Software Design Document

CP317 Software Engineering

Group 10

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1. Revision History

Date	Version	Description	Author(F+L)
3.18	0.4	Add sequence diagrams	Zixuan Chen
3.21	0.7	Add Data design in 8	Ruicheng Zhao, Zehao Liu
3.21	0.9	Add Class diagrams	Jialong Zhang
3.22	1.2	Add activity diagrams	Mengyuan Liu
3.22	1.4	Add Human Interface Design in 10 and did data design SQA	Zehao Liu
3.23	1.5	Refine Class diagram	Zehao Liu
3.23	1.7	Add Reference	Jialong Zhang
3.24	1.9	Add Architectural Design	Jialong Zhang
3.24	2.0	Finish design considerations, list of tables and figures	Mengyuan Liu
3.25	2.1	Revise introduction in 5	Zixuan Chen
3.25	2.3	Design Document SQA	Zehao Liu, Menyuan Liu, Zixuan Chen, Jialong Zhang

2. Contribution Table

name	Contribution level
Zehao Liu	10
Zixuan Chen	9.9
Ruicheng Zhao	9.7
Jialong Zhang	9.6
Mengyuan Liu	9.8

3. List of Tables

4. List of Figures

Sequence diagrams

Activity diagrams

Human Interface Design

5. Introduction

5.1 Purpose

This design document is aimed at illustrating the design of Calendar 317 using figures, tables, and diagrams. It visualizes the previous requirement document in a more detailed way.

5.2 scope

Calendar 317 consists of a calendar, to-do list, and plug-in features such as world clock and so on. The first milestone of Calendar 317 is to have a preliminary runnable Java program that includes an add event function. This function allows users to add new events to Calendar 317 through both the to-do list and the calendar page. The second milestone is achieved when listView function is successfully implemented. When the final milestone is attained, user will be able to access the Plug-in function. By way of explanation, users can customize their own Calendar by adding more functions such as world clock and holiday.

5.3 definitions and acronyms

New Event Form – It includes all necessary information about creating an event.

5.4 references

- Software Requirements Specification document for Calendar317
- Analysis document for Calendar317
- IEEE. IEEE Std 1016-1998 IEEE Recommended Practice for Software Design Descriptions. IEEE Computer Society, 1998

6. Design Considerations

6.1 Assumptions

The actual application may appear different from the requirement that has been listed in this document. More functions will be added to future updates.

This is the second iteration of the application and the assumption for Calendar317 is a software developed based on Eventer and omit the other function which allows developers to quickly release a minimal viable product.

6.2 constraints

The Calendar 317 design used Model-view-controller pattern. It may increase complexity and lead to redundant updates for user actions. For example, event class may cause diagram higher coupling.

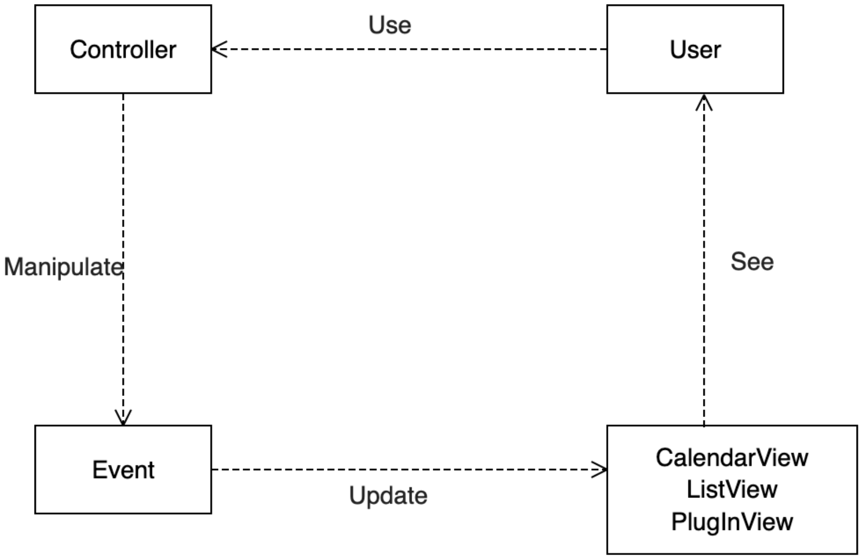
6.3 environment

Calendar 317 is designed using Visual Java GUI programming based on the latest software development environment in Eclipse.

6.4 methodology

Methodology can be defined as the basic principles and rules of a management system. A software design method may consist of a software design process component. We use different methods to support separate phases of Calendar 317, such as planning, analysis, design and programming, testing, and implementation.

7. Architectural Design



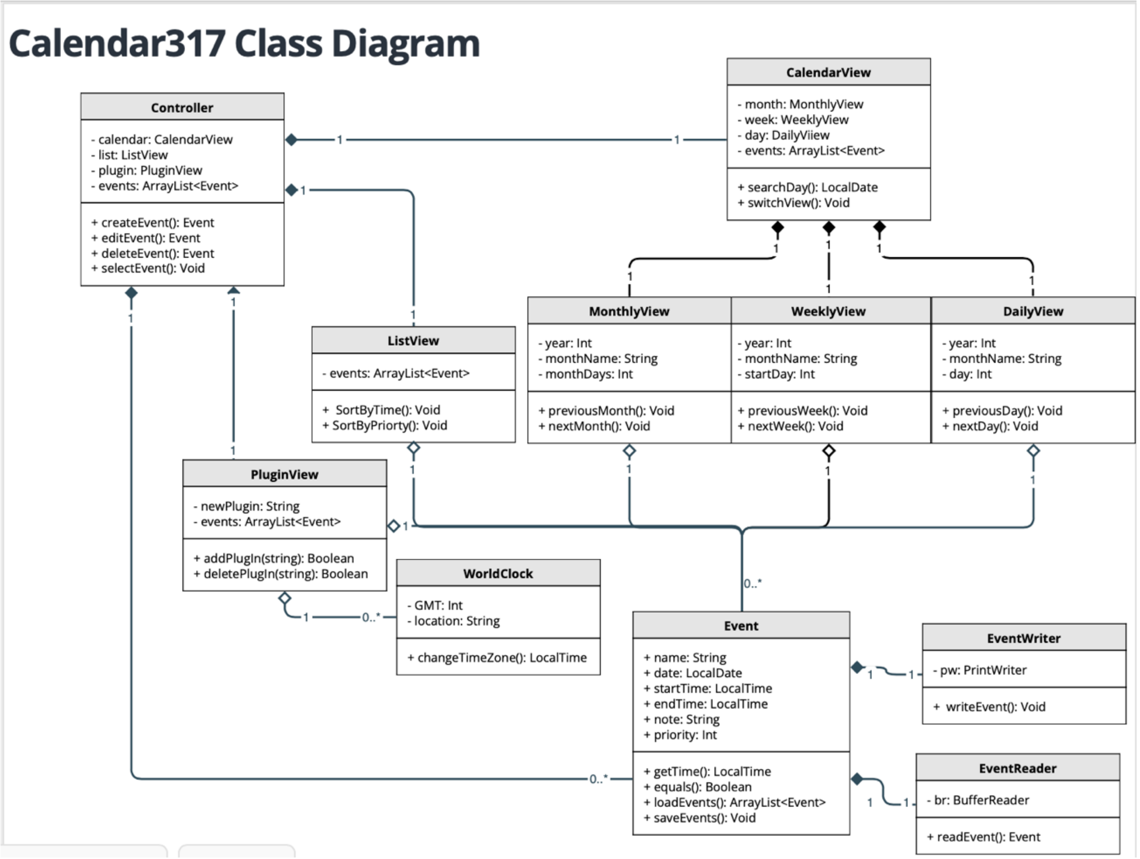
8. Data Design

Name	(Return)Data type	Data Field	Description
createEvent()	Event		Create an event object and add it to the event list
deleteEvent()	Event	There must be at least one event in arrayList<event>	Delete an event object from the event list
selectEvent()	Void		Select a specific event object
editEvent()	Event	EndTime cannot exceed startTime	Edit the details of an event Object

changeTimeZone()	LocalTime	The time zone must be valid	Change the time zone by an input string
addPlugin(string)	Boolean		Add a plugin class by a string input, return if the plug in was added or not
deletePlugin(string)	Boolean	There must be at least one plugin	Delete a plugin class by a string input, return if the plug in was deleted or not
searchDay()	LocalDate	The date must be valid	Jump to a specific date
swtichView()	Void		Switch the calendar view to day, week or month.
sortByTime()	Void	There must be at least one event in arrayList<event>	Sort the event list by their starting time from earliest to latest
sortByPriorty()	Void	There must be at least one event in arrayList<event>	Sort the event list by their priority from the highest to lowest
previousMonth()	Void		Minus current month by one
nextMonth()	Void		Plus current month by one
previousWeek()	Void		Minus current week by one
nextWeek()	Void		Plus current week by one
previousDay()	Void		Minus current day by one
NextDay()	Void		Plus current day by one
getTime()	LocalTime		Get the startTime of an event object
equals()	Boolean		Compare if two event objects are equal
loadEvents()	ArrayList<Event>		Load events into the calendar from event list
saveEvents()	Void		Save events to event list
writeEvent()	Void		Output the event list as a .txt file
readEvent()	Event	The format of the .txt file must be valid	Read the event list from a .txt file, returns an event list

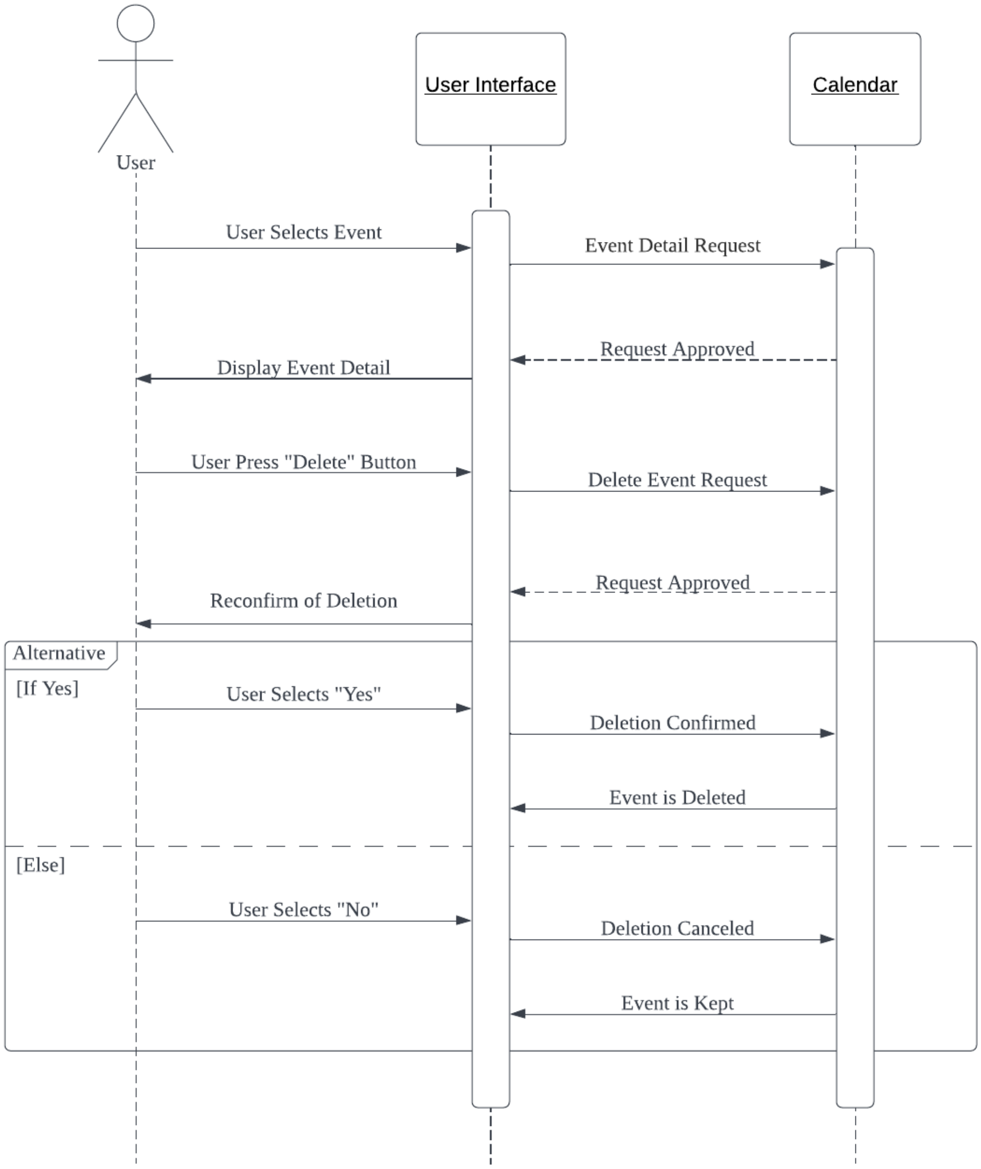
9. Component Design

■ Class diagrams

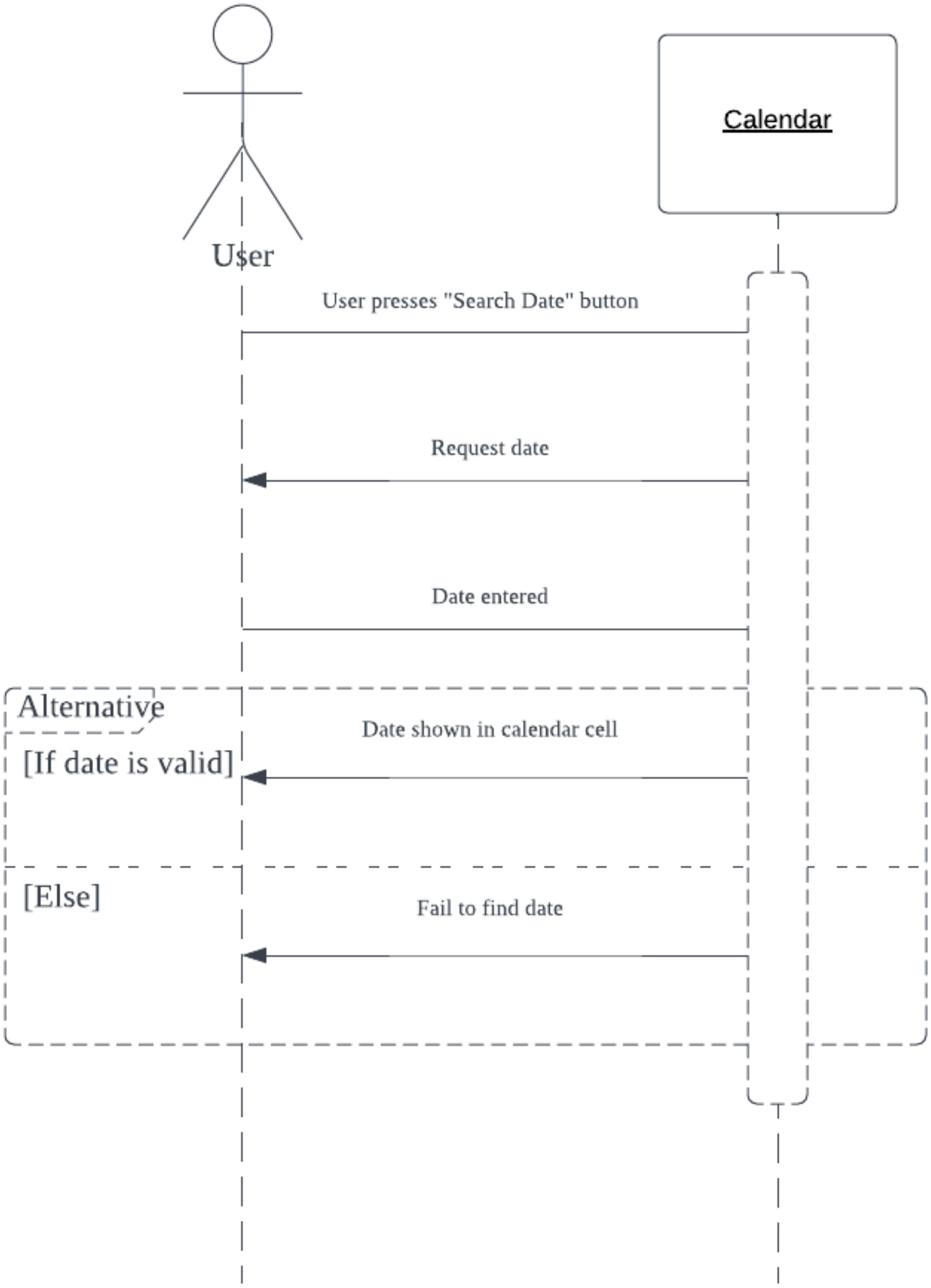


■ Sequence diagrams

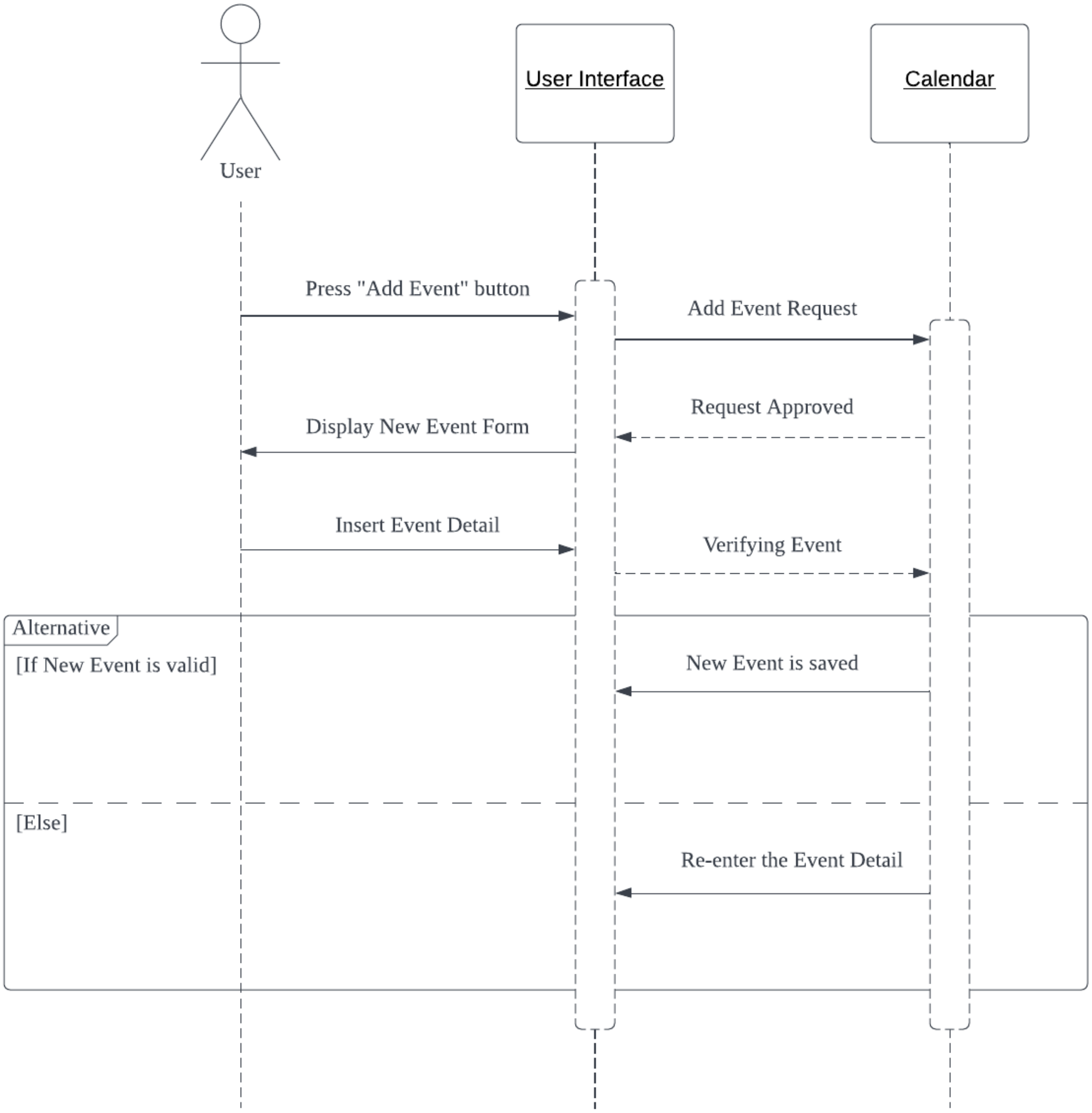
Delete Event



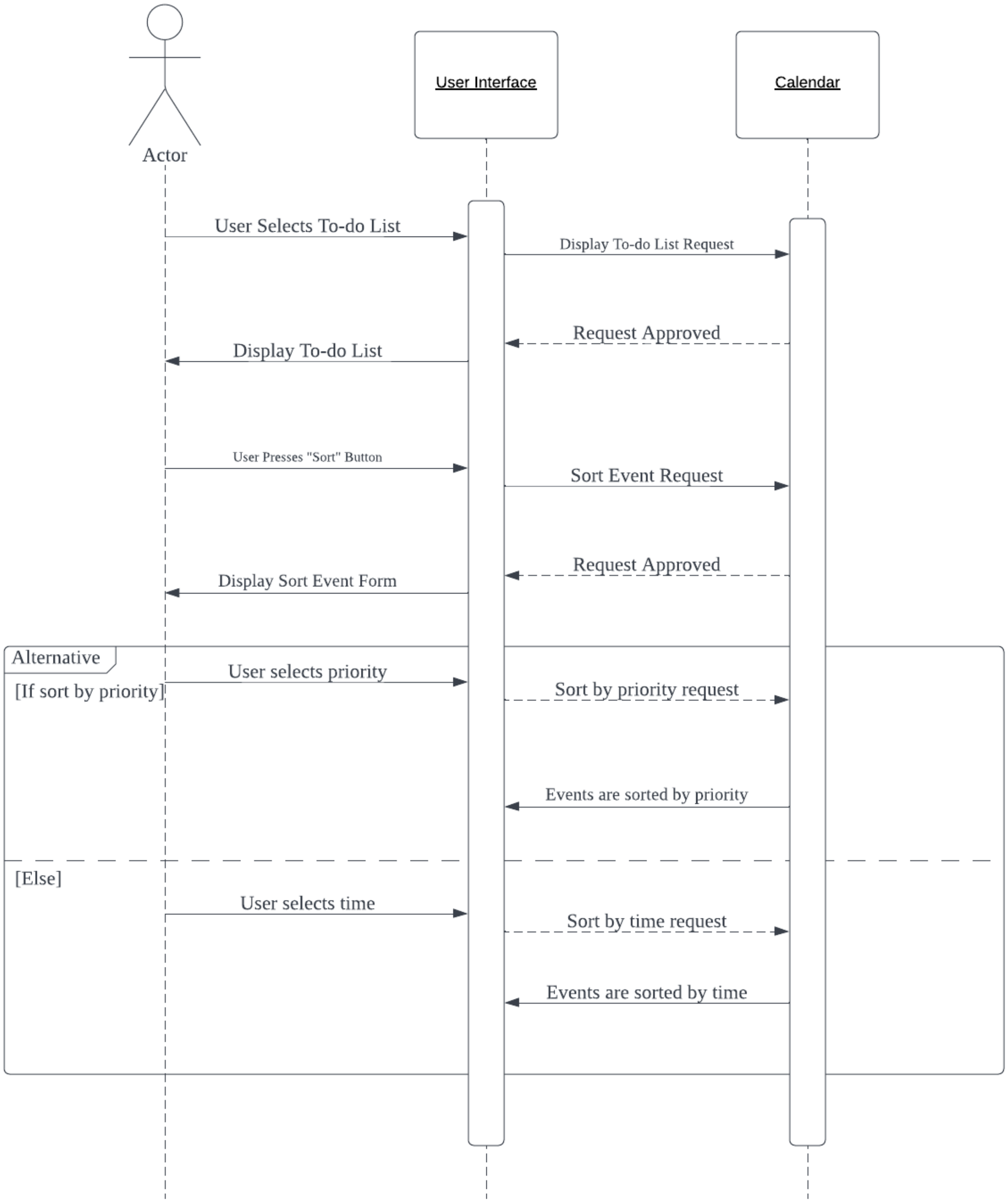
Search Date


Calendar
User
User presses "Search Date" button
Request date
Date entered
Alternative
[If date is valid]
Date shown in calendar cell
[Else]
Fail to find date

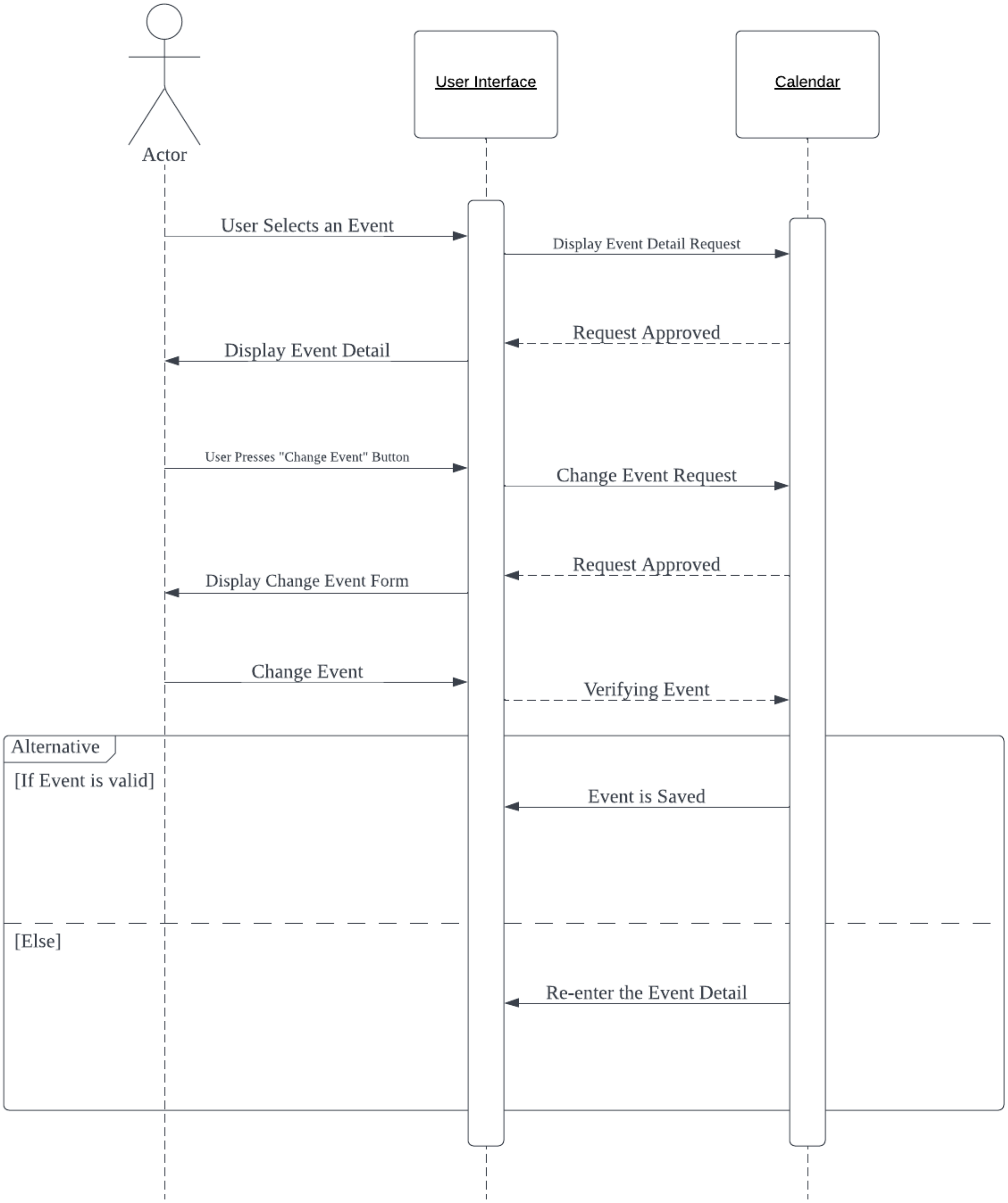
Add Event


User
User Interface
Calendar
Press "Add Event" button
Add Event Request
Request Approved
Display New Event Form
Insert Event Detail
Verifying Event
Alternative
[If New Event is valid]
New Event is saved
[Else]
Re-enter the Event Detail

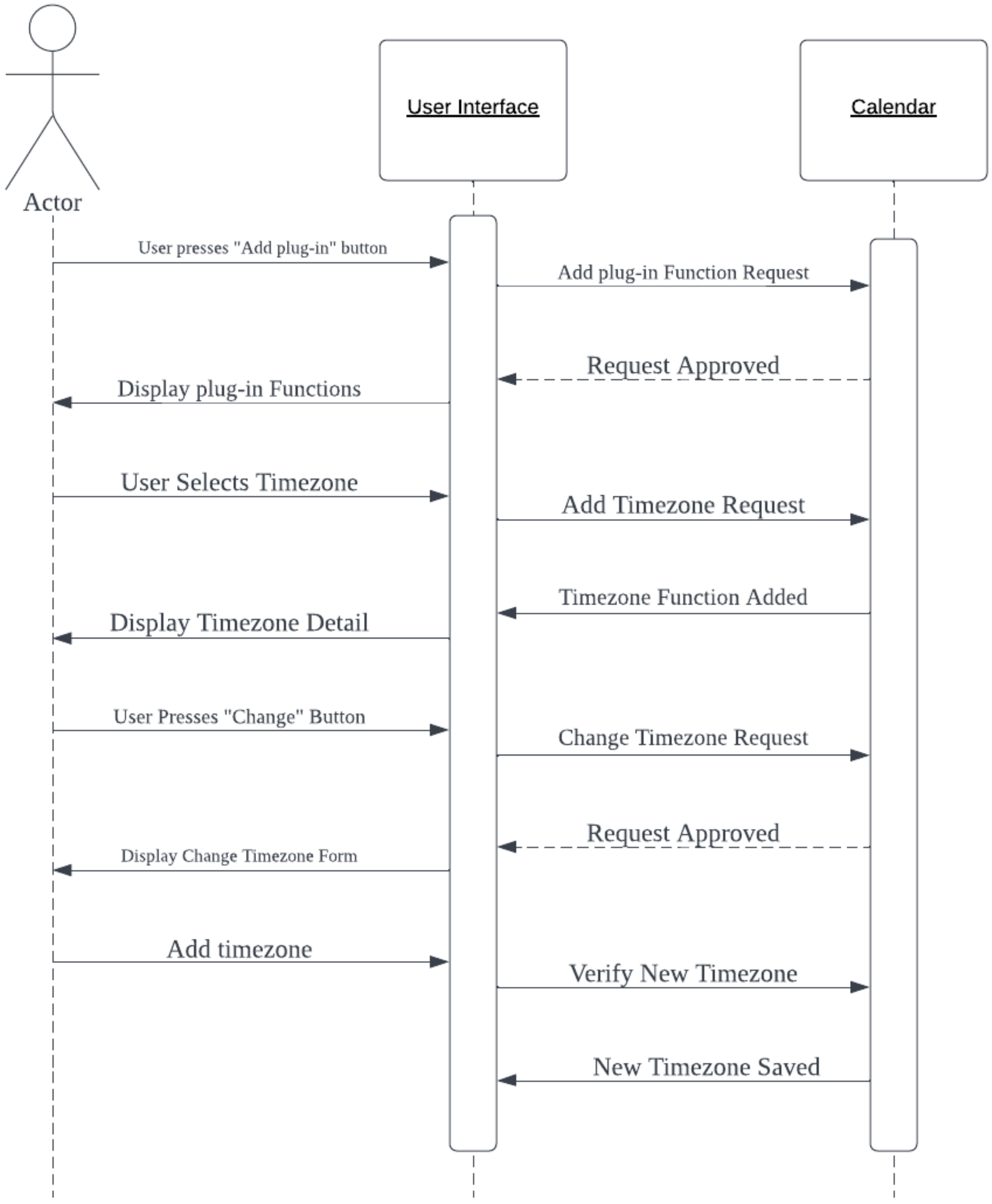
Sort Event


Actor
User Interface
Calendar
User Selects To-do List
Display To-do List Request
Request Approved
Display To-do List
User Presses "Sort" Button
Sort Event Request
Request Approved
Display Sort Event Form
Alternative
[If sort by priority]
User selects priority
Sort by priority request
Events are sorted by priority
[Else]
User selects time
Sort by time request
Events are sorted by time

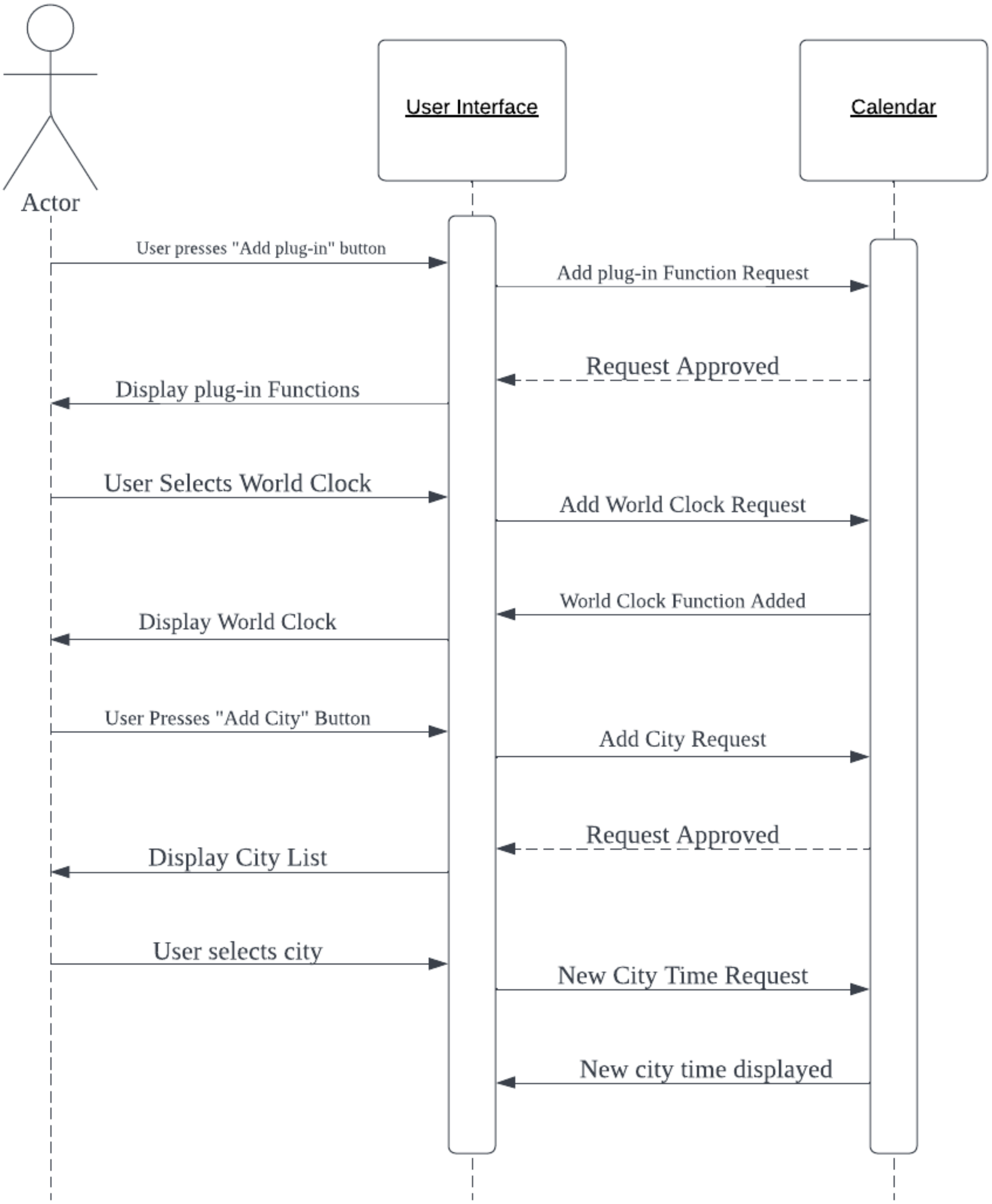
Change Event



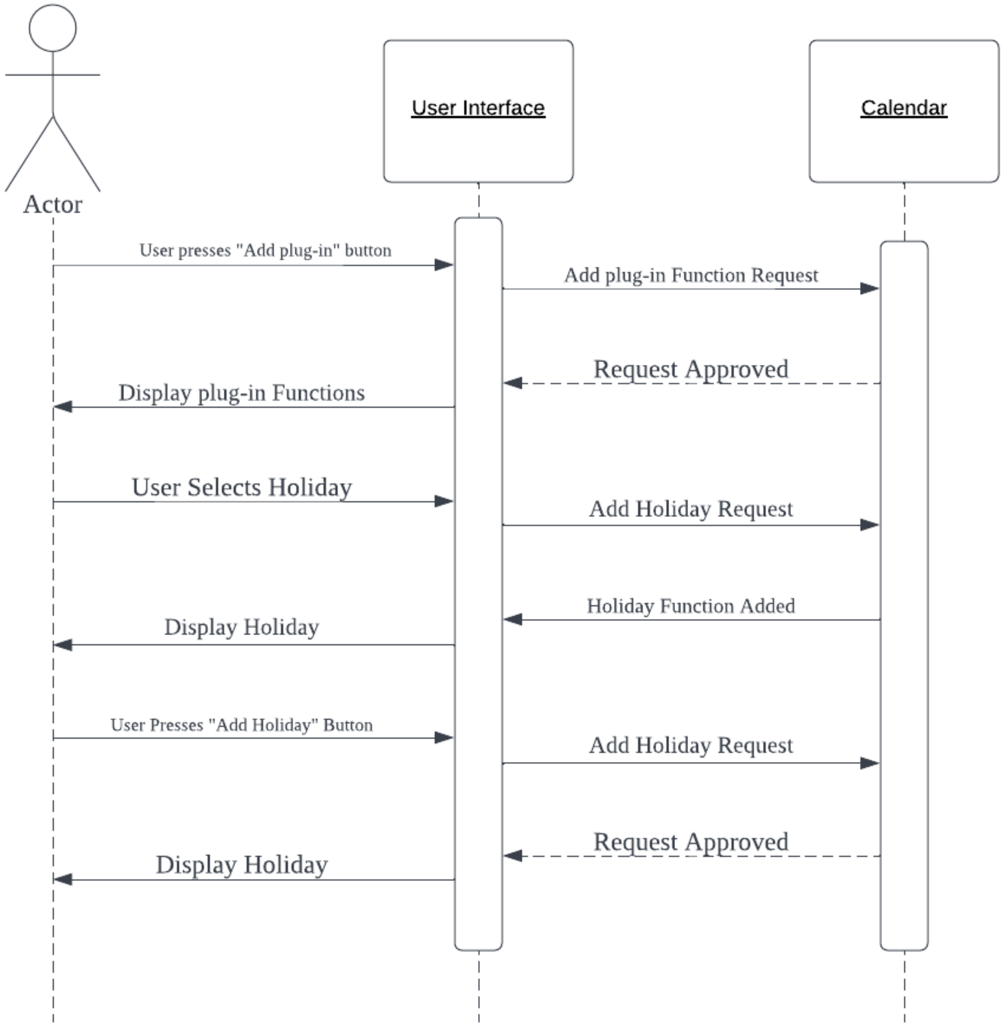
Change Timezone



Show World Clock

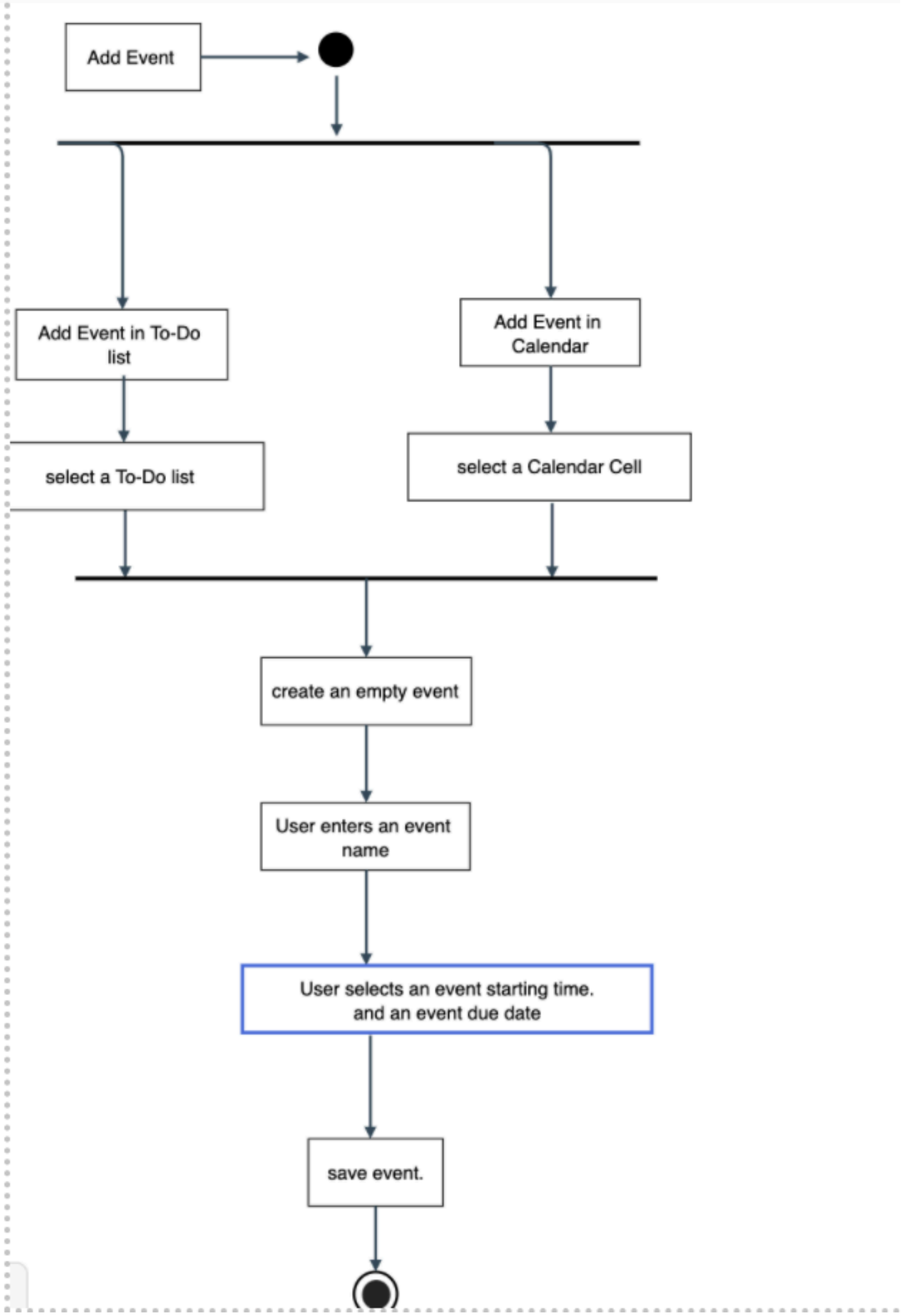


Show Holiday

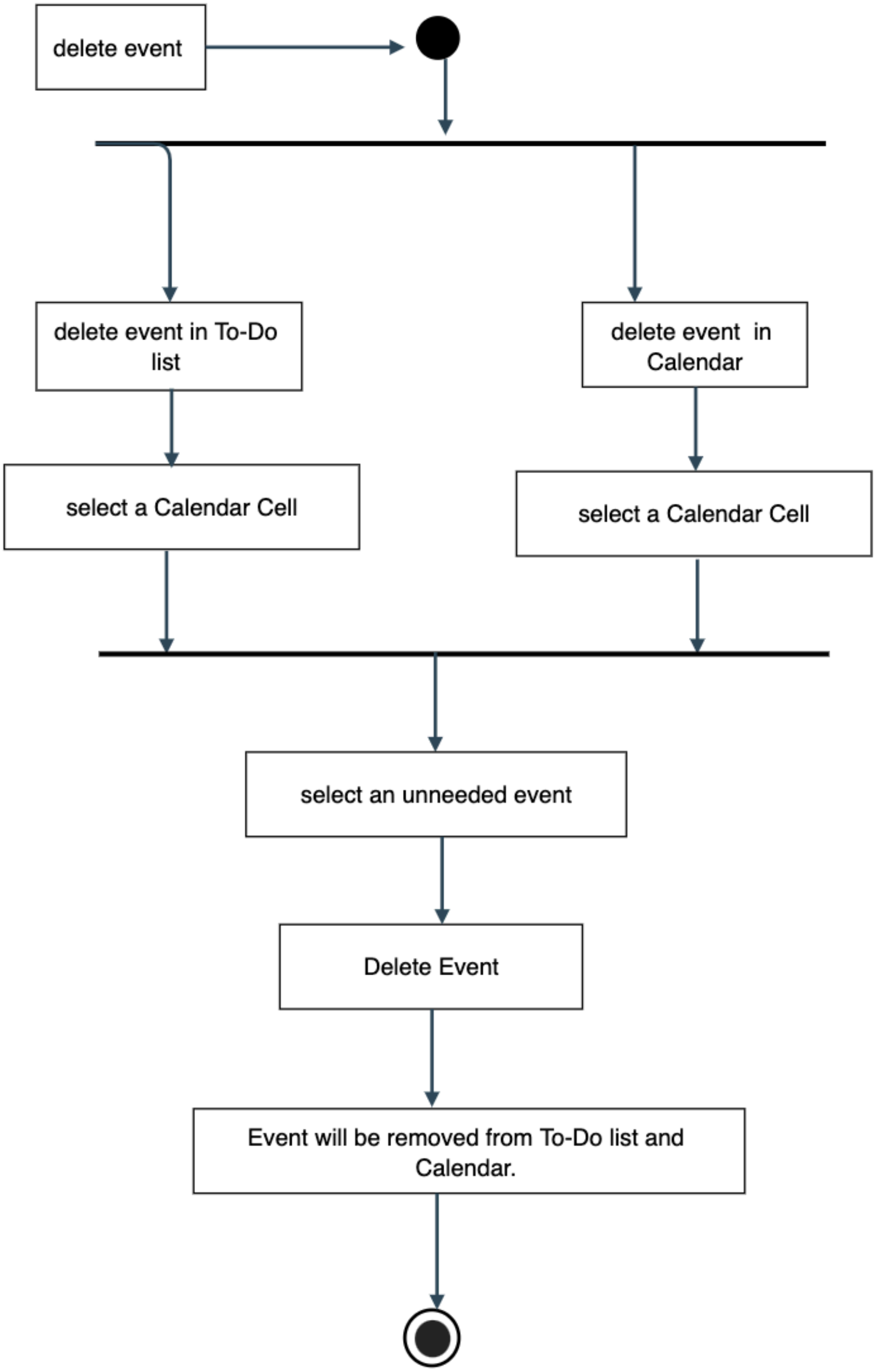


■ Activity diagrams

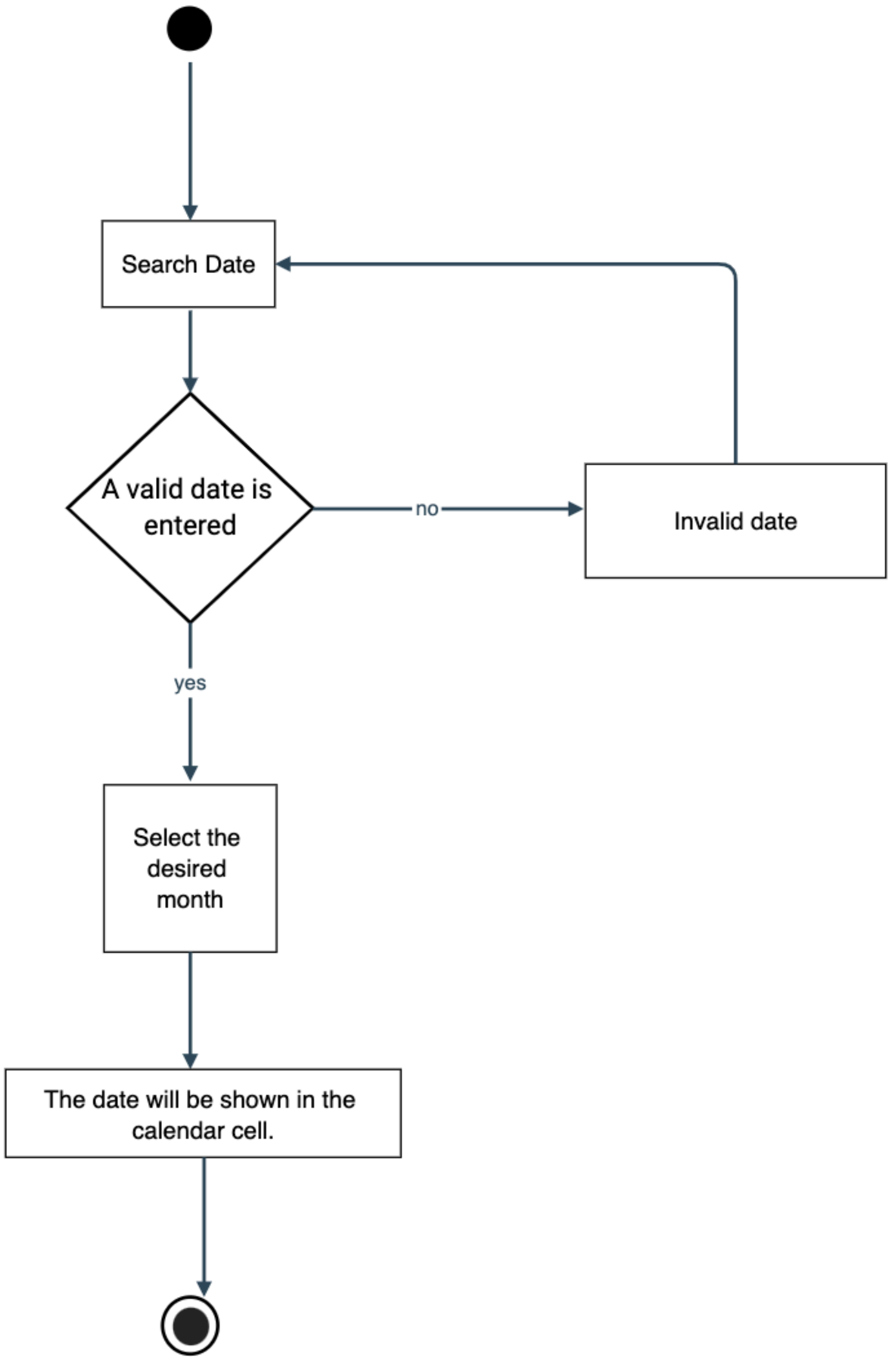
Add event



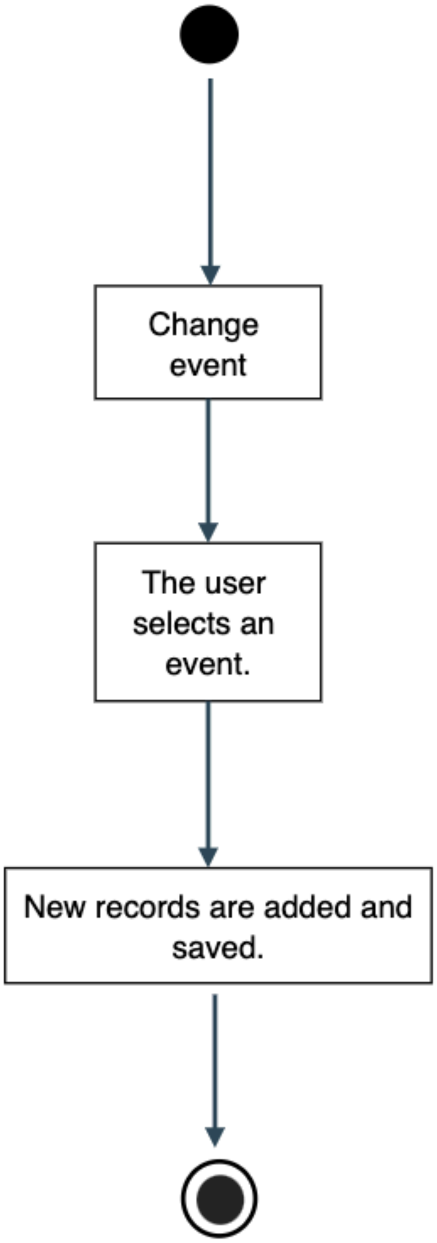
Delete event



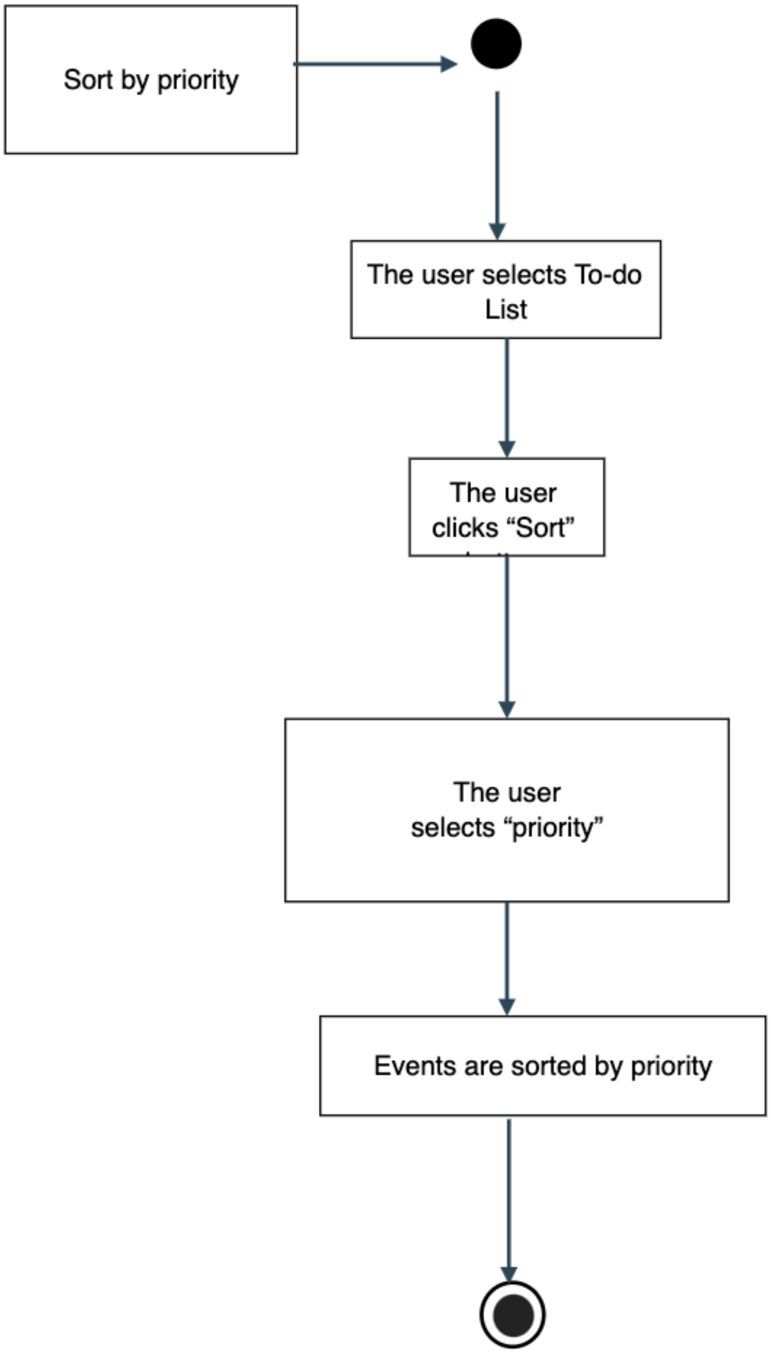
Search Date


Search Date
A valid date is entered
no
Invalid date
yes
Select the desired month
The date will be shown in the calendar cell.

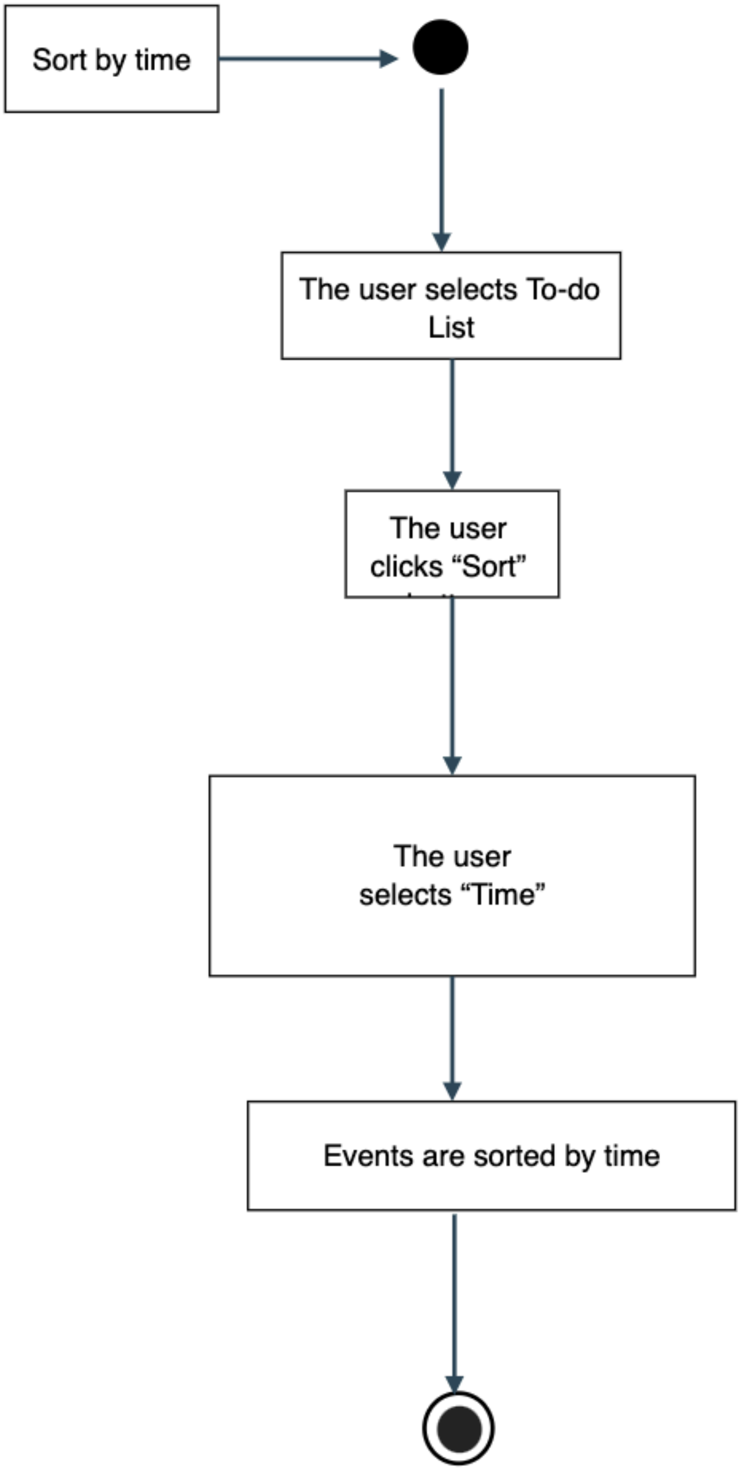
Change event



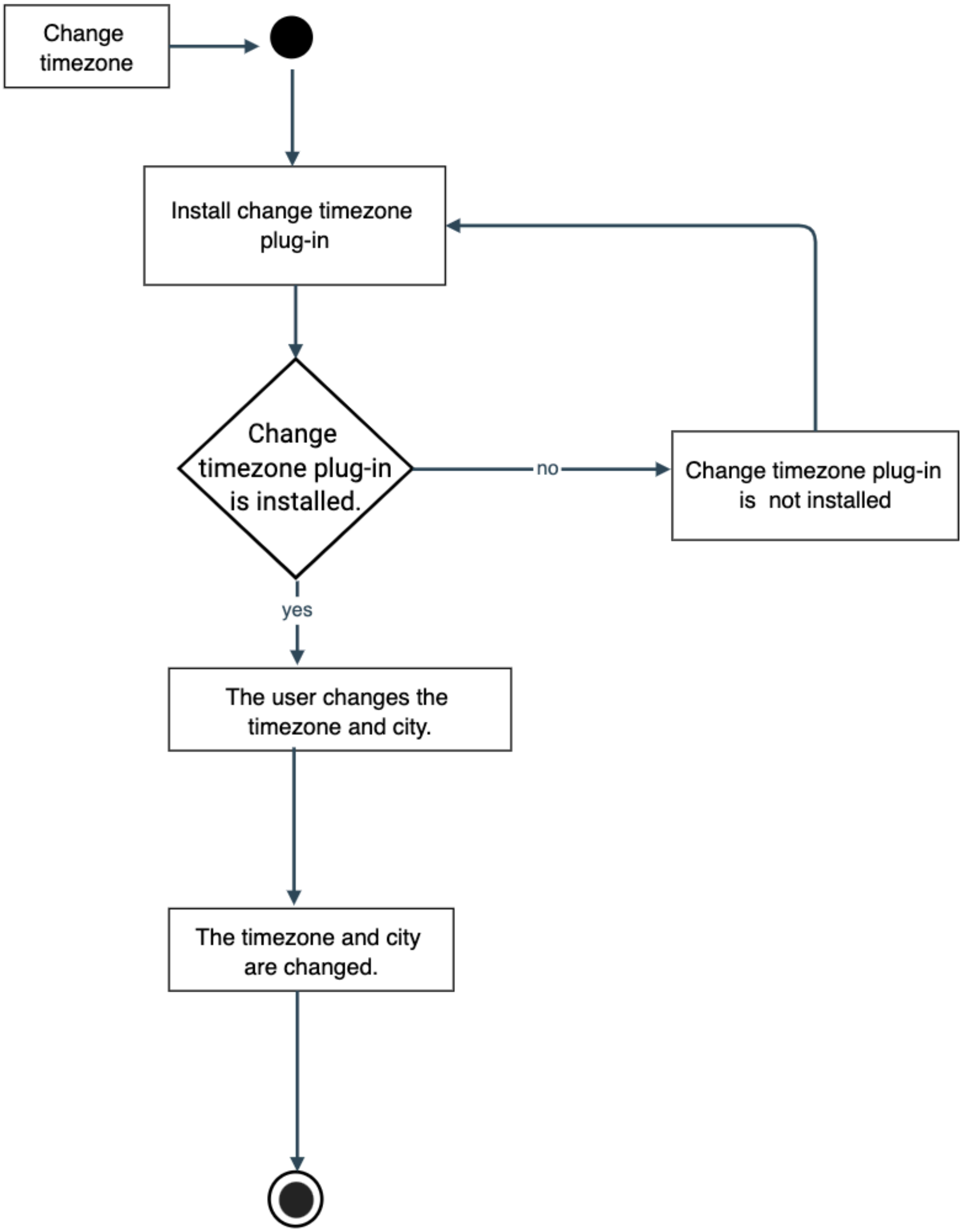
Sort by priority


Sort by priority
The user selects To-do List
The user clicks "Sort"
The user selects "priority"
Events are sorted by priority

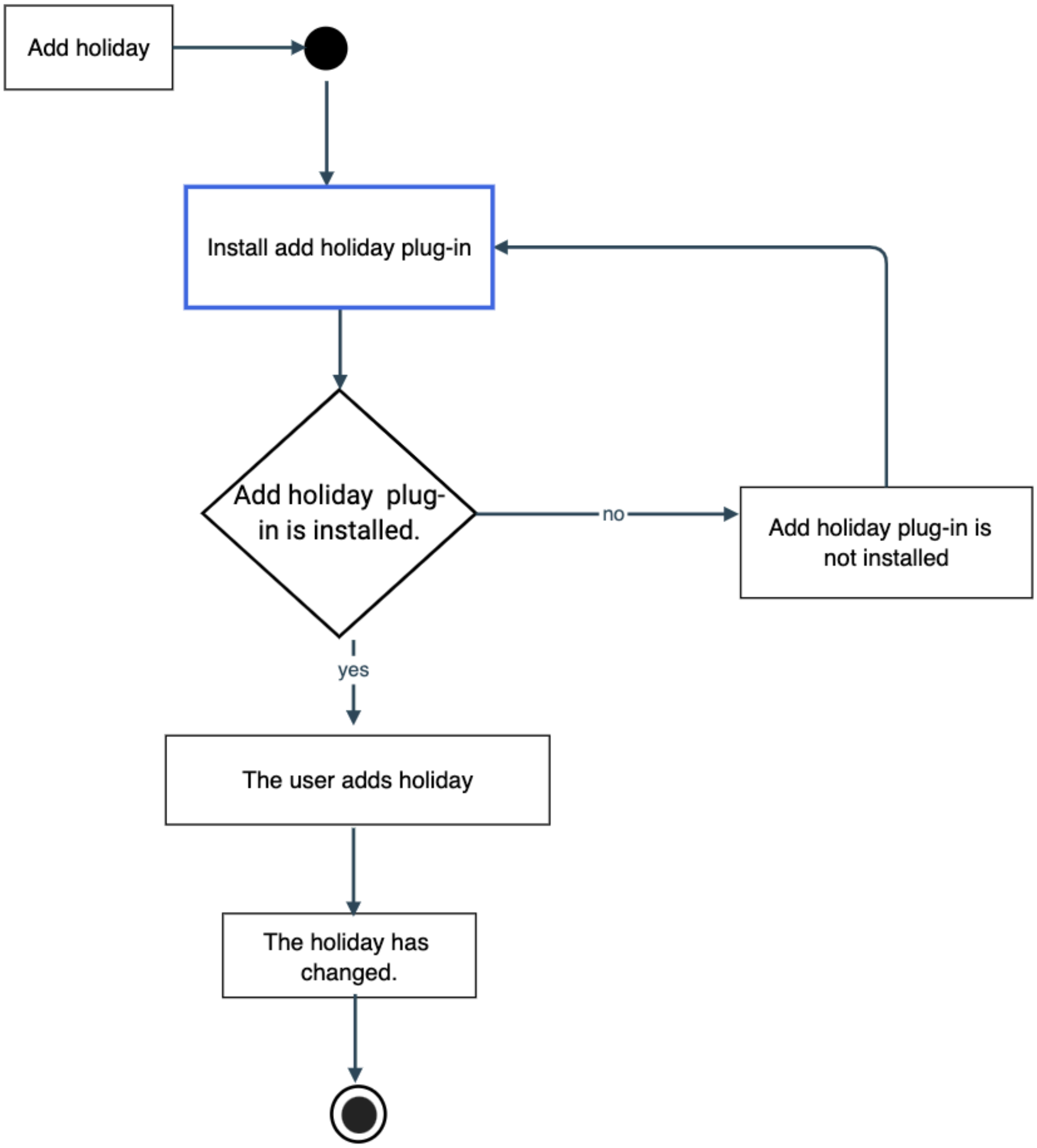
Sort by time


Sort by time
The user selects To-do List
The user clicks "Sort"
The user selects "Time"
Events are sorted by time

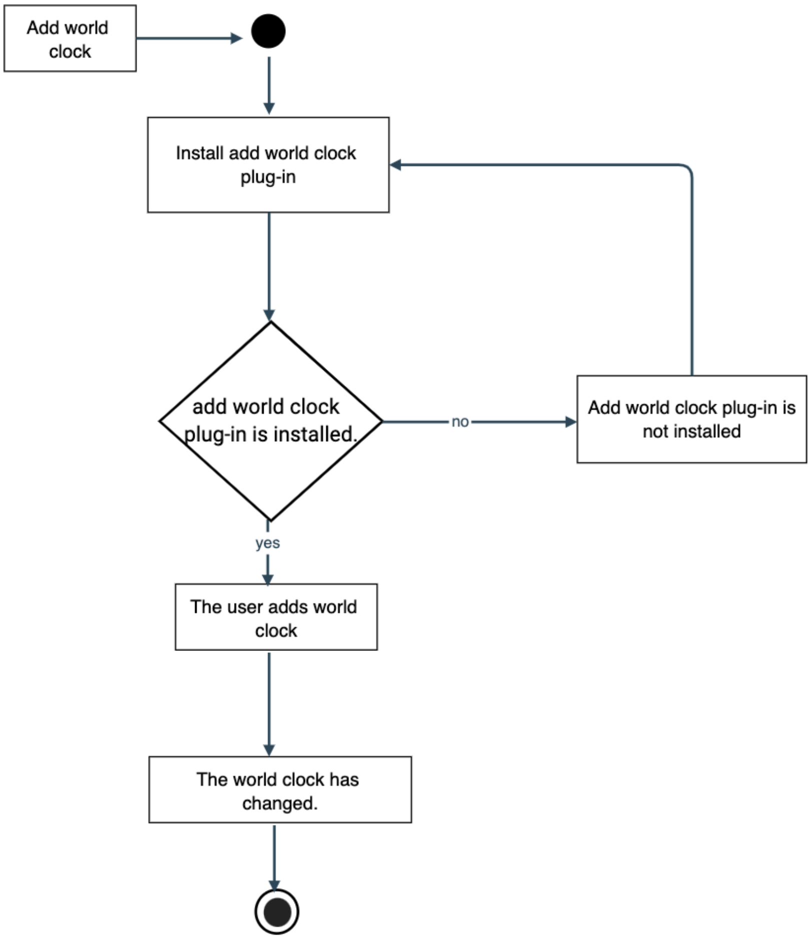
Change time zone


Change timezone
Install change timezone plug-in
Change timezone plug-in is installed.
no
Change timezone plug-in is not installed
yes
The user changes the timezone and city.
The timezone and city are changed.

Add holiday


Add holiday
Install add holiday plug-in
Add holiday plug-in is installed.
no
Add holiday plug-in is not installed
yes
The user adds holiday
The holiday has changed.

Add world clock

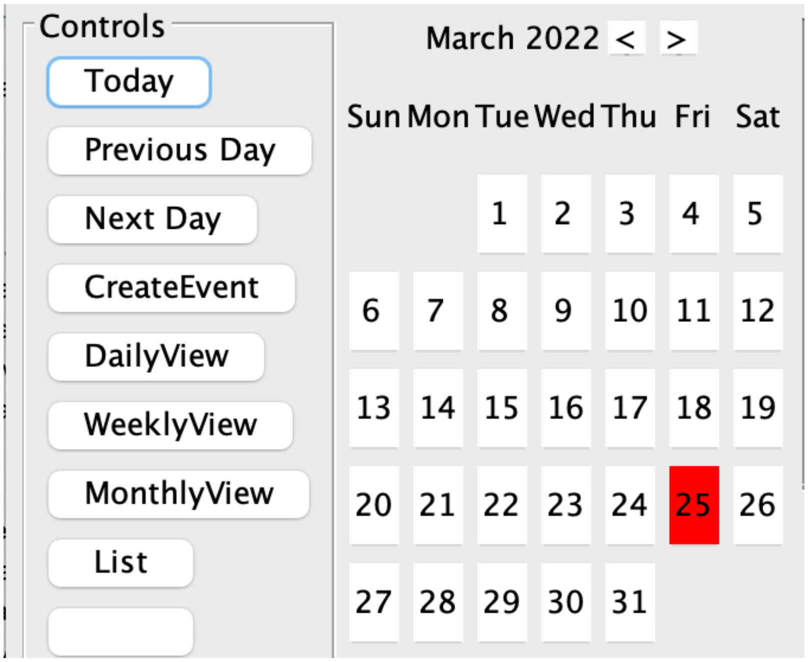

Add world clock
Install add world clock plug-in
add world clock plug-in is installed.
no
Add world clock plug-in is not installed
yes
The user adds world clock
The world clock has changed.

10. Human Interface Design

■ Screen images, screen objects and actions, and textual description

Here is control panel of Calender317, user clicks the specific day to select day, the left and right bottom on the right of "March 2022" is used for switch one month before or after the selected month. The default day selected or marked as red is the current date in the system.

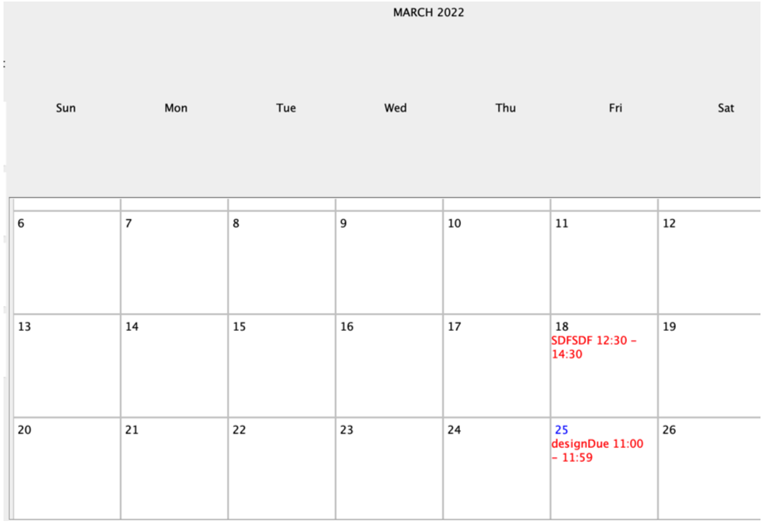
Today button is used for jumping to the current day, "Precious Day" and "Next Day" button is used for switch one day before or after the selected day which marked as red in the control panel.



Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

DailyView, WeeklyView, MonthlyView List is four views in the calendar.

Belowed diagram is an example of monthlyView, it is a form showing how the event be arranged



Sun	Mon	Tue	Wed	Thu	Fri	Sat
6	7	8	9	10	11	12
13	14	15	16	17	18 SDFSDF 12:30 – 14:30	19
20	21	22	23	24	25 designDue 11:00 – 11:59	26

11. Appendices

■ Setup and configuration

Calendar317 used Java GUI and the implemented classes are executed as a jar file and it is runnable in both Windows and Mac.