SOFTWARE REQUIREMENT SPECIFICATION

DOCUMENT

DEPARTMENT CALENDAR

to:

Informatics Department

Sepuluh Nopember Institute of Technology

by:

Rina Wijaya Kusuma Wardhani 5114100021

Rafiar Rahmansyah 5114100110

Jurusan Teknik Informatika - Institut Teknologi Sepuluh Nopember

Kampus ITS KeputihSukolilo Surabaya

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1 Preface

1.1 Document Writing Purpose

This document is about Software Requirement Specification to the system of Department Calendar at Informatics Department, Sepuluh Nopember Institute of Technology. The purpose of this document is to give the explanation about the result of the software that is about to develope. The information can be general to detail and comprehensive description of the software.

This document will be used as the reference in the development process and the evaluation from the beginning to the end of it. With this document, we hope that the development process of the software will be directional and focused and also does not inflict the ambiguity, especially to the developer.

1.2 Problem Scope

The software that is going to build is the system of Department Calendar, which is the software in the form of web that is used to give the lecturer and student the information about their schedule in Department of Informatics. That system can do such:

1. Store the schedule created by the user
2. Give the information about the schedule in 2 ways; calendar of the month and ordering schedule
3. Give the notification or reminder to the user related to their schedule.

With this application, we hope that the user, in this case are the lecturer and student of informatics can be easily managing their schedule and always update to the schedule of the department itself.

1.3 Definition

These are the list of important definitions that appear in this document:

- SRS : *Software Requirements Specification*, or
- SKPL : Spesifikasi Kebutuhan Perangkat Lunak
- IEEE : *Institute of Electrical and Electronics Engineering*
  The international standard to develop and design product.
- ANSI :*American National Standard Institute*
  American Standard Institution
- TBD : *To Be Defined*
- LAN : Local Area Network

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1.4 Naming and Numbering Rule

This SRS Document writing uses several naming and numbering rules in some different parts. Those naming and numbering rules are shown on the table 1 below.

Tabel 1 Naming and Numbering Rule

Part	Naming/Numbering Rule
Functional Requirement	SKPL-FXX : Show the XX-th functional requirement
Non Functional Requirement	SKPL-NFXX : Show the XX-th non functional requirement
Functional Requirement Summary	SKPL-Fxxx where xxx is 3 digits integer starts from 000
Non Functional Requirement Summary	SKPL-NFxxx where xxx is 3 digits integer starts from 000

1.5 References

These are the documents used as the references in the making of this SRS document:

1) *Software Requirement Spesification (SRS) – IEEE* year 1999 by Karl E. Wiegers.
2) Panduan Penggunaan dan Pengisian Spesifikasi Perangkat Lunak (SKPL), Jurusan Teknik Informatika, Institut Teknologi Sepuluh November.
3) Panduan Penggunaan dan Pengisian Spesifikasi Perangkat Lunak (SKPL), Jurusan Teknik Informatika, Institut Teknologi Bandung.

1.6 Document Summary

This overall document consists of 3 chapter with the explanation as below:

- Chapter 1 Preface, is the introduction of this SRS document that consists of the document writing purpose, problem scope, definition, naming and numbering rules, references, and the general description of this document.
- Chapter 2 Software in General Description, define the software product perspective and the assumption and dependency that are used on Department Calendar System development.
- Chapter 3 Requirement in Detail Description, define the particular requirement to Department Calendar System, which are the external interface requirement, functional requirement, performance requirement, design boundary, software system attribute, and the other requirement of Department Calendar System.

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2 Software in General Description

2.1 General Description of System

Department Calendar System is the system to store the schedule of department, lecturer, student, and organization, and let them to see their schedules in 2 ways; calendar in a month or ordering schedule, and also give them the notification or reminder about the schedule. There are 4 user types in this system, such as lecturer, student, and administrator of department and organization account. All of them can create their own schedule and share it to the another related user. They also can see their schedule or schedule shared to them. There is special case where department's and organization's schedules are shared automaticaly to other user so lecturer and student will always be up to date to the department or organization events.

Software system that is built has some main parts based on the user, such as:

1. On all type of user's side, the system provides the facilities such as the good views to see the schedule through calendar view or agenda view, the easy way to create a schedule and add the pasrtisipant into it, and get the realtime notification and reminder if they have been added to someone's schedule or if the schedule is about to happen.
2. On the administrator's side, they can automatically share their schedule to all of the user. It is because their schedules are usually about the department events which are the main issues on this system purpose.
3. On the administrator of department's side, he/she has a special right to add/create another account of this system. It is used to constraint the user which is informatics department people only.

This system has also the protection and access right to the user due to the security and the safety of the system.

2.2 Product Function

This Department Calendar software has some main functions, such as:

1. (SRS-F1) Can show the information about the schedule of the user, departmen, and organization.
2. (SRS-F2) Can create a schedule on a date and describe it in detail about the title, time, place, etc
3. (SRS-F3) Can add another user to the schedule so they can also see our schedule
4. (SRS-F4) Can edit or delete the schedule that has been made
5. (SRS-F5) Can get the notification about the upcoming schedule or shared schedule
6. (SRS-F6) Can create another account

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2.3 User Characterisctic

The characteristics of the user from this system are explained on the table below:

No	User Category	Job	Application Access Right	Ability
1.	All user	Access the system	Can see, create, edit and delete schedule	1. Must be able to operate the computer 2. Must be able to access the internet and web
2.	Administrator	Manage the department and organizatio n account	The schedule they create is automatically being shared to all users	1. Must be able to operate the computer 2. Must be able to access the internet and web
3	Department administrator	Manage the user of the system	Can create another account	1. Must be able to operate the computer 2. Must be able to access the internet and web

2.4 Boundary

Thes software development of Department Calendar has boundaries, such as:

1. This system is made using HTML, PHP, CSS, and JS languages
2. The interface must be user friendly
3. The boundary from the hardware side, such as limited memory, limited storage, the input must only be string or number
4. The other support system that is used are DBMS SQL-Server and PHPStorm editor
5. The boundary of the user can only be added by the administrator of department
6. The user is part of informatics department only.

2.5 Operation Environment

The specification of this application of Department Calendar:

Operating System Platform : Microsoft Windows
Operating System Version : Windows Server 2003/XP SP2/Vista/7/8
DBMS : SQL-Server
Job Frame : HTML, PHP, CSS, JS

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3 Requirement in General Description

3.1 External Interface Requirement

3.1.1 User Interface

Department Calendar uses Graphic User Interface. The user can do the input job using the keyboard and mouse on Windows Operating System.

3.1.2 Hardware Interface

Departmentt Calendar system executes in the server computer. All of the computer that is about to access the application must be connected to the internet.

3.1.3 Software Interface

Department Calendar is the program that will be built using HTML, PHP, CSS, and JS language, SQL-Server and Windows Operating System

3.1.4 Communication Interface

3.2 Functional Description

3.2.1 Use Case Diagram

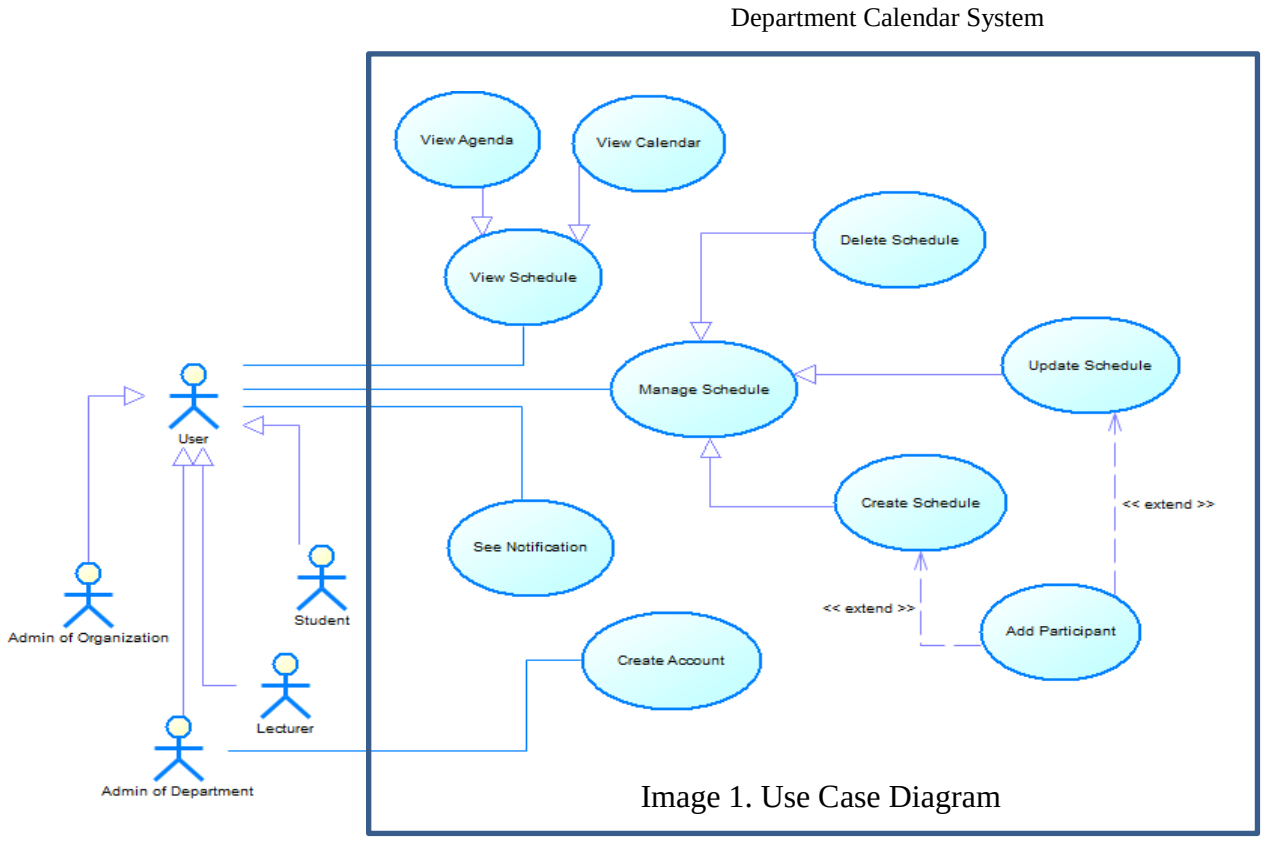

Image 1. Use Case Diagram

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3.2.2 Function 1: View Calendar

3.2.2.1 Scenario: View Calendar

Use Case Code	UC 001
Use Case Name	View Calendar
Actor	User
Description	This Use Case describes how the user can see their schedules in the form of calendar per month
Relation	Generalization of View Schedule
Pre Condition	There is no schedule that can be seen
Post Condition	There is a view of the user's schedules and department's schedules in the form of calendar per month
Main Flow	
Actor	System
1. User login to their account 3. User enter the application 4. User select the view calendar menu	2. System authenticate the user and password A1. User input the wrong user or password 4. System show optional view; calendar or agenda 6. System show the schedule in the form of calendar per month
Alternative Flow	
A1. User input the wrong user or password	
Actor	System
A1.2 User can't go to the application	A1.1 System give the warning A1.3 System back to the login page

3.2.2.2 Activity Diagram: View Calendar

Actor	System

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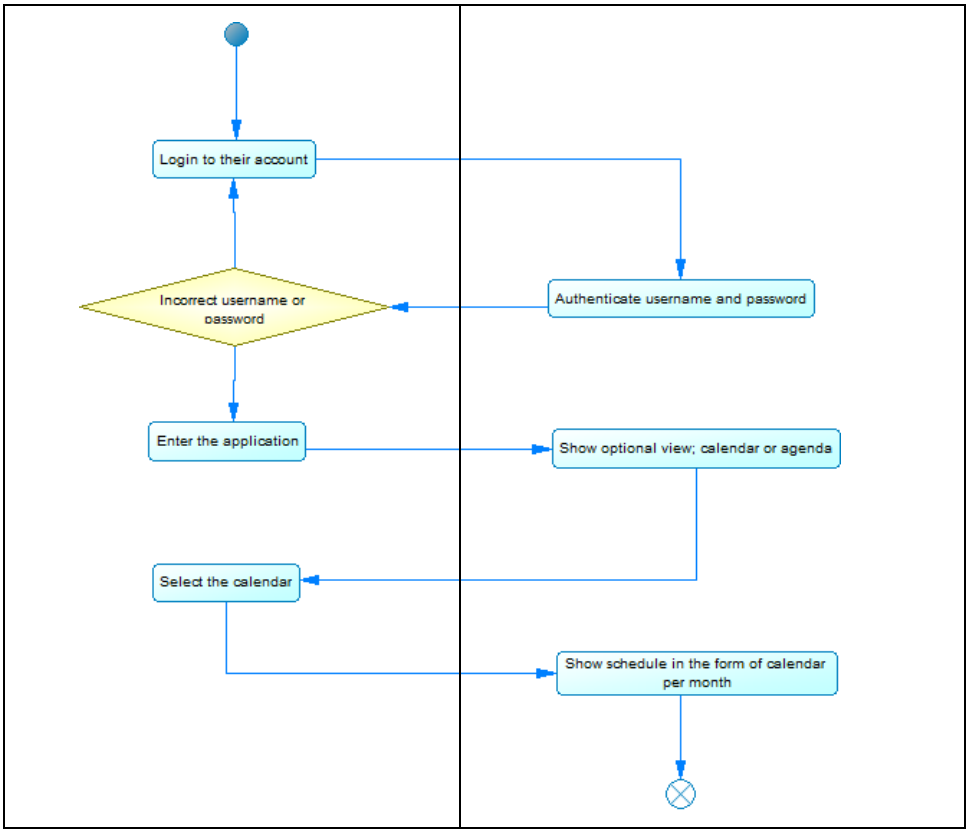

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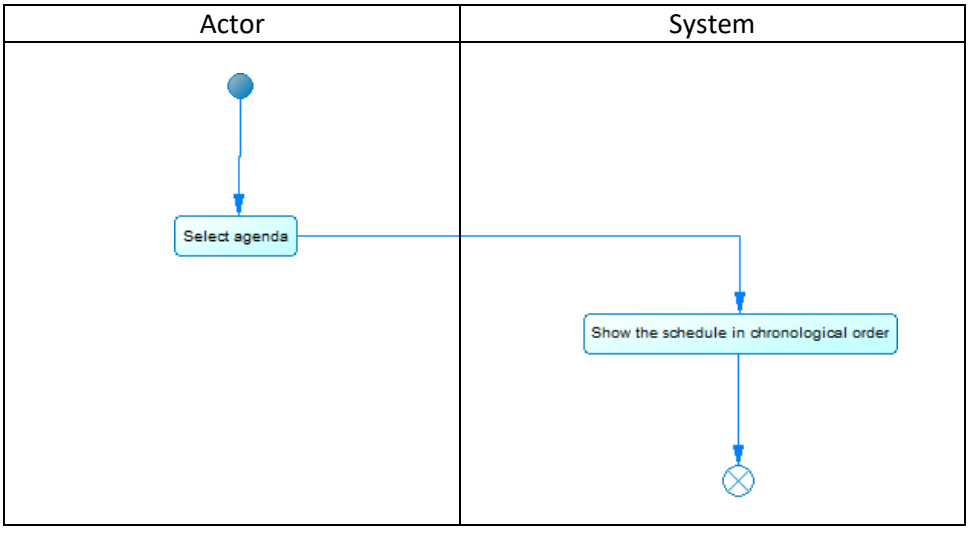
3.2.3 Function 2: View Agenda

3.2.3.1 Scenario: View Agenda

Use Case Code	UC 002
Use Case Name	View Agenda
Actor	User
Description	This Use Case describes how the user can see their schedules in the form of chronological order
Relation	Generalization of View Schedule
Pre Condition	There is no schedule that can be seen
Post Condition	There is a view of the user's schedules and department's schedules in the form of chronological order
Main Flow	
Actor	System
1. User select the view agenda menu	2. System show the schedule in the form of chronological order
Alternative Flow	
-	
Actor	System
-	-

3.2.3.2 Activity Diagram: View Agenda



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3.2.4 Function 3: Update Schedule

3.2.4.1 Scenario: Update Schedule

Use Case Code	UC 003
Use Case Name	Update Schedule
Actor	User
Description	This Use Case describes how the user can update or edit their schedule
Relation	Generalization of Manage Schedule
Pre Condition	The schedule still gives the wrong information
Post Condition	The schedule is up to date
Main Flow	
Actor	System
1. User click the update button when user view the certain schedule 3. User edit the form and click save button	2. System show the form of the schedule information to be edited 4. System save the change and update the schedule
Alternative Flow	
-	
Actor	System
-	-

3.2.4.2 Activity Diagram: Update Schedule

Actor	System

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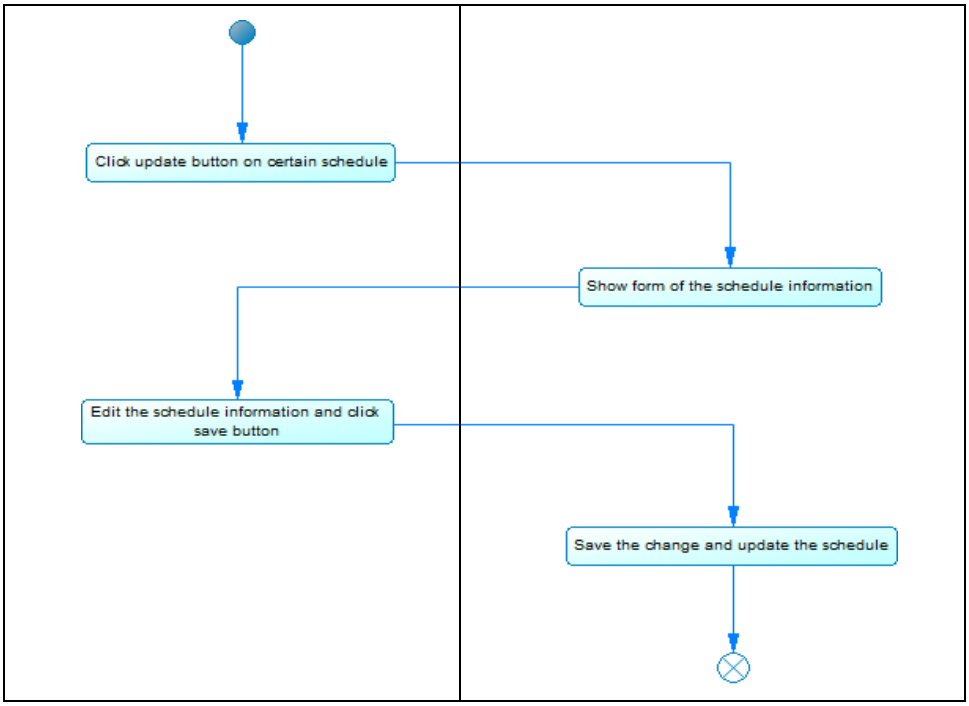

3.2.5 Function 4: Delete Schedule

3.2.5.1 Scenario: Delete Schedule

Use Case Code	UC 004
Use Case Name	Delete Schedule
Actor	User
Description	This Use Case describes how the user can delete their schedule
Relation	Generalization of Manage Schedule
Pre Condition	There is a schedule
Post Condition	The selected schedule will be gone and the number of schedule reduces
Main Flow	
Actor	System
1. Click the delete button when user view the certain schedule 3. User click “yes” A1. User Click “no”	2. System give warning to ensure the user

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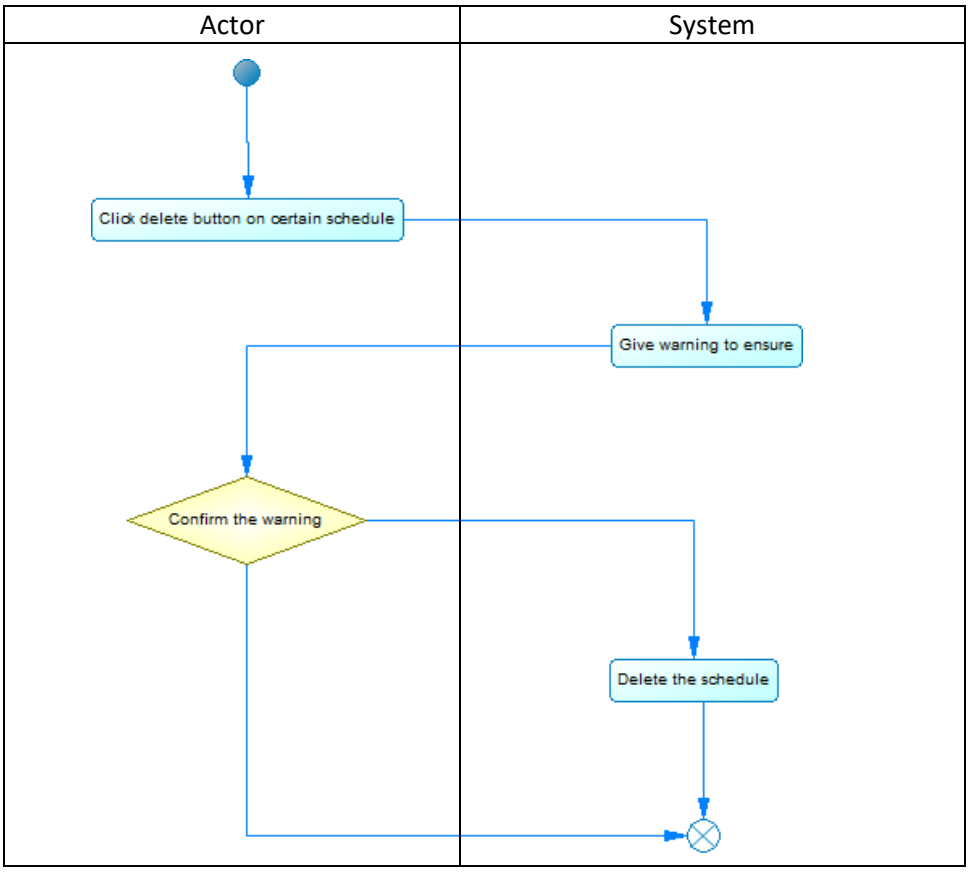
	4. System delete the certain schedule
Alternative Flow	
A1. User Click “no”	
Actor	System
	A1.1 The system back to the view schedule

3.2.5.2 Activity Diagram: Delete Schedule



3.2.6 Function 5: Create Schedule

3.2.6.1 Scenario: Create Schedule

Use Case Code	UC 005
Use Case Name	Create Schedule

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Actor	User
Description	This Use Case describes how the user can create a schedule.
Relation	Generalization of Manage Schedule
Pre Condition	There is no specific schedule on a date
Post Condition	There is a specific schedule added to a date and the number of schedule increases
Main Flow	
Actor	System
1. User click the create schedule menu 3. User fill the form and click save button A1. User do not fill the required information	2. System show the form schedule 4. System add and save the schedule
Second Flow	
Actor	System
1. User click at a certain date on calendar 3. User fill the form and click save A1. User do not fill the required information	2. System show the form schedule 4. System add and save the schedule
Alternative Flow	
A1. User do not fill the required information	
Actor	System
A1.2 User can't save the schedule	A1.1 System give the warning

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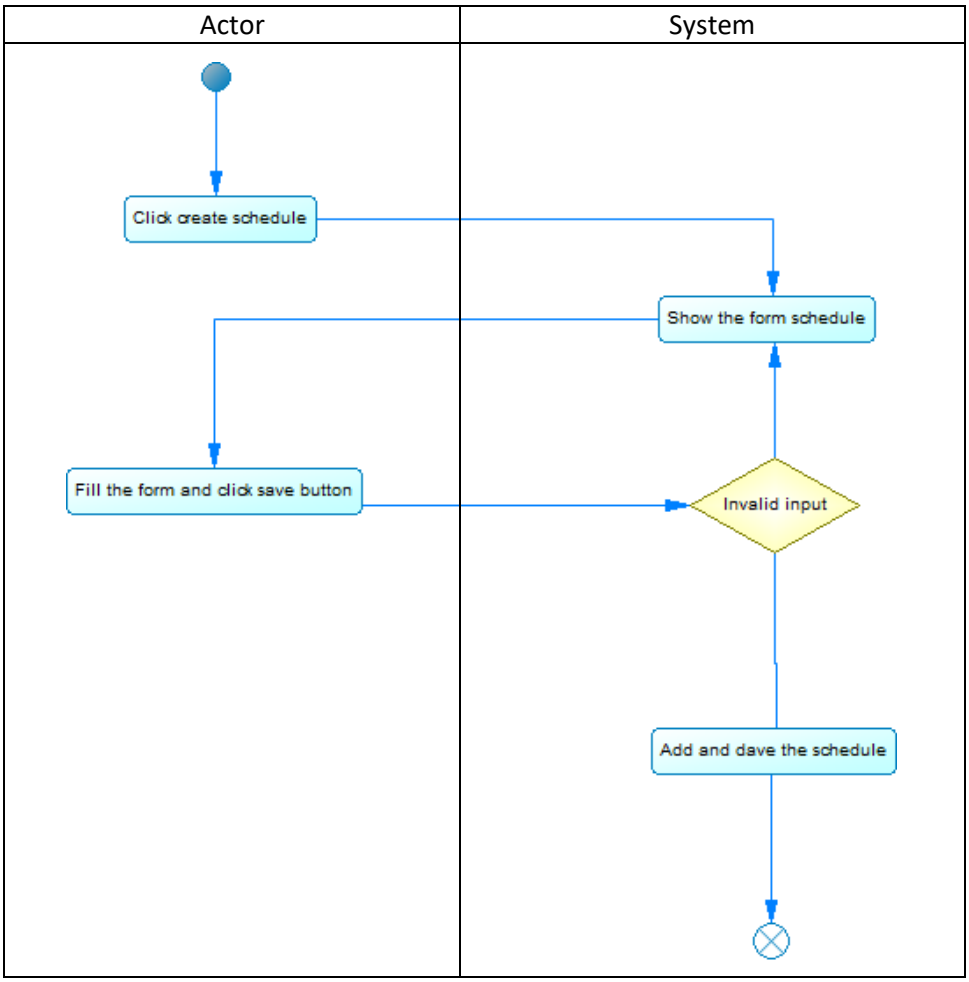
3.2.6.2 Activity Diagram: Create Schedule



Actor	System

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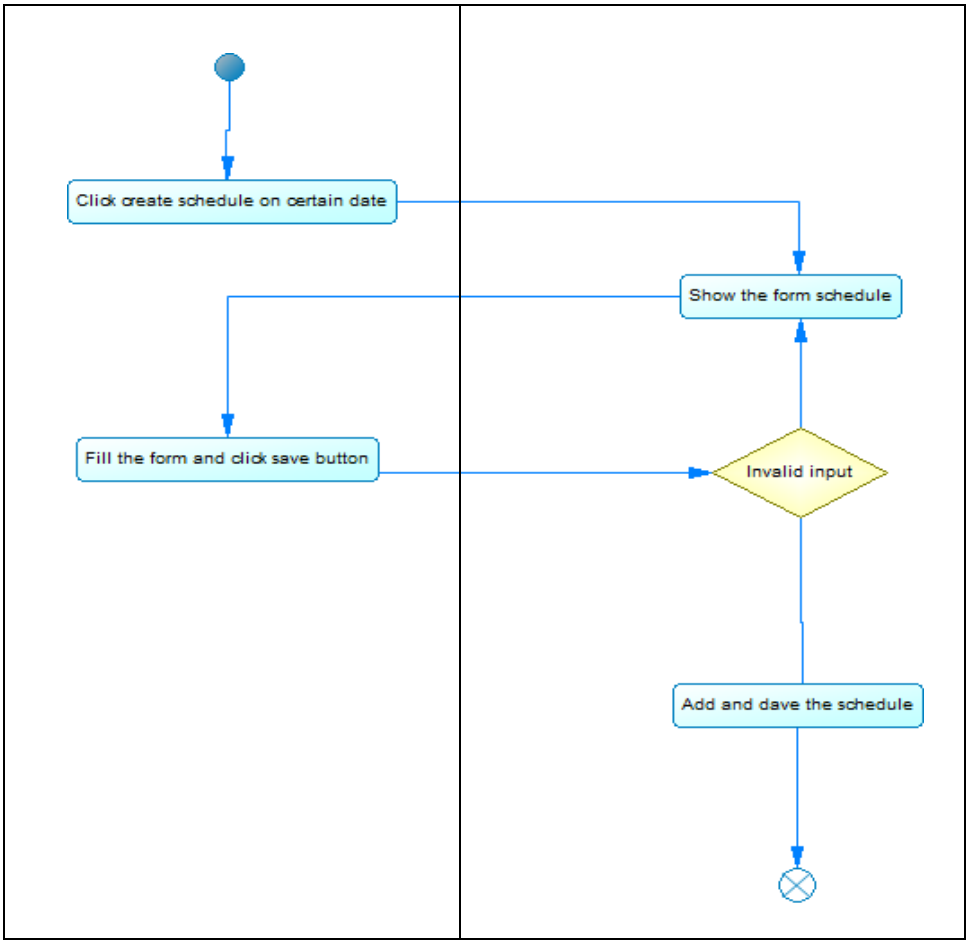

3.2.7 Function 6: Add Participant

3.2.7.1 Scenario: Add Participant

Use Case Code	UC 006
Use Case Name	Add Participant
Actor	User
Description	This Use Case describes how the user can add the other user as the participant of their schedule
Relation	Extend Relationship to UC 003 or UC 005
Pre Condition	There is no participant in our schedule
Post Condition	There is participant in our schedule that are related to the schedule
Main Flow	

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Actor	System
1. User select add participant button when create the schedule or update the schedule 3. User type the other user's username and click add A1. The username doesn't exist	2. System show the form to tag the other user into the schedule 4. System save the participant 5. System send the notification to the added participant
Alternative Flow	
A1. The username doesn't exist	
Actor	System
	A1.1 System give the warning and delete the wrong username

3.2.7.2 Activity Diagram: Add Partisipant

Actor	System

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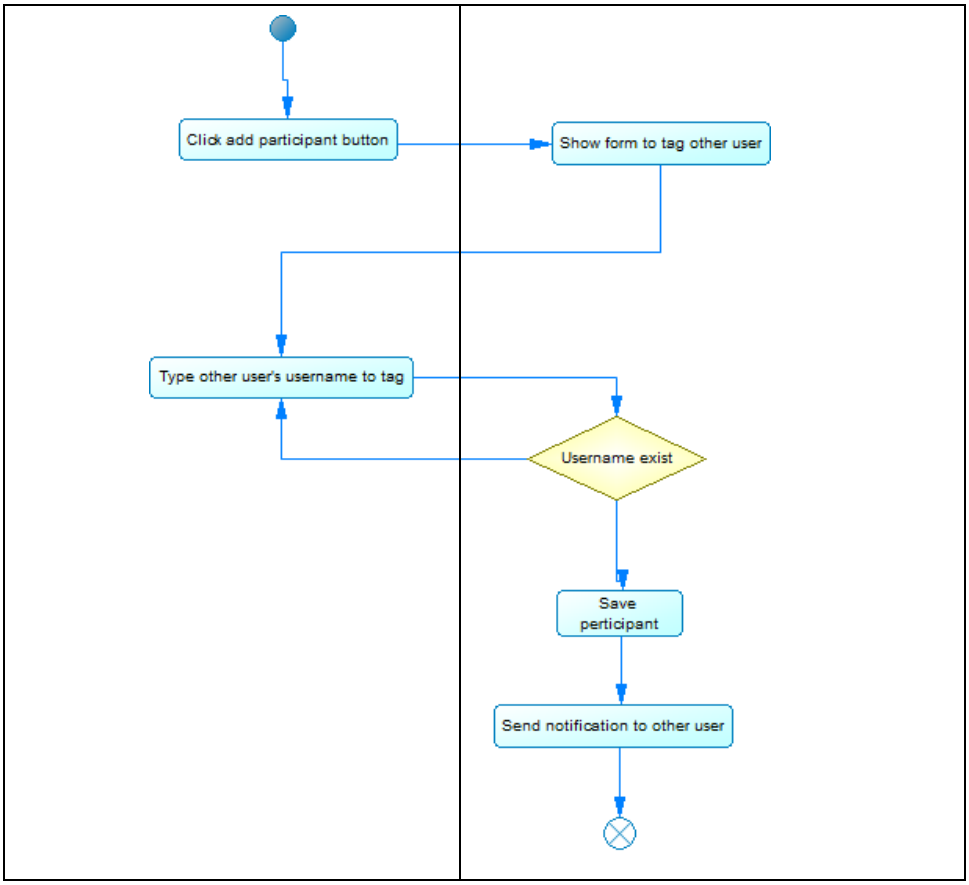

3.2.8 Function 7: See Notification

3.2.8.1 Scenario: See Notification

Use Case Code	UC 007
Use Case Name	See Notification
Actor	User
Description	This Use Case describes how the user can get and see the notification if the other user add them into a schedule or as the reminder of the upcoming schedule
Relation	Association
Pre Condition	The user still don't know the information of schedule related to them or if there is upcoming schedule
Post Condition	The user knows the information of schedule related to them and being reminded of the upcoming schedule
Main Flow	

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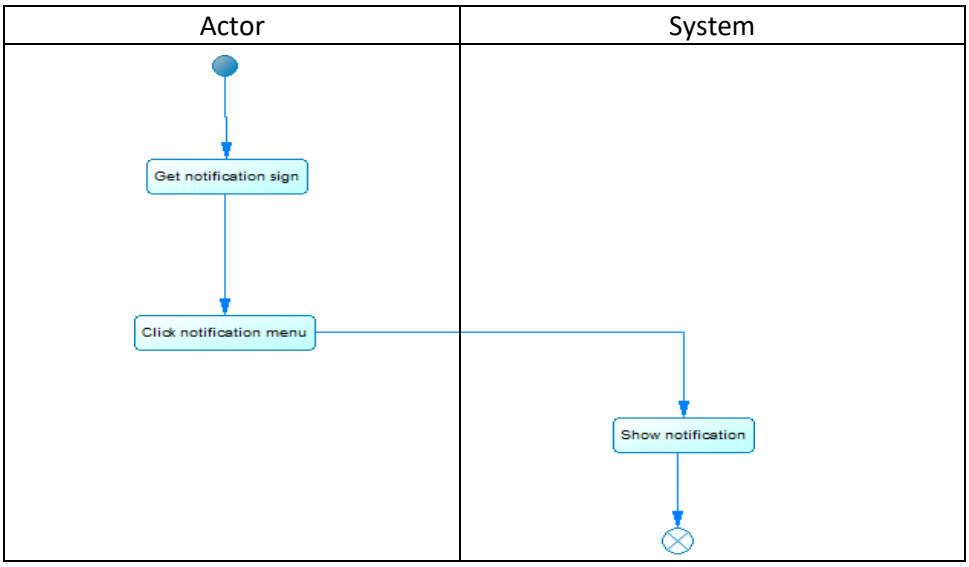
Actor	System
1. User get the notification sign on the notification menu 2. User click the notification menu	2. System give the information of the notification
Alternative Flow	
-	
Actor	System
-	-

3.2.8.2 Activity Diagram: See Notification



3.2.9 Function 8: Create Account

3.2.9.1 Scenario: Create Account

Use Case Code	UC 008
Use Case Name	Create Account
Actor	Admin of Department
Description	This Use Case describes how the admin of department can create another account of organization, lecturer, and student
Relation	Association

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Pre Condition	There is no specific department calendar account of organization, lecturer, or student
Post Condition	There is specific department calendar account of organization, lecturer, or student added to the application
Main Flow	
Actor	System
1. Admin of department user select create user menu 2. Admin department user select user type; organization, lecturer, or student 4. Admin department user fill the form and click create A1. User do not fill the required information	3. System show the form of the related user 5. System create and save the account
Alternative Flow	
A1. User do not fill the required information	
Actor	System
A1.2 Admin of Department User can't create the account	A1.1 A1.1 System give the warning

3.2.9.2 Activity Diagram: Create Account

Actor	System

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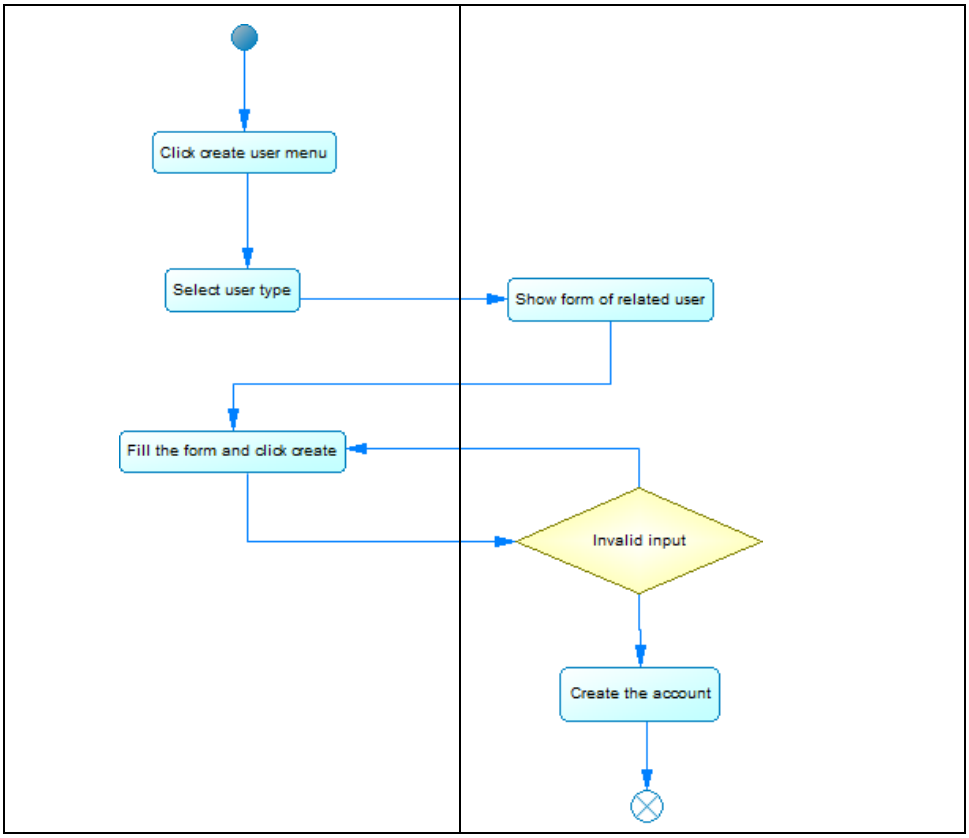

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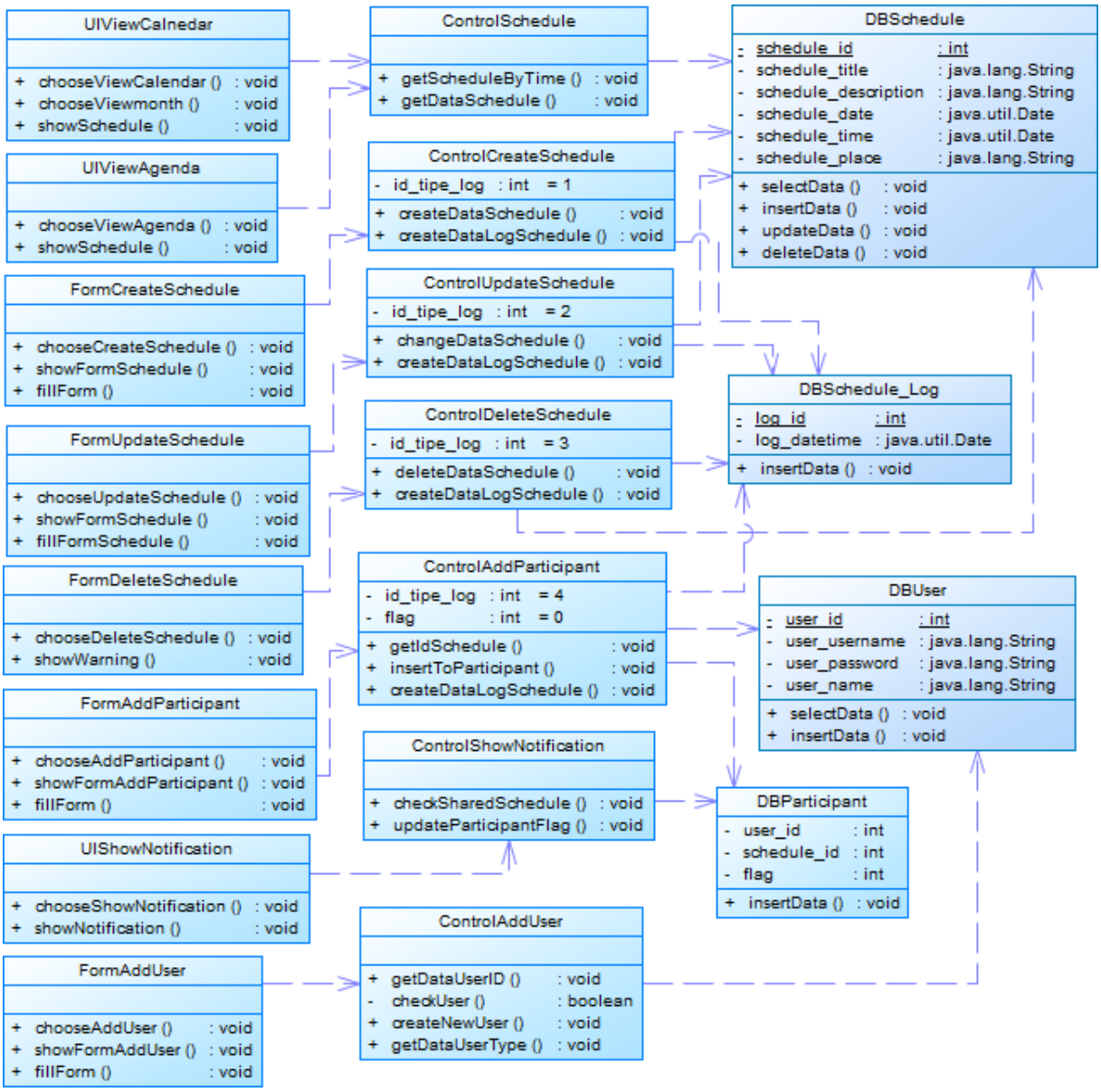
3.3 Class Description

3.3.1 Class Diagram



Gambar 29. Diagram Kelas

3.3.2 Domain Issue Description

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Table 3 Domain Issue Description

No.	Nama	Metode	Atribut	Tugas

3.3.3 Control Class Description

Table 4 Control Class Description

No.	Name	Method	Atribute	Job
1.	ControlSchedule	getScheduleByTime()		Get data from DBSchedule and sorted by time ascending
		getDataSchedule()		Get data from DBSchedule every month
2.	ControlCreateSchedule	createDataSchedule()		Insert new data to DBSchedule
		createDataLogSchedule()		Insert log data to DBSchedule_Log
3.	ControlUpdateSchedule	changeDataSchedule()		Update data schedule in DBSchedule
		createDataLogSchedule()		Insert log data to DBSchedule_Log
4.	ControlDeleteSchedule	deleteDataSchedule()		Delete data schedule in DBSchedule
		createDataLogSchedule()		Insert log data to DBSchedule_Log
5.	ControlAddParticipant	getIdSchedule()		Get schedule id from DBSchedule
		insertToParticipant()		Insert data to DBParticipant
		createDataLogSchedule()		Insert log data to DBSchedule_Log

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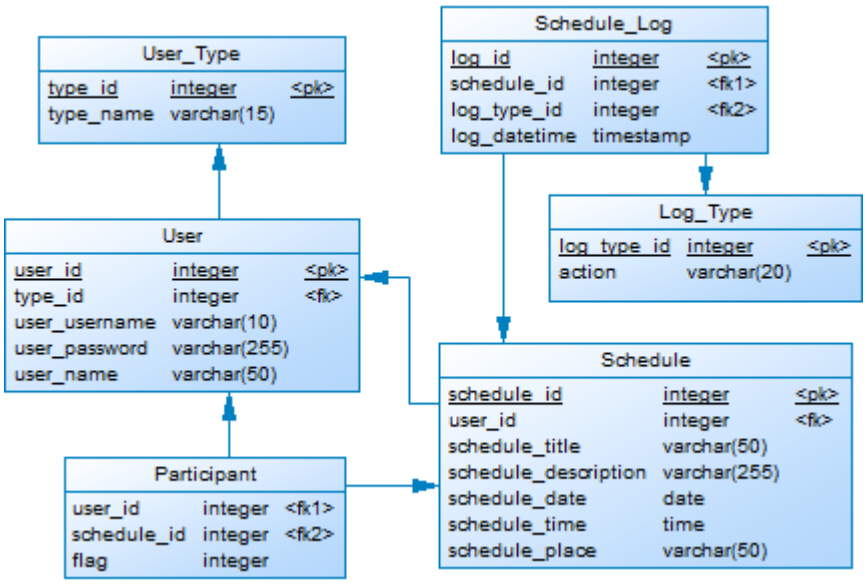
6.	ControlShowNotification	checkSharedSchedule()		Select data from DBParticipant with flag = 0
		updateParticipantFlag()		Change data flag in DBParticipant into 1
7.	ControlAddUser	getDataUserID()		Get user id from DBUser
		checkUser()		Select data from DBUser if username is already exist or not
		createNewUser()		Insert new data user to DBUSer
		getDataUserType()		Get data from DBUser_Type

3.3.4 Entity Class Description (Persistent)



Gambar 30. Physical Data Model

Table 5 Entity Class Description

No.	Name	Atributte	Method	Job
1.	DBSchedule	Schedule_id : integer	selectData()	Manage the

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		User_id: integer Schedule_title: varchar Schedule_description: varchar Schedule_date: date Schedule_time: time Schedule_place: varchar	insertData() updateData() deleteData()	schedule like create, edit, delete and select the data to be displayed
2.	DBSchedule_Log	Log_id: integer Schedule_id: integer Log_type_id: integer Log_datetime: timestamp	insertData()	Add the log data when do the CRUD on the DBSchedule
3.	DBUser	User_ud: integer Type_id: integer User_username: varchar User_password: varchar User_name: varchar	selectData() insertData()	Select data and add the new data on DBUser
4.	DBParticipant	User_id: integer Schedule_id: integer Flag: integer	insertData()	Add the data to DBParticipant if there is shared schedule to other user

3.3.5 Boundary Class Description

Table 6 Boundary Class Description

No.	Name	Atribute	Method	Job
1.	UIViewCalendsr		chooseViewCalendar()	Choose the calendar type of schedule as view
			chooseViewmonth()	Choose the month to be displayed
			showSchedule()	View the schedules
2.	UIViewAgenda		chooseViewAgenda()	Choose the agenda type of schedule as view
			showSchedule()	View the schedules

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3.	FormCreateSchedule		chooseCreateSchedule()	Choose to create new schedule
			showFormSchedule()	View the form of creating schedule
			fillForm()	Fill the form
4.	FormUpdateSchedule		chooseUpdateSchedule()	Choose to update the certain schedule
			showFormSchedule()	View the form of updating schedule
			fillFormScedule()	Fill the form
5.	FormDeleteSchedule		chooseDeleteSchedule()	Choose to delete the certain schedule
			showWarning()	Show the warning to ensure deleting
6.	FormAddParticipant		chooseAddParticipant()	Choose to add the new participant of schedule
			showFormAddParticipant()	View the form of adding participant
			fillForm()	Fill the form
7.	UIShowNotification		chooseShowNotification()	Choose to see notfication
			showNotification()	View the notification
8.	FormAddUser		chooseAddUser()	Choose to add new user
			showFormAddUser()	View the form of creating user
			fillForm()	Fill the form

3.4 Data Flow Diagram

Gambar 31. Data Flow Diagram

3.5 Non Functional Requirement Description

Table 7 Non Functional Requirement Description

SRS-Id	Parameter	Requirement
SRS-N01	Availability	This application must be able to operate in 24 hour, because it is used to manage schedule in the various time based on the user, so the user can use the application whenever they want. This application must

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		also be able to log the user in, on several devices in the same time.
SRS-N02	Reliability	This application must be built with the high reliability. The failure to be tolerated must be about 10%. The reliability must be also on the telecommunication network to access the internet. With those, we hope this application can be used greatly whenever the user need this.
SRS-N03	Ergonomy	This application must have the high value of ergonomy or the comfortableness to the user. This application will be built with the user interface that easy to understand, nice view, consistent, easy to be operated, and isn't confusing.
SRS-N04	Portability	This application must be able to be operated by 1000 computers
SRS-N05	Memory	This application can accommodate the database up to 160GB maximum.
SRS-N06	Response time	This application must be able to access the database in 2 seconds.
SRS-N07	Safety	This application network consists of firewall
SRS-N08	Security	This application has the access right to each user and the password will be encrypted.
SRS-N09	Communication Language	This application uses Bahasa as the communication language

3.6 Design Boundary

a. Compatible to all type of HTML

3.7 Requirement Summary

3.7.1 Functional Requirement Summary

Table 8 Functional Requirement Summary

SRS-Id	Explanation
SRS-F000	The system can let the user to log in to the application with their id and password.

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SRS-F001	The system can let the user to change their password.
SRS-F002	The system can let the user to create and edit a schedule with the data requirement of schedule title, schedule time, and description about it on a date.
SRS-F003	
SRS-F004	
SRS-F005	
SRS-F006	
SRS-F007	
SRS-F008	
SRS-F009	
SRS-F010	
SRS-F011	
SRS-F012	
SRS-F013	

3.7.2 Non Functional Requirement Summary

Table 9 Non Functional Requirement Summary

SRS-Id	Explanation
SRS-NF001	
SRS-NF002	
SRS-NF005	

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