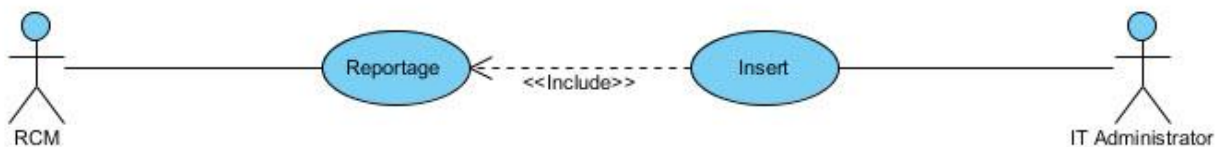


Figure 9.0 Use case Diagram Report

Actor: IT Administrator and RCM

Use case: Show the list of personnel in each department, list of personnel in each project, list of projects in each department.

Flow of event

1. This use case started when administrator select “Reports” in the main form, he/she should select among three options:
 - list of personnel in each department
 - list of personnel in each project
 - list of projects in each department.

2.2.9 Use Case Report of Personnel in each department

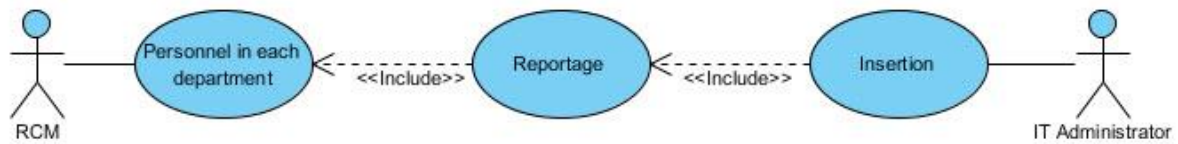


Figure 10.0 Use case Diagram *Report of Personnel in each department*

Actor: RCM and IT Administrator

Use case: Show the list of personnel in each department based on the information that are inserted before and the information in the assigning personnel to project part.

Flow of event

1. This use case started when administrator select ‘Report’.
2. Select the “List of Personnel in each department”,
3. Select the desired department.
4. Click on button ‘Show’.

2.2.10 Use Case Report of the projects in each department

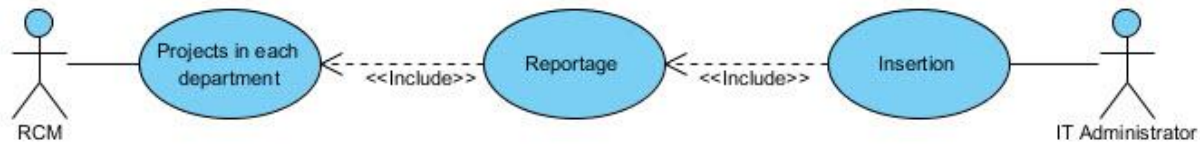


figure 11.0 Use case Diagram Report of the projects in each department

Actor: IT Administrator and RCM

Use case: Show the list of projects in each department based on the information that are inserted before and the information in the assigning personnel to project part.

Flow of event

5. This use case started when administrator select 'Report'.
6. Select the "List of Pprojects in each department ",
7. Select the desired department.
8. Click on button 'Show'.

2.2.9 Use Case Personnel in each project

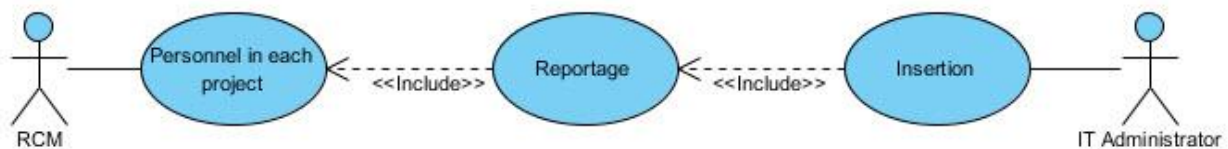


Figure 12.0 Use Case Diagram Personnel in each project

Actor: IT Administrator and RCM

Use case: Show the list of personnel in each project based on the information that are inserted before and the information in the assigning personnel to project part.

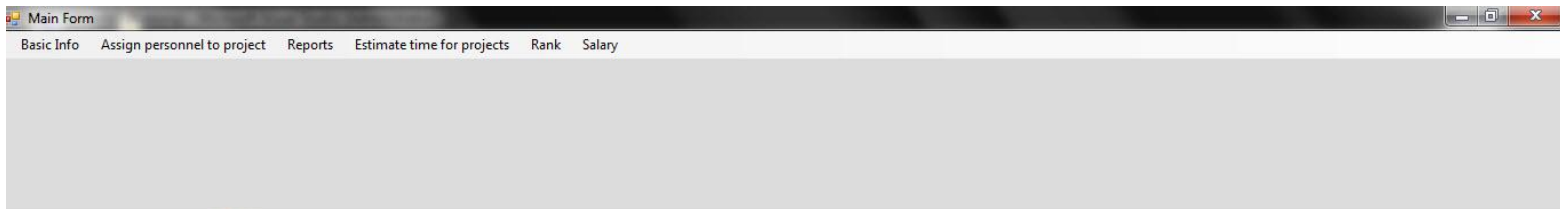
Flow of event

9. This use case started when administrator select 'Report'.
10. Select the "List of Personnel in each project",
11. Select the desired department.
12. Click on button 'Show'.

3.EXTERNAL INTERFACE REQUIREMENT

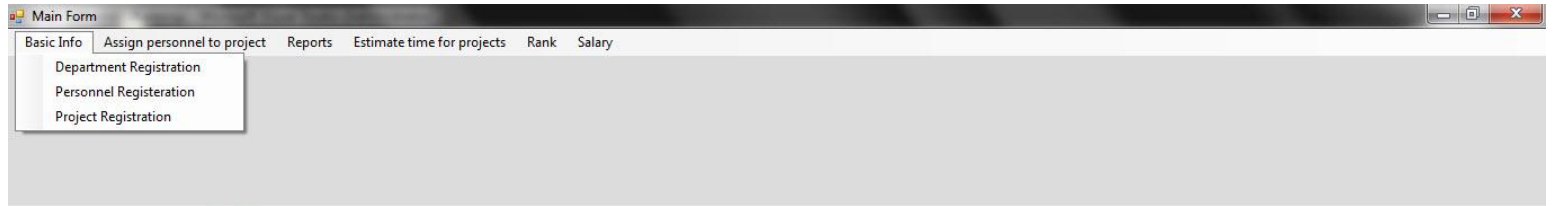
2.3 User Interface

Screen 1 .Main Form



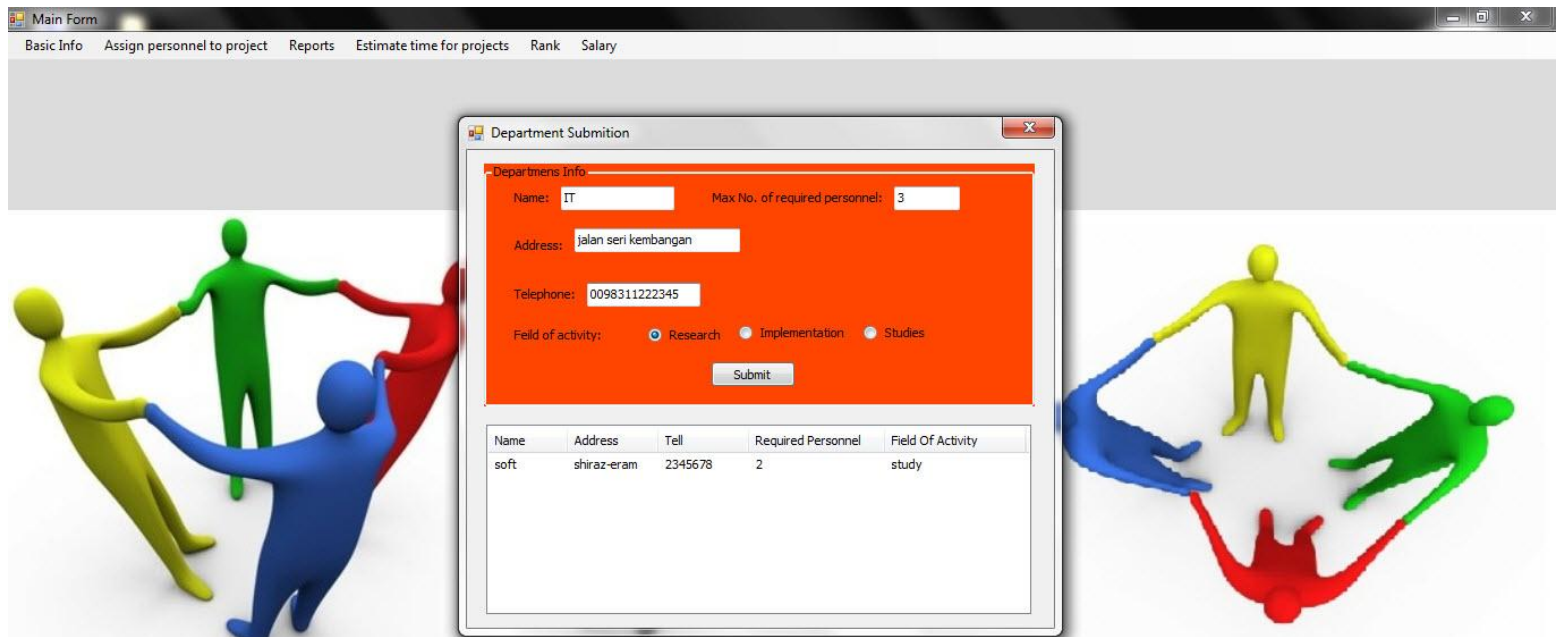
Project Management In A Research Center

Screen 2 – Insert.



Project Management In A Research Center

Screen 3 – Insert Department



Department Submission

Departments Info

Name: IT Max No. of required personnel: 3

Address: jalan seri kembangan

Telephone: 0098311222345

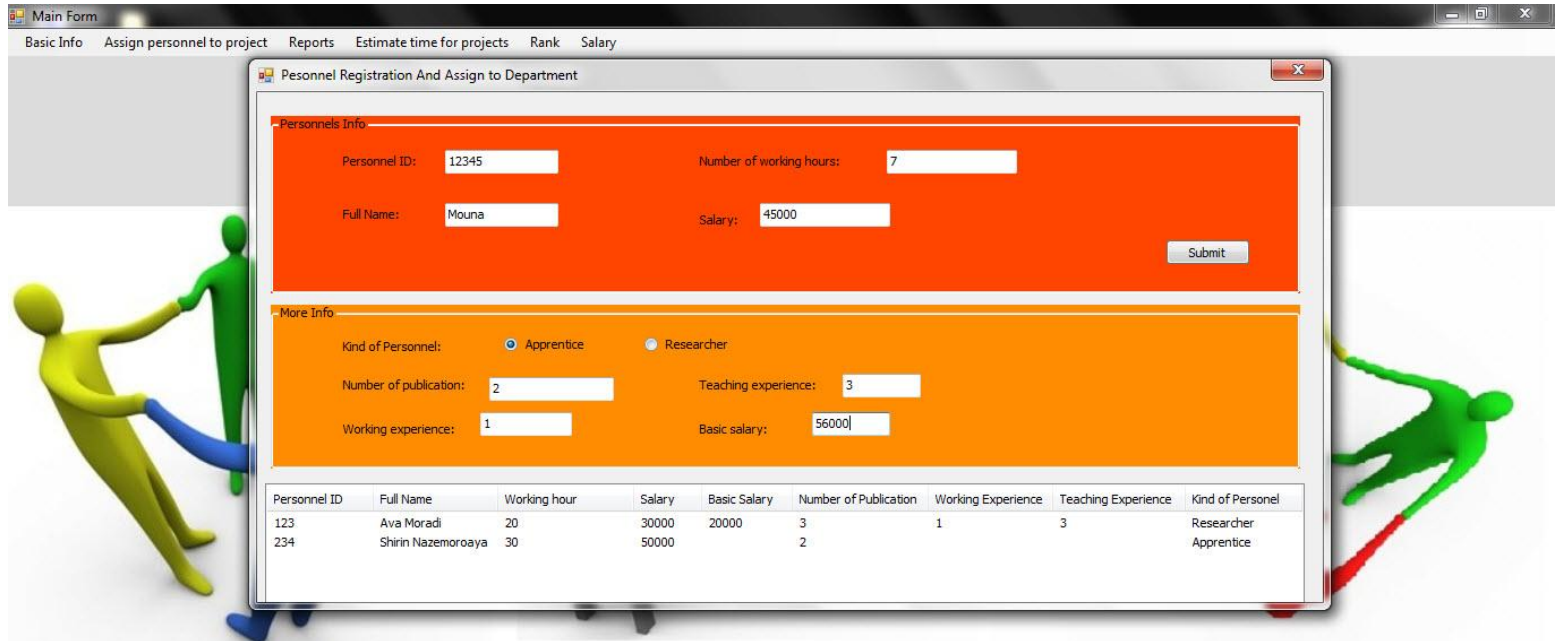
Field of activity: ☒ Research ☐ Implementation ☐ Studies

Submit

Name	Address	Tell	Required Personnel	Field Of Activity
soft	shiraz-eram	2345678	2	study

Project Management In A Research Center

Screen 4 – Insert Personnel



Personnel Registration And Assign to Department

Personnels Info

Personnel ID: 12345 Number of working hours: 7

Full Name: Mouna Salary: 45000

Submit

More Info

Kind of Personnel: ☒ Apprentice ☐ Researcher

Number of publication: 2 Teaching experience: 3

Working experience: 1 Basic salary: 56000

Personnel ID	Full Name	Working hour	Salary	Basic Salary	Number of Publication	Working Experience	Teaching Experience	Kind of Personnel
123	Ava Moradi	20	30000	20000	3	1	3	Researcher
234	Shirin Nazemoroaya	30	50000		2			Apprentice

Project Management In A Research Center

Screen 5 - Select the department for personnel.

Personnel ID: 12345 Number of working hours: 7

Full Name: Mouna Salary: 45000

Submit

Kind of Personnel: ☒ Apprentice ☐ Researcher

Number of publication: 2 Teaching experience: 3

Working experience: 1 Basic salary: 56000

Department Selection for Personnel

Please choose the department for this personnel.

Department: soft

Submit

Personnel ID	Full Name	Working hour	Salary	Basic Salary	Number of Publication	Working Experience	Teaching Experience	Kind of Personnel
123	Ava Moradi	20	30000	20000	3	1	3	Researcher
234	Shirin Nazemoroaya	30	50000		2			Apprentice

Project Management In A Research Center

Main Form

Basic Info Assign personnel to project Reports Estimate time for projects Rank Salary

Personnel Registration And Assign to Department

Personnels Info:

Personnel ID: 12345 Number of working hours: 7

Full Name: Mouna Salary: 45000

Submit

More Info:

Kind of Personnel: ☒ Apprentice ☐ Researcher

Number of publication: 2

Working experience: 1

Department Selection for Personnel

Please choose the department for this personnel.

Department: soft

Submit

Department is full !!!!

OK

Personnel ID	Full Name	Working hour	Salary	Position	Working Experience	Teaching Experience	Kind of Personnel
123	Ava Moradi	20	30000		1	3	Researcher
234	Shirin Nazemoroaya	30	50000	2			Apprentice

Project Management In A Research Center

Main Form

Basic Info Assign personnel to project Reports Estimate time for projects Rank Salary

Personnel Registration And Assign to Department

Personnels Info:

Personnel ID: 12345 Number of working hours: 7

Full Name: Mouna Salary: 45000

Submit

More Info:

Kind of Personnel: ☒ Apprentice ☐ Researcher

Number of publication: 2

Working experience: 1

Department Selection for Personnel

Please choose the department for this personnel.

Department: IT

Submit

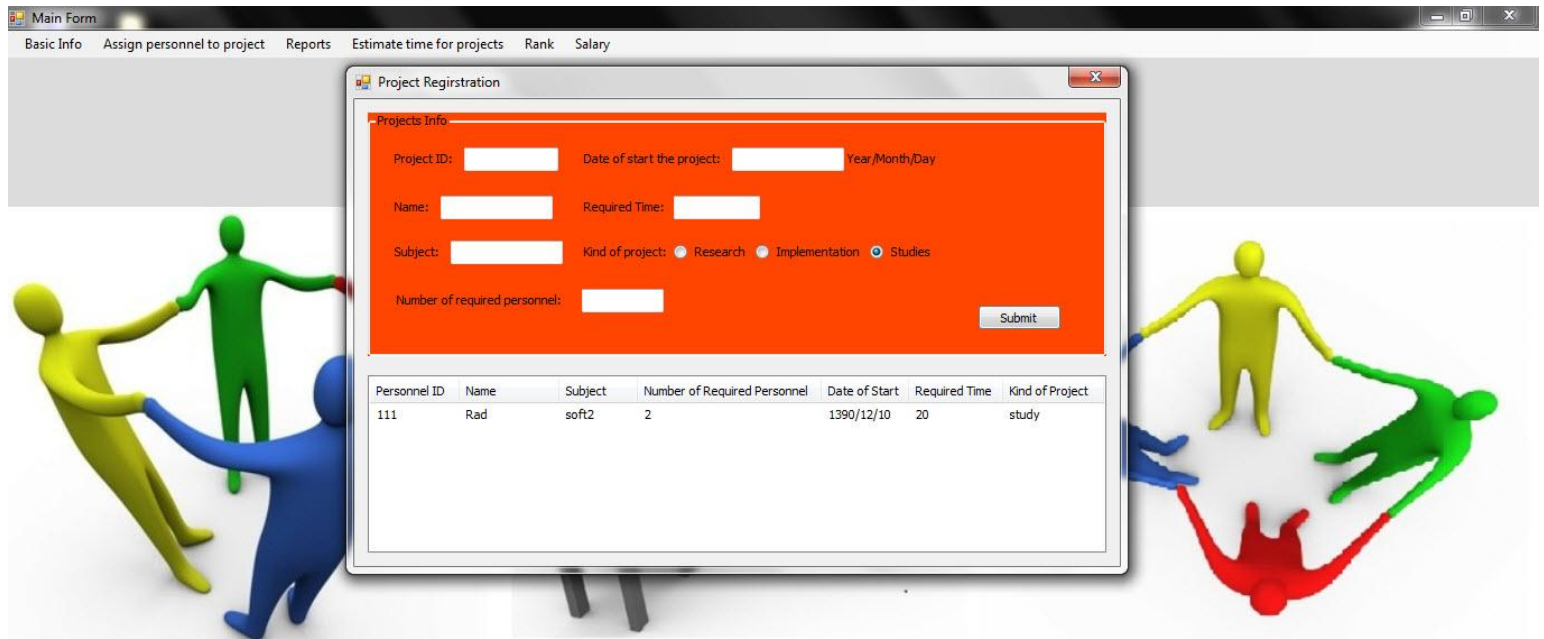
The selected department for this personnel was confirmed.

OK

Personnel ID	Full Name	Working hour	Salary	Position	Working Experience	Teaching Experience	Kind of Personnel
123	Ava Moradi	20	30000		1	3	Researcher
234	Shirin Nazemoroaya	30	50000	2			Apprentice

Project Management In A Research Center

Screen 6 – Insert Projects.



Project Registration

Projects Info

Project ID: Date of start the project: Year/Month/Day

Name: Required Time:

Subject: Kind of projects: ☐ Research ☐ Implementation ☒ Studies

Number of required personnel:

Submit

Personnel ID	Name	Subject	Number of Required Personnel	Date of Start	Required Time	Kind of Project
111	Rad	soft2	2	1390/12/10	20	study

Project Management In A Research Center

Screen 7 - Select the department for project.

Project Registration

Projects Info

Project ID: 233 Date of start the project: 2012/2/12 Year/Month/Day

Name: tan Required Time: 34

Subject: se Kind of project: ☐ Research ☒ Implementation ☐ Studies

Number of required personnel: 2

Submit

Personnel ID	Name	Subject	Number of Required Personnel	Date of Start	Required Time	Kind of Project
111	Rad	soft2	2	1390/12/10	20	study

Assign Project to Department

Please choose the department for the project.

Department: soft

Submit

Project Management In A Research Center

Project Registration

Projects Info

Project ID: 233 Date of start the project: 2012/2/12 Year/Month/Day

Name: tan Required Time: 34

Subject: se Kind of project: ☐ Research ☒ Implementation ☐ Studies

Number of required personnel: 2

Submit

Personnel ID	Name	Subject	Number of Required Personnel	Date of Start	Required Time	Kind of Project
111	Rad	soft2	2	1390/12/10	20	study

Assign Project to Department

Please choose the department for the project.

Department: soft

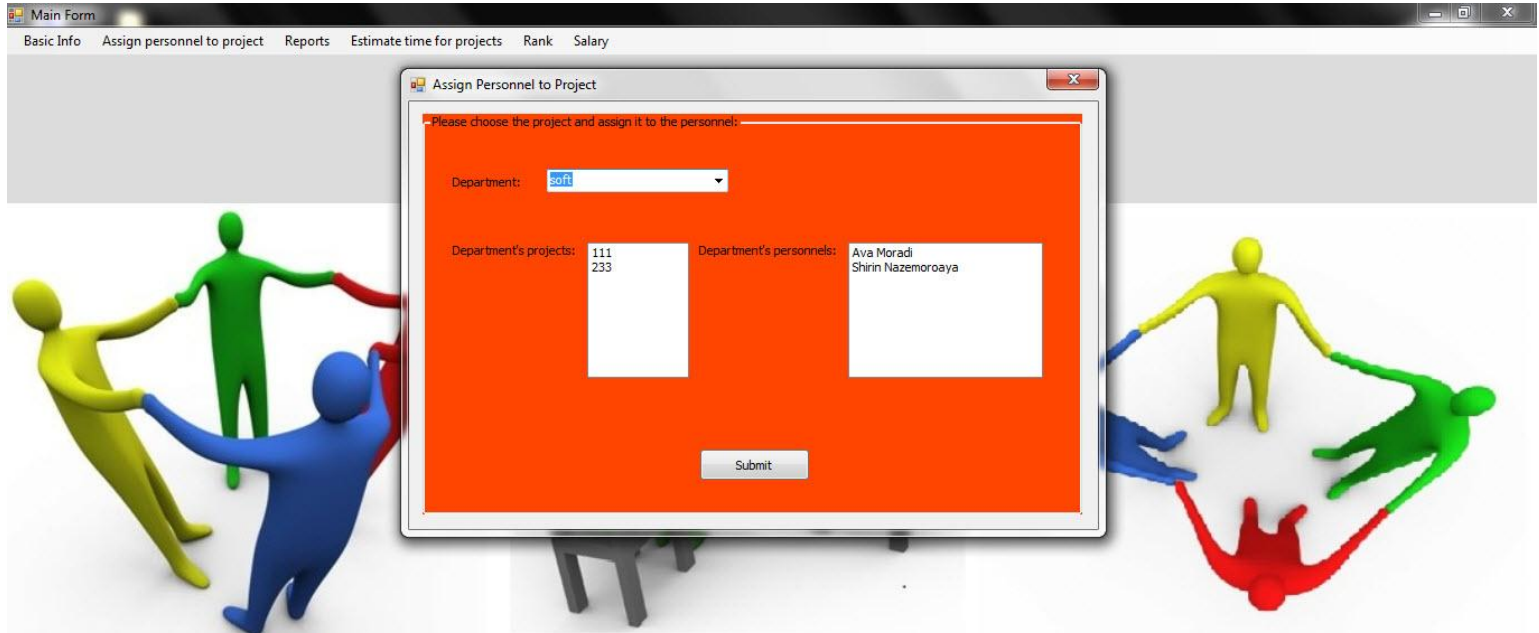
Submit

This department for this project was confirmed.

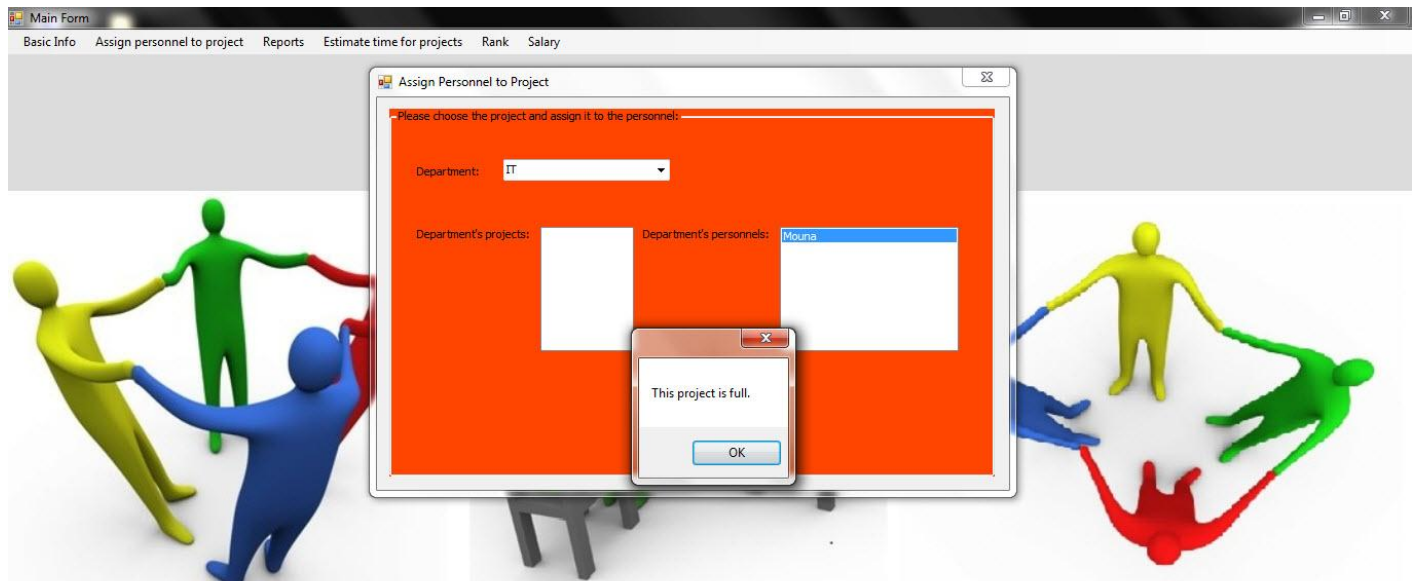
OK

Project Management In A Research Center

Screen 8 – Assign Personnel to Projects.

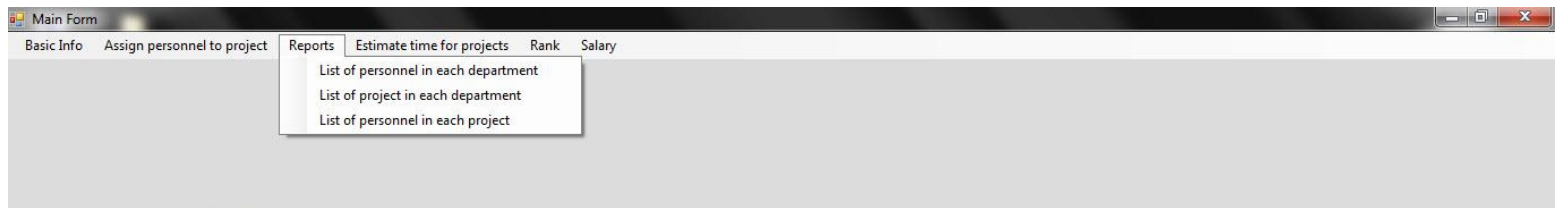


Project Management In A Research Center



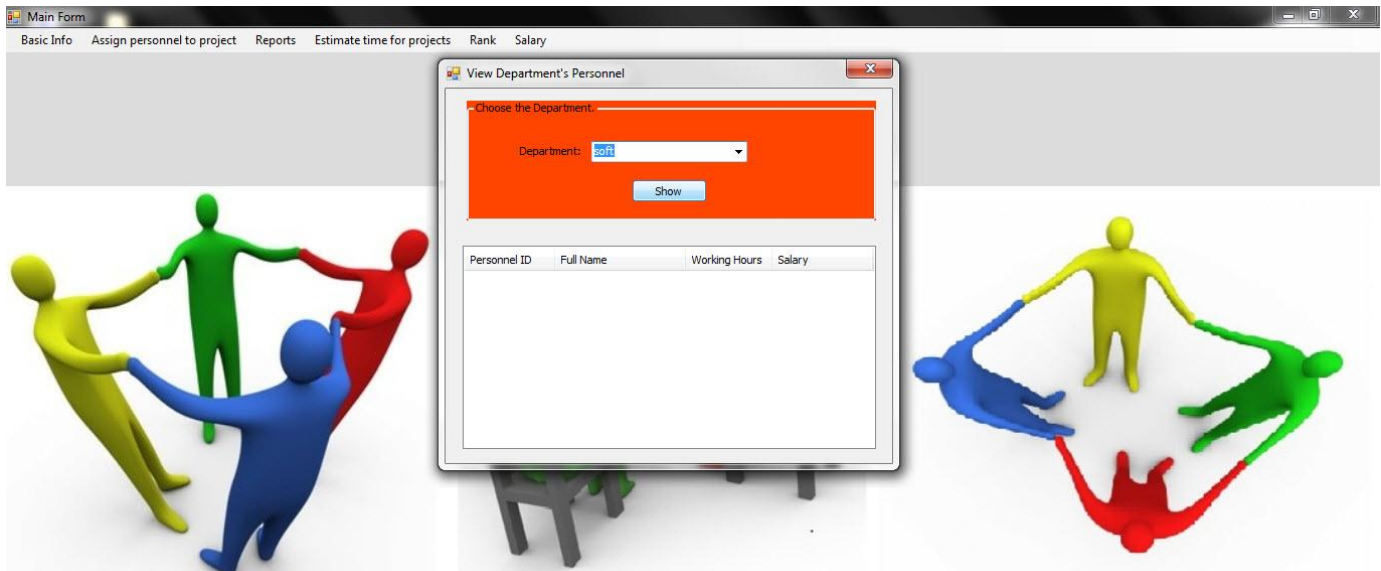
Project Management In A Research Center

Screen 9 –Report.



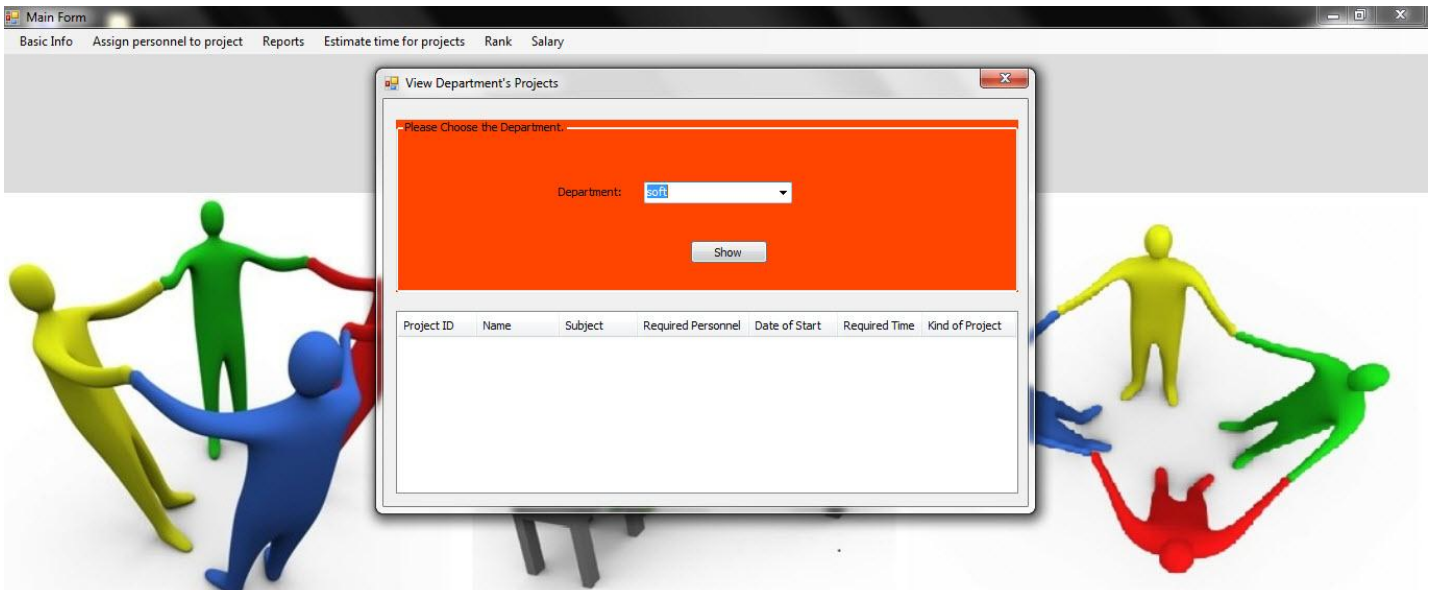
Project Management In A Research Center

Screen 10 - List of personel in each department.



Project Management In A Research Center

Screen 11 - List of project in each department.



Project Management In A Research Center

Screen 12 - List of personnel in each project.

Main Form

Basic Info Assign personnel to project Reports Estimate time for projects Rank Salary

View Project's Personnels

Please choose the project ID:

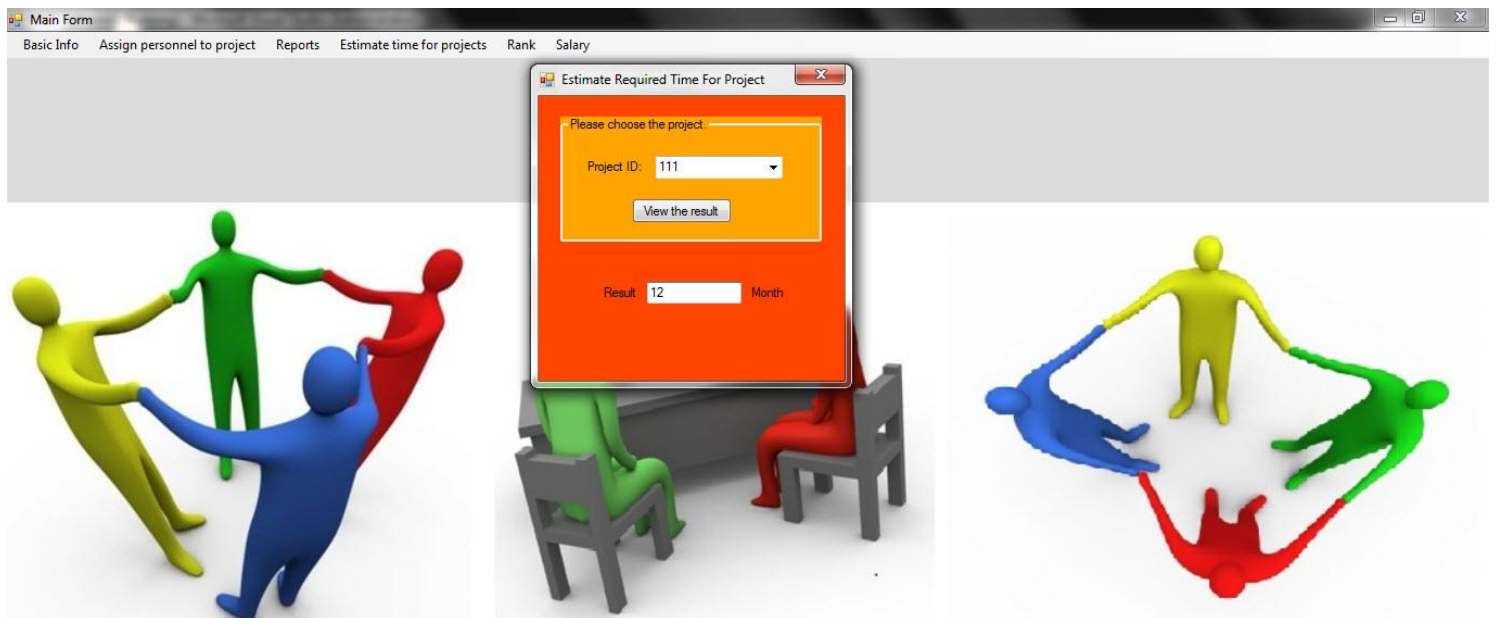
Project ID: 111

Show

Personnel ID	Full Name	Working Hours	Salary
234	Shirin Nazemoroaya	30	50000

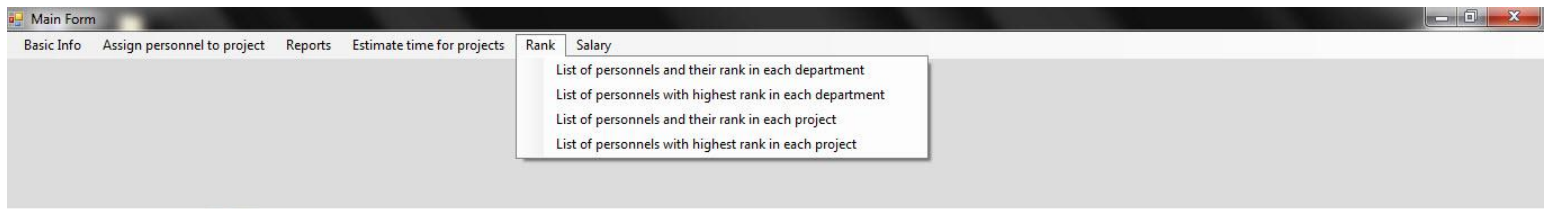
Project Management In A Research Center

Screen 13 –Estimate required time.



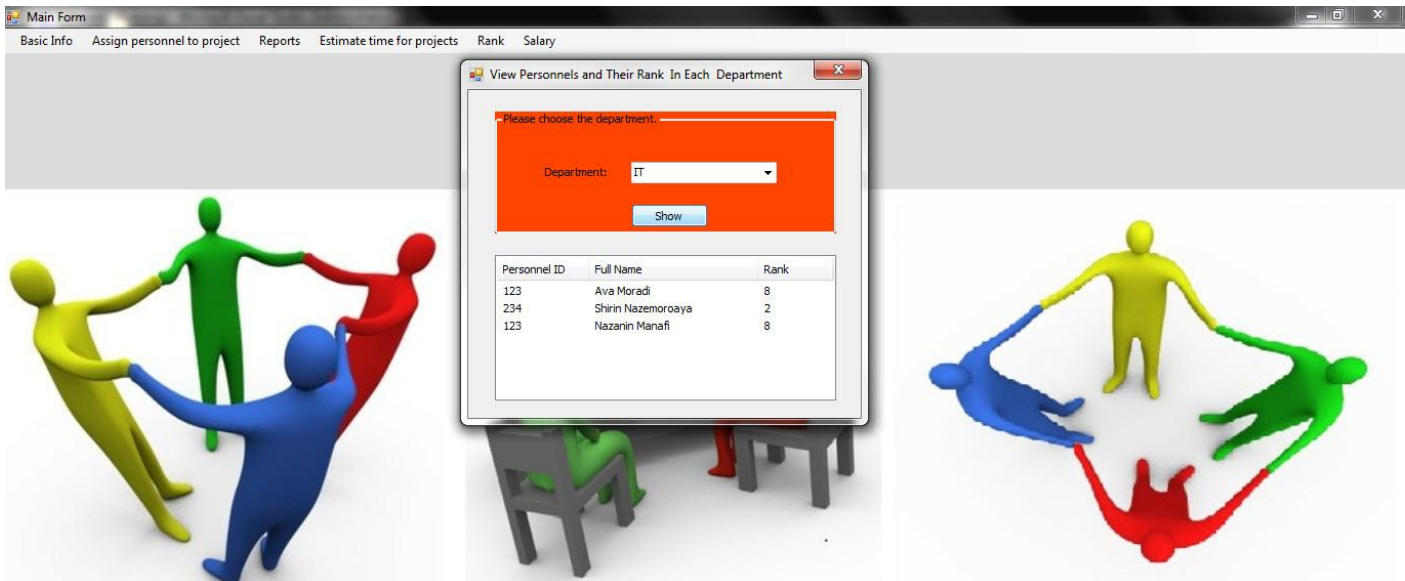
Project Management In A Research Center

Screen 14 – Rank.



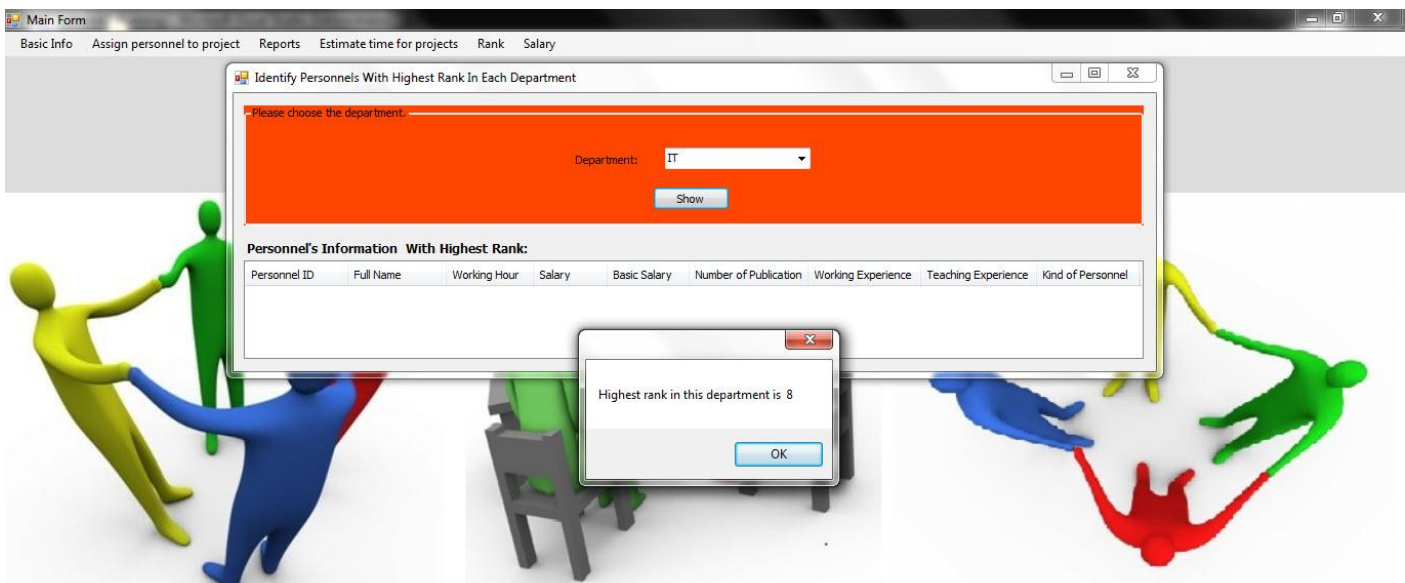
Project Management In A Research Center

Screen 15 – List of personnel and their rank in each department.



Project Management In A Research Center

Screen 16 – List of personnel with the highest rank in each department.



Project Management In A Research Center

Screen 17 – List of personnel and their rank in each project.

Identify Personnel With Highest Rank In Each Project

Please choose the project:

Project ID: 12333

Show

Personnel ID	Full Name	Rank
35577	Nazarin	600011

Project Management In A Research Center

Screen 18 – List of personnel with the highest rank in each project.

Identify Personnel With Highest Rank In Each Project

Please choose the project ID:

Project ID: 111

Show

Personnel's Information with The Highest Rank:

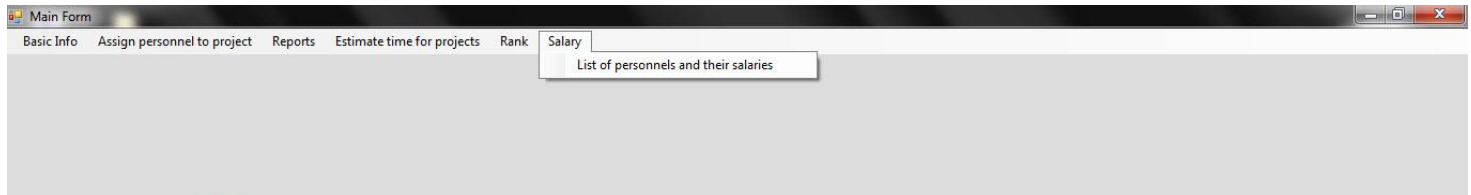
Personnel ID	Full Name	Working Hour	Salary	Basic Salary	Number of Publication	Working Experience	Teaching Experience	Kind of personnel
35577	Nazarin	10	600011	600011	1	10	10	1

Highest rank in this project is 2

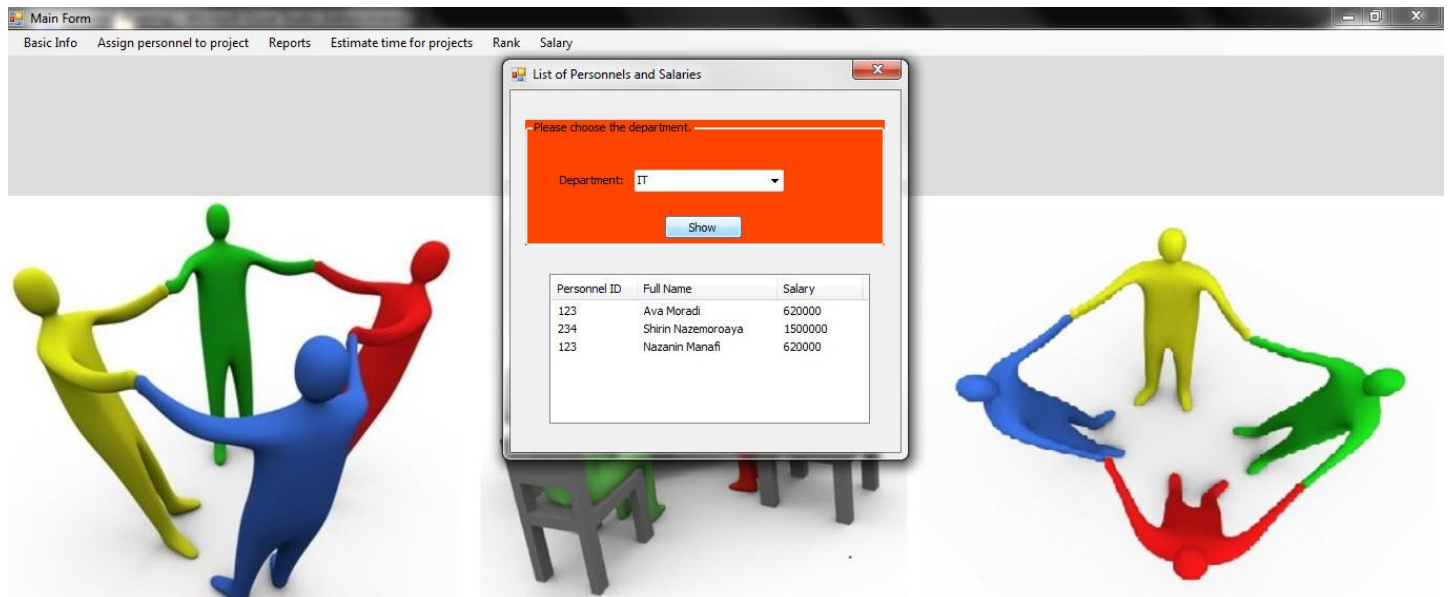
OK

Project Management In A Research Center

Screen 19 – Salary.



Project Management In A Research Center



Project Management In A Research Center

2.4 Hardware Interfaces

This application is windows based application so it should be installed in the company's server.

2.5 Software Interfaces

“Management of a research center projects” will run in a visual.Net . It will access the database in order to select and acquire data to be processes.

2.6 Communications Interfaces

There should be a local area network in the company in order to synchronise between IT Administrator system and Research Center Manager