

CS GROUP 47



Food For ALL

Donate • Spread Love • Volunteer

SYSTEM REQUIREMENTS SPECIFICATION

SCS 2202 - Group Project 1



TABLE OF CONTENTS

1.	Introduction.....	1
1.1.	Purpose	1
1.2.	Problem Domain	1
1.3.	Current Solution	2
1.4.	Limitations of the Current Solution	2
1.5.	Proposed Solution	2
1.6.	Goals and Objectives.....	3
1.6.1.	Objectives	3
1.6.2.	Scope.....	4
1.6.2.1.	Users	4
1.6.2.2.	In Scope	4
1.6.2.3.	Out of scope	5
2.	Overall Description	5
2.1.	Product perspective	5
2.2.	Product feature summary	7
2.3.	Operating Environment	7
2.3.1.	User environment.....	7
2.3.2.	Server Environment	7
2.4.	Project constraints	7
2.5.	Assumptions and Dependencies.....	8
2.5.1.	Assumptions.....	8
2.5.2.	Dependencies	8
3.	Project Feasibility	8
3.1.	Social feasibility.....	8
3.2.	Technical feasibility	10
3.3.	Operational feasibility	11
3.4.	Economic feasibility.....	12

3.5.	Legal and ethical feasibility	12
3.5.1.	Licensing and attribution	12
3.5.2.	Data handling	13
3.5.3.	Transparency	13
3.5.4.	Schedule feasibility	13
4.	Requirements	14
4.1.	Stakeholders	14
4.1.1.	General Public	14
4.1.2.	Charity Organizations	14
4.1.3.	Area Coordinators	15
4.2.	Use Cases and Use Case Diagrams	16
4.3.	Use Case Narratives	22
4.4.	Functional Requirements	45
4.4.1.	Donating	45
4.4.2.	Volunteering	45
4.4.3.	Charity Organizations	46
4.4.4.	Events	46
4.4.5.	System or admin	46
4.5.	Activity diagrams	48
4.5.1.	View home page	48
4.5.2.	Add reviews / complaints	49
4.5.3.	View contact details	50
4.5.4.	Donate	51
4.5.5.	Send request to volunteer	52
4.5.6.	View volunteering request status	53
4.5.7.	Receive notification regarding the states of the request	54
4.5.8.	View activity log	55

4.5.9.	Add event	56
4.5.10.	Maintain vital organization information	57
4.5.11.	View dashboard.....	58
4.5.12.	Add family/ individuals.....	59
4.5.13.	Remove or Update family/individual details	60
4.5.14.	Manage available families.....	61
4.5.15.	View family details	62
4.5.16.	Sign up.....	63
4.5.17.	Approve or reject volunteer requests	64
4.5.18.	View donated cash	65
4.5.19.	Send notifications to registered users.....	66
4.5.20.	Enter area coordinator details.....	67
4.5.21.	Respond to reviews	68
4.5.22.	Delete users	69
4.5.23.	Sign in	70
4.5.24.	Update user profile	71
4.5.25.	Change password.....	72
4.5.26.	Reset password.....	73
4.5.27.	View user profiles	74
4.5.28.	View dashboard.....	75
4.5.29.	View users involved in an event	76
4.5.30.	Post photos and information on events	77
4.5.31.	View Events page.....	78
4.5.32.	Visit the shop.....	79
4.5.33.	View calendar.....	80
4.5.34.	View certificates.....	81
4.5.35.	View reminders	82

4.5.36.	View leaderboard	83
4.5.37.	Mark interested events	84
4.5.38.	Buy merchandise	85
4.5.39.	Pay subscription fee	86
4.5.40.	View reports	87
4.5.41.	Delete event.....	88
4.5.42.	Post the event	89
4.5.43.	Respond to the budget relevant to an event.....	90
4.5.44.	Create budget.....	91
4.5.45.	Mark attendance of the volunteers	92
4.5.46.	Edit event details	93
4.5.47.	Subscribe to the newsletter.....	94
4.5.48.	Add event manager.....	95
4.5.49.	Create food pack.....	96
4.5.50.	Create food pack.....	97
4.6.	Quality attributes	98
4.6.1.	Security	98
4.6.2.	Modifiability	98
4.6.3.	Availability	99
4.6.4.	Performance and Reliability	100
4.6.5.	Usability	100
5.	System Architecture.....	101
5.1.	High-level Architecture.....	101
5.2.	System Architectural Structure	102
5.3.	System Components.....	103
5.3.1.	Component Diagram.....	103
5.3.2.	Component Description	104

6.	System Design	106
6.1.	Class Diagram	106
6.2.	Entity Relationship Diagram	108
6.3.	Sequence Diagrams	109
6.3.1.	User Authentication	109
6.3.1.1.	Sign in	109
6.3.1.2.	Reset password	110
6.3.1.3.	Update user profile	111
6.3.1.4.	Sign up	112
6.3.2.	Guest User.....	113
6.3.2.1.	View homepage	113
6.3.2.2.	View events.....	114
6.3.2.3.	Filter and select events	115
6.3.2.4.	View event details.....	116
6.3.2.5.	View organization details.....	116
6.3.2.6.	View contact details.....	117
6.3.2.7.	Visit the shop	118
6.3.2.8.	View past events	119
6.3.2.9.	View upcoming events.....	120
6.3.3.	Registered user	121
6.3.3.1.	Volunteering process.....	121
6.3.3.2.	Donating process.....	122
6.3.3.3.	View calendar.....	123
6.3.3.4.	View activity log.....	124
6.3.3.5.	Buy merchandise.....	125
6.3.3.6.	Add review	126
6.3.3.7.	View certificates.....	126
6.3.3.8.	View reminders.....	127
6.3.3.9.	View leaderboard.....	127
6.3.3.10.	Mark interested events.....	128
6.3.4.	System admin.....	129
6.3.4.1.	Create accounts	129
6.3.4.2.	Respond to budget plan.....	130
6.3.4.3.	Delete user	131

.....	131
6.3.4.4. View user profiles	132
6.3.4.5. View dashboard	133
6.3.5. Event manager	134
6.3.5.1. View family details	134
6.3.5.2. Create budget	135
6.3.5.3. Post the event.....	136
6.3.5.4. Mark the attendance.....	137
6.3.5.5. Edit event.....	138
6.3.5.6. View dashboard	139
6.3.6. Area coordinator	140
6.3.6.1. Enter family details.....	140
6.3.6.2. Remove details	141
6.3.6.3. Update family details	142
6.3.7. Organization admin.....	143
6.3.7.1. Add event.....	143
6.3.7.2. Create accounts for the event manager	144
6.3.7.3. Approve/Reject volunteering request	145
6.3.7.4. View cash donations.....	146
6.3.7.5. Create food packs	147
6.3.7.6. Pay subscription fee	148
6.3.7.7. View report.....	149
6.3.7.8. Respond to reviews and complains	150
6.3.7.9. Delete event.....	151
6.4. State Transition Diagrams.....	152
6.5. UI flows.....	155
6.5.1. Guest User.....	155
6.5.2. Organizations and Area coordinator	156
6.6. UI mockups	157
6.6.1. User Selection	157
6.6.2. Login (All users)	157
6.6.3. User Registration	158
6.6.4. User edits profile information.....	158

6.6.5.	Leaderboard	159
6.6.6.	User changes password.....	159
6.6.7.	User profile	160
6.6.8.	User view event page	162
6.6.9.	General home page	163
6.6.10.	User browses organizations.....	165
6.6.11.	User view Organization merchandise shop	166
6.6.12.	Organization admin edits profile information.....	167
6.6.13.	Organization admin adds new events.....	167
6.6.14.	Organization merchandise store	168
6.6.15.	Edit Store items	169
6.6.16.	Organization Admin view and reply to reviews.....	170
6.6.17.	Organization admin adds and view Event managers	171
6.6.18.	Organization Profile	172
6.6.19.	Area coordinator adds family details	174
6.6.20.	Area coordinator view family details	175
6.6.21.	Event manager views appointed events	175
6.6.22.	Event manager gets volunteer attendance	177
6.6.23.	Event page (for event manager)	178

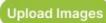
 Home Event Managers Shop 

Organization Name

Event name

Event manager
Jagath Chamila

Add Description

Add Images 





Event details

District : Gampaha Edit

City : Ja-Ela

Total no of recipient :

Date : 20/11/2022 Time : 10:00 AM

Set volunteer Level

Total Volunteers:

Mild

This Is Easy volunteer level description

Task 1
Task 2

Amount

Moderate

This Is Matured volunteer level description

Task 1
Task 2

Amount

Heavy

This Is Hard volunteer level description

Task 1
Task 2

Amount

178

- 6.6.24. System admin adds and views area coordinators 180
- 6.6.25. System admin views users 181
- 6.6.26. System admin views and responds to the budget 181

6.6.27. System admin views events	182
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TABLE OF FIGURES

Figure 1 Interest of donating items for poor people	9
Figure 2 Passion of donating and volunteering.....	9
Figure 3 Willingness of using online platform	10
Figure 4 Willing of donate through the online platform.....	10
Figure 5#Usecase# Guest view	16
Figure 6# Use case # Authentication Module.....	17
Figure 7#Usecase diagram # Registered user view#	18
Figure 8#Usecase diagram # Area coordinator.....	19
Figure 9# Use case diagram # Organization Admin view#	20
Figure 10# Use case # System Admin view#	21
Figure 11# Use case # Event manager view#	22
Figure 12#Activity diagram # View homepage#.....	48
Figure 13#Activity diagram # Add reviews/complaints#.....	49
Figure 14#Activity diagram # View contact details#	50
Figure 15#Activity diagram # Donate#	51
Figure 16#Activity diagram # Send request to volunteer#	52
Figure 17#Activity diagram # View volunteer request status#	53
Figure 18#Activity diagram # Receive notification regarding the status of the request#	54
Figure 19#Activity diagram # View activity log#	55
Figure 20#Activity diagram # Add event#	56
Figure 21#Activity diagram # Maintain vital organization information#	57
Figure 22#Activity diagram # View dashboard#.....	58
Figure 23#Activity diagram # Add family/ individuals#.....	59
Figure 24#Activity diagram # Remove or Update family/individual details#	60
Figure 25#Activity diagram # Manage available families#.....	61
Figure 26#Activity diagram # View family details#	62
Figure 27#Activity diagram # Sign up#.....	63

Figure 28#Activity diagram # Approve or reject volunteer requests#	64
Figure 29#Activity diagram # View donated cash#	65
Figure 30#Activity diagram # Send notifications to registered users#.....	66
Figure 31#Activity diagram #Enter the area coordinators details#	67
Figure 32#Activity diagram # Respond to reviews#	68
Figure 33#Activity diagram # Delete user#.....	69
Figure 34#Activity diagram # Sign in#	70
Figure 35#Activity diagram # Update user profile#	71
Figure 36#Activity diagram #Change password#.....	72
Figure 37#Activity diagram #Reset password#	73
Figure 38#Activity diagram # View user profile#	74
Figure 39#Activity diagram # View dashboard#.....	75
Figure 40#Activity diagram # View users involved in an event#	76
Figure 41#Activity diagram # Post photo and information on events#	77
Figure 42#Activity diagram # View event page#	78
Figure 43#Activity diagram #Visit the shop#.....	79
Figure 44#Activity diagram # View calendar#.....	80
Figure 45#Activity diagram # View certificate#	81
Figure 46#Activity diagram # View reminders#	82
Figure 47#Activity diagram # View leader board#	83
Figure 48#Activity diagram # Mark interested events#	84
Figure 49#Activity diagram # Buy merchandise#	85
Figure 50#Activity diagram # Pay subscription fee#	86
Figure 51#Activity diagram # View report#.....	87
Figure 52#Activity diagram # Delete event#.....	88
Figure 53#Activity diagram # Post the event#	89
Figure 54#Activity diagram # Respond to the budget relevant to an event#.....	90
Figure 55#Activity diagram # Create budget#.....	91
Figure 56#Activity diagram # Mark attendance of the volunteer#.....	92
Figure 57#Activity diagram # View Edit event details#	93
Figure 58#Activity diagram # Subscribe to the newsletter#.....	94
Figure 59#Activity diagram # Add event manager#.....	95
Figure 60#Activity diagram # Create food pack#.....	96
Figure 61#Activity diagram # Create food pack#.....	97

Figure 62#UImockups#User Selection#	157
Figure 63#UImockups#Login (All users) #	157
Figure 64#UImockups#User Registration#	158
Figure 65#UImockups#User edit profile information#	158
Figure 66#UImockups#Leaderboard#	159
Figure 67#UImockups#User changes password#	159
Figure 68#UImockups#User profile-part1 #.....	160
Figure 69#UImockups#User profile-part2 #.....	161
Figure 70#UImockups#User visits event page #	162
Figure 71#UImockups#General home page part1 #	163
Figure 72#UImockups#General home page part2 #	164
Figure 73#UImockups#User browses organizations #	165
Figure 74#UImockups#User views organization merchandise shop #.....	166
Figure 75#UImockups#Organization admin edits profile information #	167
Figure 76#UImockups#Organization admin adds new events #	167
Figure 77#UImockups#Organization merchandise store #.....	168
Figure 78#UImockups#Edit store items#	169
Figure 79#UImockups#Organization admin views and reply to reviews #.....	170
Figure 80#UImockups#Organization admin adds and views event managers #	171
Figure 81#UImockups#Organization profile part1 #.....	172
Figure 82#UImockups#Organization profile part2 #.....	173
Figure 83#UImockups#Area coordinator adds family details #	174
Figure 84#UImockups#Area coordinator views family details #	175
Figure 85#UImockups#Event manager views appointed events part1 #.....	175
Figure 86#UImockups#Event manager views appointed events part2 #.....	176
Figure 87#UImockups#Event manager gets volunteer attendance #.....	177
Figure 88#UImockups#Event page part1 #	178
Figure 89#UImockups#Event page part2 #	179
Figure 90#UImockups#System admin adds views area coordinators#	180
Figure 91#UImockups#System admin views users#	181
Figure 92#UImockups#System admin views and responds to the budget#	181
Figure 93#UImockups#System admin views events #	182

LIST OF TABLES

Table 4-1# Use case Narratives # View homepage #	22
Table 4-2# Use case Narratives # Add reviews/complaints#	23
Table 4-3# Use case Narratives #View contact details#.....	23
Table 4-4# Use case Narratives #Donate#.....	23
Table 4-5# Use case Narratives #Send request to volunteer#.....	24
Table 4-6# Use case Narratives #View volunteering request status#.....	24
Table 4-7# Use case Narratives #Receive notification regarding the status of a request#	25
Table 4-8# Use case Narratives #View activity log#.....	25
Table 4-9# Use case Narratives #Add event#.....	26
Table 4-10# Use case Narratives #Maintain virtual organization information#.....	26
Table 4-11# Use case Narratives #View dashboard#	27
Table 4-12# Use case Narratives #Add family/ individuals#	27
Table 4-13# Use case Narratives #Remove or update family/ individual details#.....	28
Table 4-14# Use case Narratives #Manage available families#	28
Table 4-15# Use case Narratives #View family details#.....	29
Table 4-16# Use case Narratives #Sign up#	29
Table 4-17# Use case Narratives #Approve or reject volunteer requests#	29
Table 4-18# Use case Narratives #View donate cash#	30
Table 4-19# Use case Narratives #Send notification to registered users#.....	30
Table 4-20# Use case Narratives #Enter area coordinator details#	31
Table 4-21# Use case Narratives #Respond to reviews#.....	31
Table 4-22# Use case Narratives #Delete users#.....	31
Table 4-23# Use case Narratives #Sign in#	32
Table 4-24# Use case Narratives #Update user profile#	32
Table 4-25# Use case Narratives #Change password#	33
Table 4-26# Use case Narratives #Reset password#	33
Table 4-27# Use case Narratives #View user profiles#.....	34
Table 4-28# Use case Narratives #View dashboard#	34
Table 4-29# Use case Narratives #View users involved in an event#	35
Table 4-30# Use case Narratives #Post photos and information on event#	35
Table 4-31# Use case Narratives #View event page#	36

Table 4-32# Use case Narratives #Visit the shop#	36
Table 4-33# Use case Narratives #View calendar#	37
Table 4-34# Use case Narratives #View certificate#.....	37
Table 4-35# Use case Narratives #View reminders#.....	37
Table 4-36# Use case Narratives #View leaderboard#.....	38
Table 4-37# Use case Narratives #Mark interested events#	38
Table 4-38# Use case Narratives #Buy merchandise#	39
Table 4-39# Use case Narratives #Pay subscription fee#	39
Table 4-40# Use case Narratives #View report#	40
Table 4-41# Use case Narratives #Delete event#	40
Table 4-42# Use case Narratives #Post the event#	41
Table 4-43# Use case Narratives #Respond to the budget relevant to an event#	41
Table 4-44# Use case Narratives #Create budget#	42
Table 4-45# Use case Narratives #Mark attendance of the volunteer#	42
Table 4-46# Use case Narratives #Edit event details#.....	43
Table 4-47# Use case Narratives #Subscribe to the newsletter#	43
Table 4-48# Use case Narratives #Add event manager#	43
Table 4-49# Use case Narratives #Create food pack#	44
Table 4-50# Use case Narratives #Create food pack#	44

1. Introduction

1.1.Purpose

The purpose of the project is to build a platform to encourage and create a link between the charity organizations conducting food donation programs and individuals who're interested in donating cash and volunteering in food donation events in an organized manner, thereby reducing the shortage of food among poor people in Sri Lanka.

1.2.Problem Domain

According to the World Food Programme , more than 6 million people, nearly 30 percent of the Sri Lankan population, are currently suffering from huge food-insecure and require humanitarian assistance. The International Federation of Red Cross and Red Crescent (IFRC) has informed that the economic crisis in the country drastically increased the charitable works throughout the country to help the millions of people who suffer from the shortage of foods, cooking gas, medicine, and fuels.

There are numerous charity-based organizations all over the island who can address this problem. However, most of these events don't have a proper platform to integrate all the related activities such as organize their distribution processes, collect, and manage funds and a transparent mechanism to identify needy families, and raise public awareness on such charity works. Therefore, these event organizers perform the above-mentioned processes through various social media. Still, that process has lots of issues, such as trustworthiness of the system, poor structuring, lack of evidence on the activities and it consumes a lot of time to select the most appropriate one based on requirements.

It's crucial to have a solid platform to execute these things easily and systematically. So, people who are ready to contribute to philanthropic activities can cooperate with it in an effective way and so that they can help the people who're in need of food.

1.3.Current Solution

Nowadays, a lot of organizations manage their online fundraising and volunteer programs through their websites or social media profiles. These factors won't directly link someone who is interested in volunteering or donating with the charitable organizations due to the trustworthy issues. Additionally, the organizations' current ways of carrying out these activities are ineffective for reaching out to the public.

1.4.Limitations of the Current Solution

The background information we obtained revealed some significant flaws and limits in the current systems.

- No direct connection between organizations and interested people.
- Processes within the organizations are less transparent.
- Less convenient for users and organizations.
- Doesn't efficiently inspire or encourage the public in donating and volunteering processes.
- Lack of an effective way to look up for charities where people can donate or volunteer.
- Inability to obtain verified information of needy families in a systematic manner.

1.5.Proposed Solution

The “**FoodForAll**” is a web-based application where charitable communities and organizations around the island get a space to showcase their events to the public. Once an organization gets registered, it can get the necessary cash donations and volunteers for preparing meals depending on their requirements. In addition to that, these organizations can get a verified list of needy people through the connection we established with the area coordinators for selected areas, who are known as “the Grama Niladari”. It helps to identify the needed family and their food requirements to support them based on their family background considering the number of children, number of senior citizens etc. Because the items that are needed for children differ from the senior ones and to tackle that we need to have some background information on the families. The application allows people who are willing to participate with the charitable events as a volunteer with different filtering based techniques

such as the upcoming events sorted in date, location, volunteering level and organization and organization hosting the event.

Anyone who visits the website as an unregistered or guest user has access to the details of these organizations and can view the events under the events section. Users can get registered to the system, and he/she has a feature to mark the events as interesting, then it'll appear in the calendar relevant to his profile with its details. Each organization will list down their donation and volunteering activities in the events section and depending on the registered user preferences they can enroll with them until it satisfies their required amount. Through this, these organizations can gain social recognition for their work and easily promote them. Each organization can analyze a summary of the events' details via reporting features through the system. Additionally, those who offer to help with voluntary activities can choose their type of volunteering from volunteer categories according to their workload preference and they'll be notified when the event holding date is getting closer. Donors and volunteers will be encouraged to donate more by issuing a certificate to appreciate their work. The Organization's budget for each event will be monitored by the system admin which will increase the system's transparency and each organization has a feature to create item packs they'll be donating according to their preference and content and cost for each package also will be monitored by the system.

1.6. Goals and Objectives

Our main goal is to establish a web-based platform for organizations that are willing to contribute food to the needy so that they can plan their voluntary activities in an effective and appealing manner. To facilitate that goal our proposed solution will create a place where those who are willing to engage with volunteering and donations can easily register and engage in the selected charity event.

1.6.1. Objectives

- Identify requirements and create a web-based application.
- Gain more trust from donors by making it simple for them to donate to any organization they choose and providing them with a single location to find out how their money will be utilized by that organization.

- Make it simpler for organizations to find new volunteers and donors.
- Provide the data and information needed to distribute goods more equitably and efficiently among people.
- Learn technologies and improve soft skills.

1.6.2. Scope

1.6.2.1. Users

- Guest user
- Registered user
- Organization admin
- Event manager
- Area coordinator
- System admin

1.6.2.2. In Scope

- Create a platform to advertise upcoming charitable activities in charitable organizations.
- Create a platform to volunteer and donate by filtering events based on user's preference.
- Create an interface to view upcoming events and their brief information.
- Create an interface to view information on past activities by maintaining a gallery.
- Create an interface for users to participate in donating and volunteering.
- Create an interface to maintain the activity log connected with each user's profile.
- Register organizations after verifying their legality.
- Providing terms and conditions for each organization as an agreement between the system and the organization.

- Each organization may maintain a shop for selling merchandise.
- Maintaining a shopping cart to manage buying merchandise.
- Maintaining a calendar in the user's profile displaying the upcoming activities and activities interested by the user.
- Users can get registered and subscribe for a newsletter.
- Make donations through monetary transactions.
- Volunteer in charitable events based on the preference of the workload distribution.(mild, moderate, heavy)
- Issue certificates to volunteers as an appreciation.
- Creating item packs based on the sole preference of each organization.
- Creating a budget for each event and sending it to the system admin.
- Requesting acceptance for created item pack.
- Accepting or rejecting the budget evaluated for each event.
- Registered or guest users can give their reviews or complaints through the website.
- Each organization can view a statistical report of their organization including a summary of details of the events held.
- Send notifications to registered users, organizations, and area coordinators.
- Maintaining a leaderboard for ranking purposes of users based on their role as volunteers or donors.

1.6.2.3. Out of scope

- Managing transportation of cooked meals/raw items to needy families.
- Internal management functions/features of organizations.
- A mobile application for donors or volunteers.

2. Overall Description

2.1. Product perspective

“FoodForALL” is a platform with the aim of strengthening interaction and communication between the general public and charitable organizations in Sri Lanka. So that it'll reduce the people who're suffering due to lack of food, which has increased recently by a significant amount due to the country's current economic crisis.

Platform functionality can be divided into the following main domain areas.

Donation of money for food packages and voluntary participation

This function focuses on allowing the general user to easily interact, donate or to get involved in a specific event organized by an organization. They can select a level to volunteer at according to their skills, or they can choose to donate money for one or many food packages. Also, we send them notifications on their interesting events. And they can find out more about the charity events happening in the country in one place.

Charitable Organizations

The product has the features to support organizations in promoting their activities online, accepting donations, finding volunteers and also to sell their merchandise online. This includes maintaining the organization profile with a timeline of events and activities. They can get a system generated statistical report including the number of benefited families and user contributions as donors or volunteers.

Get family information through the area coordinator

The actor known as the area coordinator adds information about families who are in need of food into the system. This feature allows the organizations to filter and select families to donate. This service makes it easier and more reliable for each organization to find people in need.

Add notification and reporting part as well - mention in that notification we will handle the sub activity monitoring as well and once it done, we send a notification.

“FoodForALL” is available as a web application, so it is accessible through any internet enabled device.

2.2. Product feature summary

- Enables users to list events that are available for donating and volunteering.
- View event details and send requests to volunteer or donate cash.
- Register food packs and create a budget for an event.
- Request for budget approval.
- Acknowledges updates of interested events and status of volunteering requests.
- Charity organizational profile/timeline and mini merchandise store.

2.3. Operating Environment

"FoodForALL" primarily uses a web application to function. It is hosted on a cloud server and accessible via the internet.

2.3.1. User environment

- Mobile Phone, Tablet or Computer
- Operating System: any with a supported web browser
- Internet connection: 3G mobile - minimum.
- Recommended minimum web browser versions.
 - ❖ Chromium Based (Chrome, MS Edge, Opera) - v80
 - ❖ Safari - v14
 - ❖ Firefox - v85

2.3.2. Server Environment

- Operating System: Ubuntu 20.04
- Database: MySQL
- Web Server: Apache
- Backend language: PHP

2.4. Project constraints

- One user cannot have more than one account.
- Only registered users can participate in donating and volunteering.
- One area coordinator is responsible for a single area.

- Only registered users can be notified through the notification system.

2.5.Assumptions and Dependencies

2.5.1. Assumptions

- Area coordinators verify all the details of the families before entering the system.
- It is assumed that the quality of food is up to the standard.
- Cash donations are carried only through the website.

2.5.2. Dependencies

Payment Gateway – PayHere

Cloud Service Provider - Google Cloud Platform

Charity organizations API - Global Giving Atlas

SMS Service - Notify.lk

Email Service - Mailjet's SMTP API

3. Project Feasibility

3.1.Social feasibility

In Sri Lanka, due to the current situation of the country, there are many people in need of prepared food and raw items, as well as organizations who collect donations with the charitable purpose and want to donate to and support them. Also, there are people who want to support the activities of such organizations but don't know how and to what their donations will be used for. Because of that, most people are afraid to be involved with such charity events due to its poor structure. To bridge this issue, this proposed application provides a platform for each separate organization to display the work that they do in their timeline. By referring to that, donors/sponsors can pick one of the organizations and then donate their required items.

Another drawback for traditional ongoing charity organizations is to find families in need because these families may be reluctant to provide their private information to an unknown organization due to the privacy concerns. As a solution to that, this proposed application uses

a separate person known as the area coordinator or Grama Niladari for each area, and he will be a person trusted by the people of that area. Therefore, people can share their information without worry. Based on that we can easily figure out the needed families with their income level and family background prior to the donation. So, then donors can have guarantee on their donation because they transferred to the needy families.

Given below are the results for a survey conducted by our team on the subject.

Q3. Are you interested in donating money/raw food items to the poor?



Figure 1 Interest of donating items for poor people

Q4. Would you like to volunteer for activities related to food donations, such as cooking food?

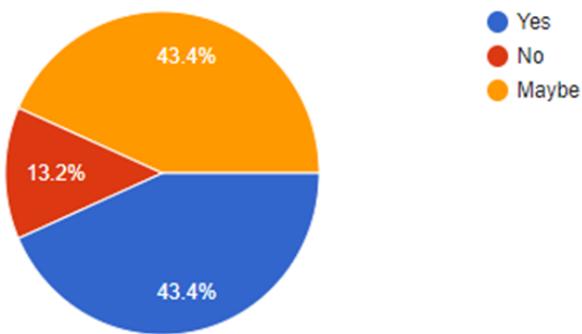
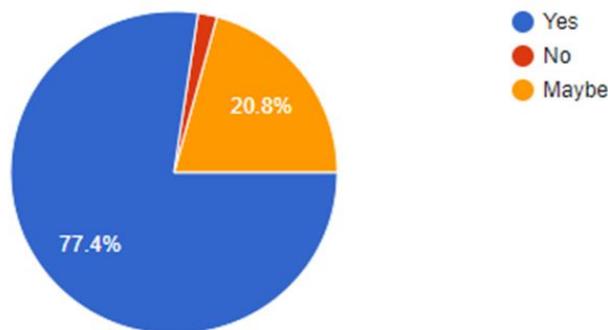


Figure 2 Passion of donating and volunteering

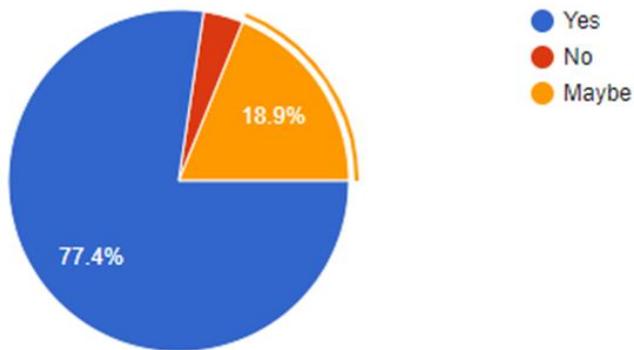
Q5. Would you like to have an online platform where you can get registered and take part in donating cash/raw food items to the poor?

Figure 3 Willingness of using online platform



Q6. If there's an online platform where you can easily find such organizations that collect donations, would it encourage you to donate more?

Figure 4 Willing of donate through the online platform



This survey had 53 responses and can be accessed [here](#)

According to the data gathered, it could be seen that such a system would be welcomed by the public. This web-based application will have long term use as issues faced by the relevant parties will not disappear immediately.

3.2. Technical feasibility

The main deliverable of this project is a web-based application is a platform to connect donors and volunteers, charity organizations and the people in need of food items. The system is to be built in a way so that it could be hosted in any cloud provider, therefore the technologies used in development are open source or freely available.

Mainly, the front end of the web application will be built using HTML for the structure, CSS for styling and JavaScript for changes and creating forms. PHP and the Apache HTTP server (to run PHP applications) will be used for the backend with MySQL as the datastore. The system will rely on a SMS gateway and a simple mail transfer protocol (SMTP) to send notifications to users through SMS and emails and a payment gateway for receiving payments.

Additional tools used,

- Figma/Canva for UI
- GitHub to collaborate and as a version control tool
- Trello as a project management tool

The team has a basic understanding of those technologies before and while developing the project. It is not an easy task, but with the allocated timeline it allows us to gain depth understanding on them before we start the implementation phase. and with the allocated time duration it allows us to gain a considerable amount of technical knowledge before we start the implementation phase.

3.3. Operational feasibility

This section ensures how well our proposed solution facilitates the user requirements of the system to handle the issues in the present system. For that, it is necessary to meet the necessary requirements operationally feasible otherwise users are not willing to use it. At present most of the voluntary activities are carried out by social media, which takes more time to filter out the activity or events which are aligned with the user's requirements. Basically, the system will be supporting 2 groups of users, the organizations looking for donations and the people who want to donate money or raw items. Currently people must search one by one to find an organization to donate and to know what these organizations actually need. The organizations also are not able to find families who are in need. This structure is inefficient and time consuming.

Therefore, it is necessary to have a proper platform to connect organizations with the donations and volunteers. To facilitate that, as a 2nd year undergraduate group, we are proposing a web-based application called “**FoodForAll**”. Anyone with any browser can access that by using our internet connection.

As this is a web-based application all users must have an internet connection and a suitable device to get connected with the internet. They must have a basic knowledge in IT and in making online payments. Not only that, in order to carry out the donations, users must have a basic understanding of the online payment mechanism.

3.4. Economic feasibility

Here the cost for the project will be taken into consideration.

Since the team uses open-source technologies for the development process there will not be a cost for purchasing them and the team will not be making profits. Therefore, the development will be cost free.

Although for hosting the web application as well as the database, free web hosting can be used completely freely or shared hosting packages can be used at a low cost, the growth of the user base and platform will require a more expensive hosting package.

The website requires a domain name for which it will cost around Rs.4000 annually for a domain of “.lk”.

As there is a SMS gateway to send SMS notifications to users implemented in the application, each email sent will cost Rs.3.0+tax.

Hence the cost for building and maintaining the web application is affordable and economically feasible.

3.5.Legal and ethical feasibility

3.5.1. Licensing and attribution

- The technology used to build application will be open source and the development will be in compliance with their license agreement (“Royalty free” of “free for commercial use”) and pirated versions will not be used. Attribution for original authors will be provided when necessary.

3.5.2. Data handling

- The users will have to provide their information at registration, and it will be verified for analytical purposes.
- The personal data of the users will be protected. And confidentiality of information collected on people in need will also be ensured.
- No data will be given to any third parties.

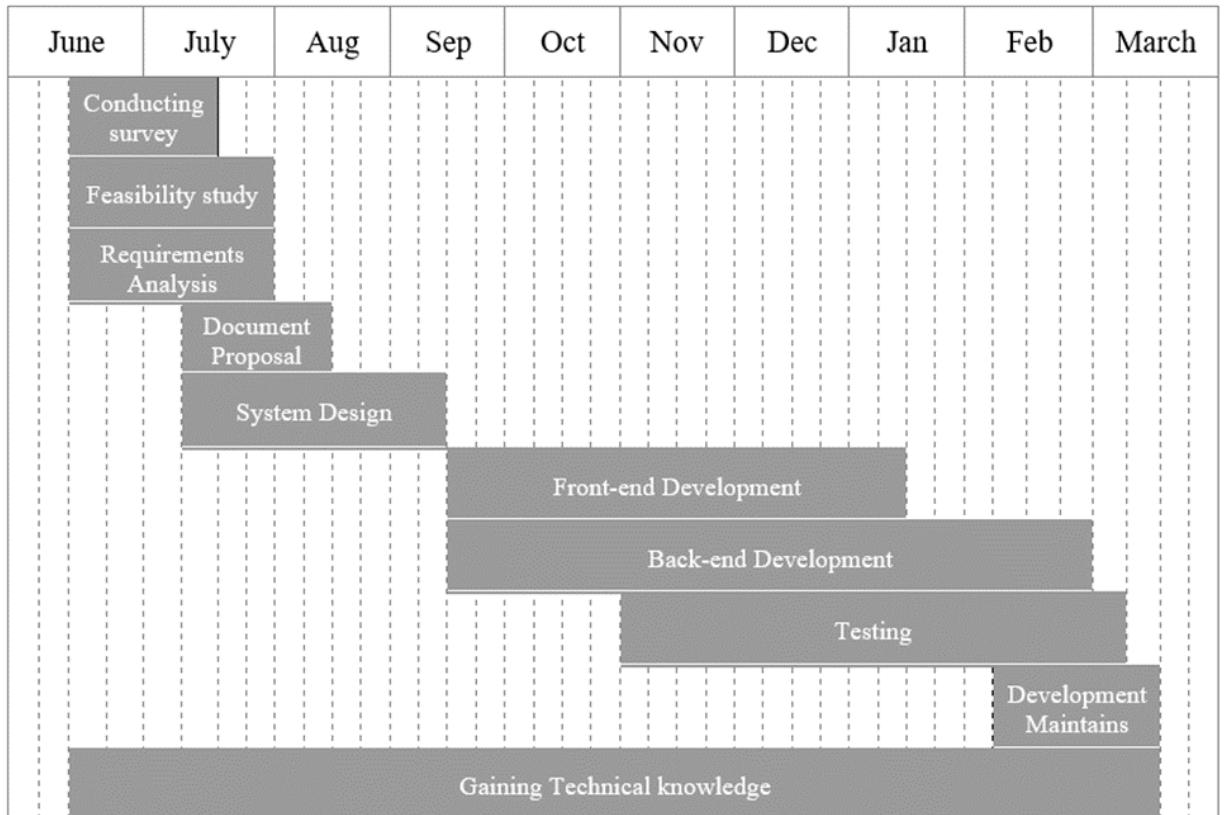
3.5.3. Transparency

- The Donations are made directly to the organizations and the transparency will be maintained by the system.

3.5.4. Schedule feasibility

- The project spans a duration of 9 months.
- Estimated man hours for the project completion,
 - Weekdays working hours = 5 hours
 - Weekend working hours = 5 hours
 - Number of group members = 4
 - Number of weeks = 36
 - Total man hours = $(5 + 5) * 4 * 36$ hours = 1440 hours
- Since the requirements are clear and well defined, we are using a waterfall model for development and with requirement gathering almost done, we can predict that with the identified features and scope it is possible to finish the other tasks of the SDLC and complete the development of the product by the mid of March 2023.

- Also, requirements are almost stable at this point so there won't be any major changes to the requirements that can affect the schedule of the project



4. Requirements

4.1. Stakeholders

4.1.1. General Public

The general public benefits from the system as it provides better opportunities for potential donors to donate. Interested individuals can support the charity organizations by volunteering, donating or by buying their merchandise.

- **Unregistered user** - Has very little functionality. In only able to access facilities such as browsing organizations and events and their contact details.
- **Registered user** - Unregistered users can become registered users by registering (signing up) to the system. After that he/she can select to donate or volunteer by checking out events.

4.1.2. Charity Organizations

Organizations that provide food charity to the needy can benefit from this system as they can increase their reach and get more donations and volunteers. Their operations are donating food to the people in need, collecting donations and selling merchandise.

- **Event manager** - This actor will be responsible for handling events organized by the organization on behalf of it. Has to prepare a suitable budget by adding food packets to it and sending it to be approved by the system. Only if it is approved can the event be launched on the website
- **Organization admin** - Has all functionalities of Event manager. Can appoint event manager accounts and manage the organization store.

4.1.3. Area Coordinators

Deliver information regarding families in need within a certain area. The account for this actor is created by the system admin. The details entered can also be deleted by them.

4.2. Use Cases and Use Case Diagrams

Figure 5#Usecase# Guest view

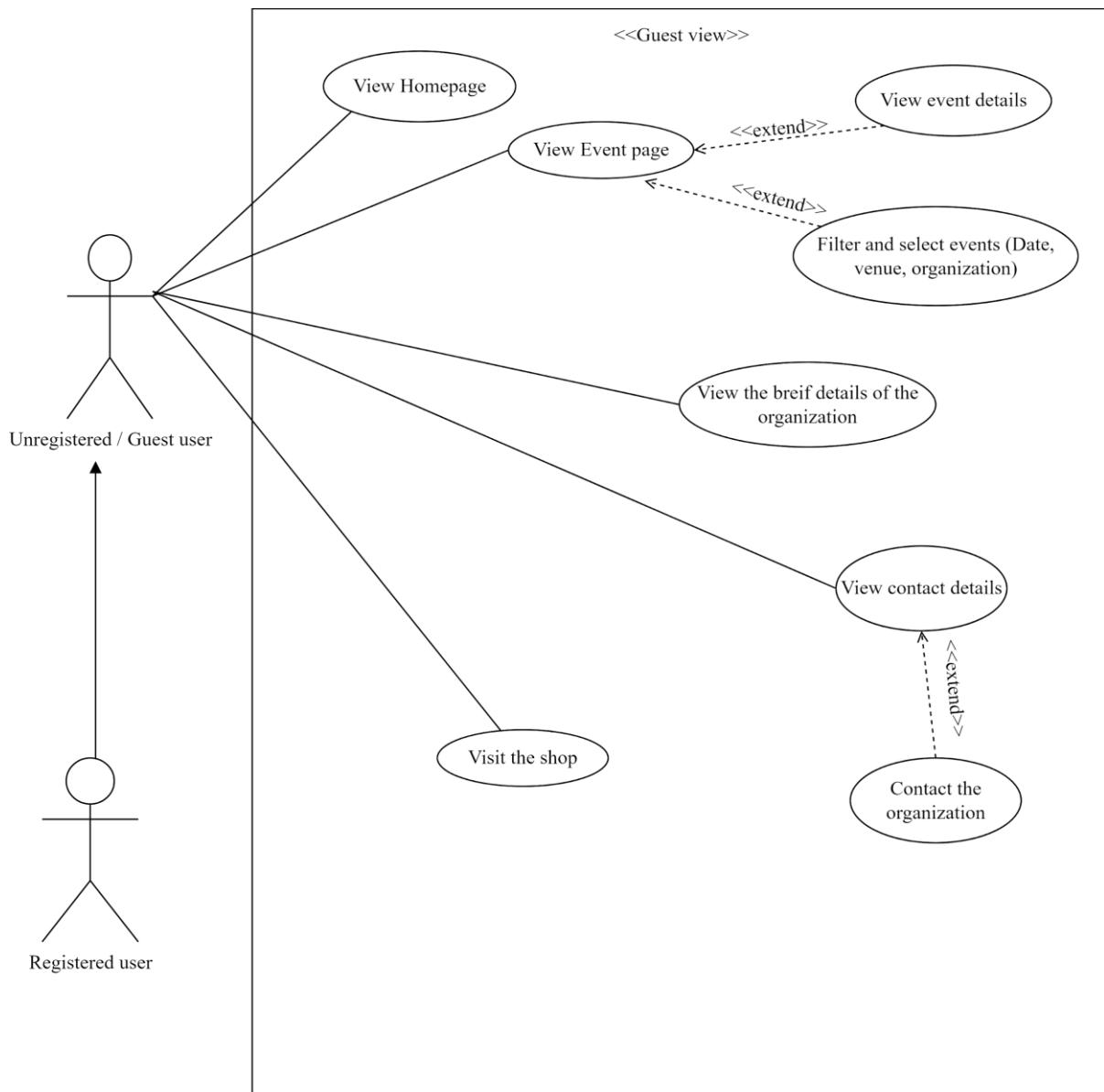


Figure 6# Use case # Authentication Module

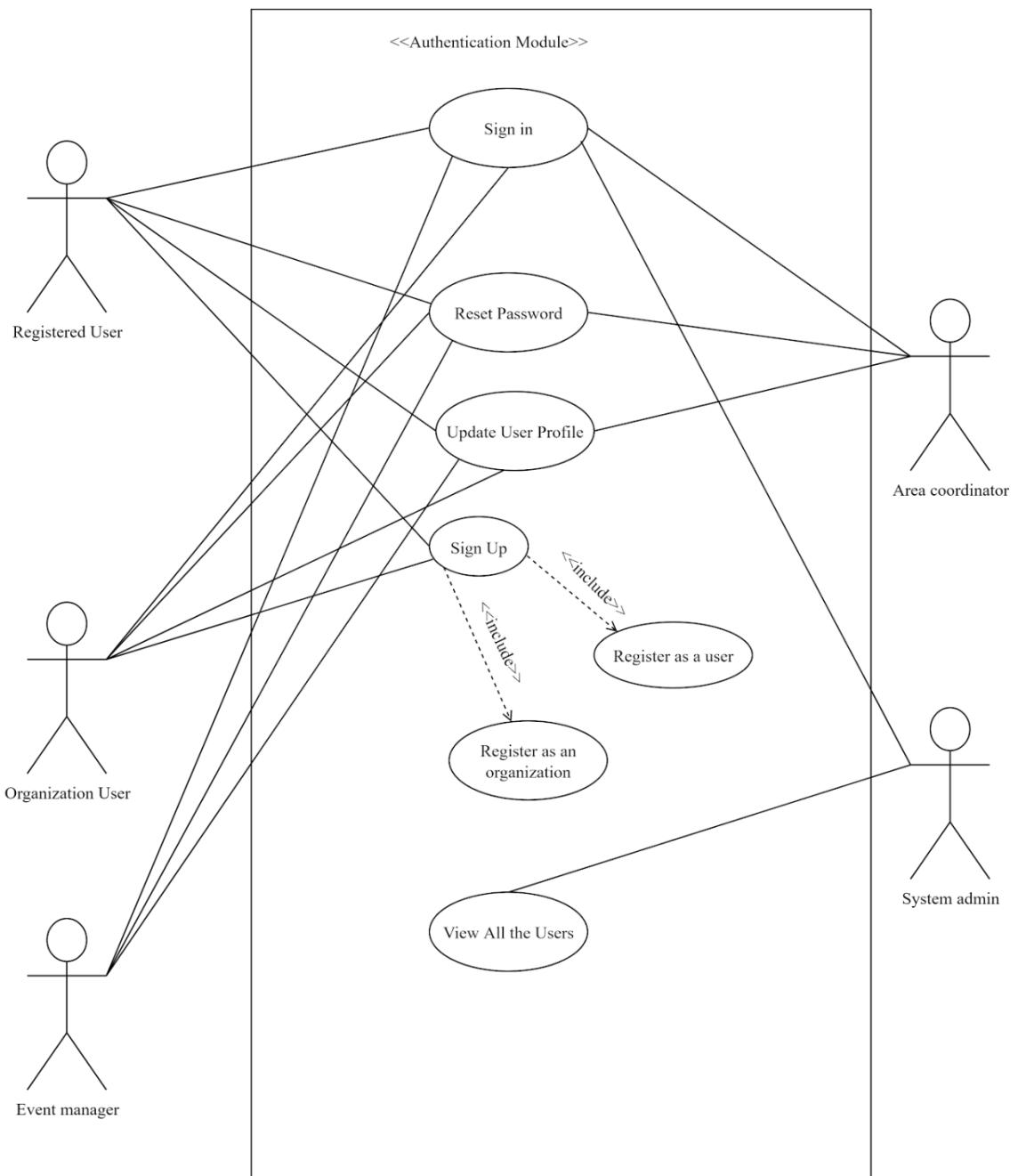


Figure 7#Usecase diagram # Registered user view#

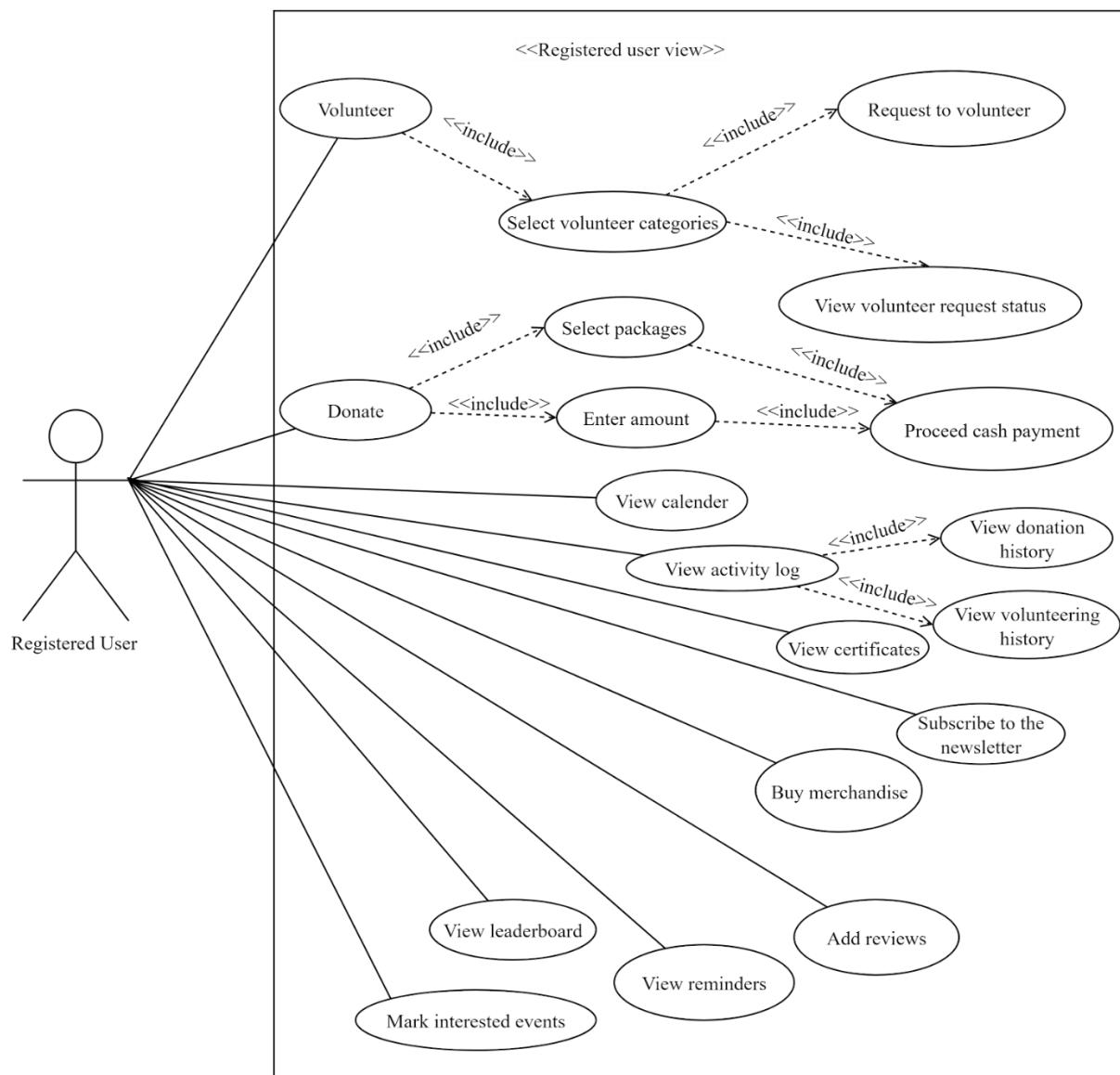


Figure 8#Usecase diagram # Area coordinator

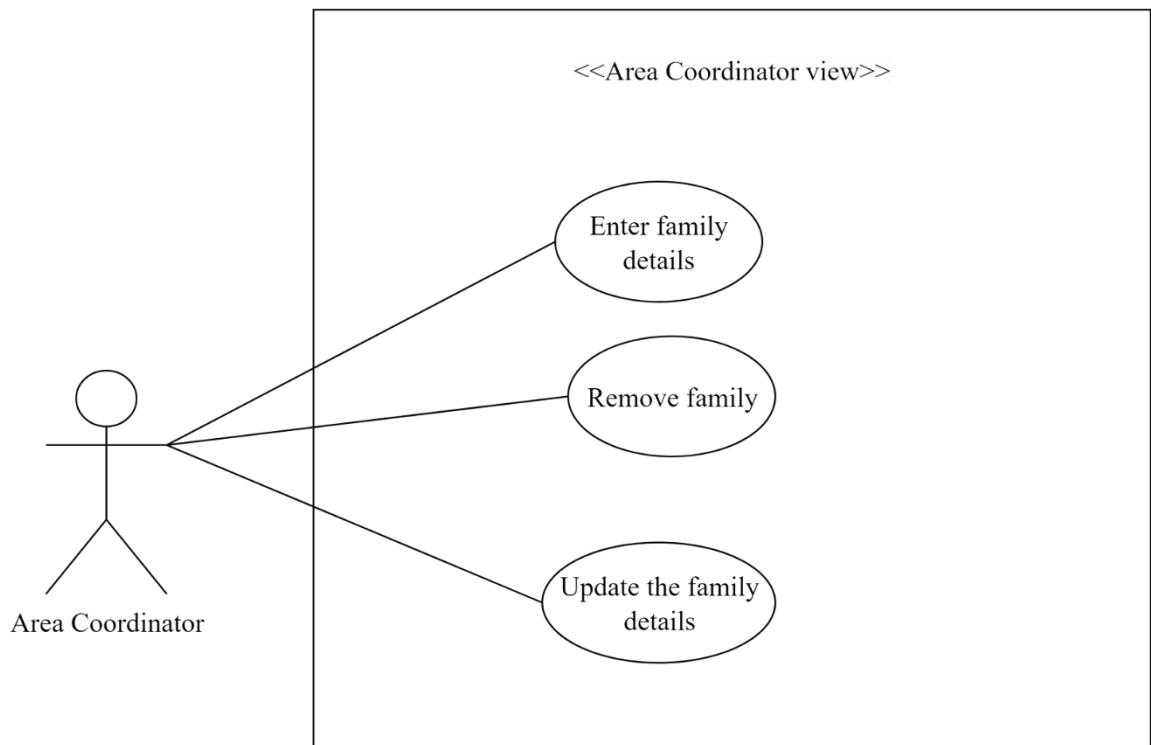


Figure 9# Use case diagram # Organization Admin view#



Figure 10# Use case # System Admin view#

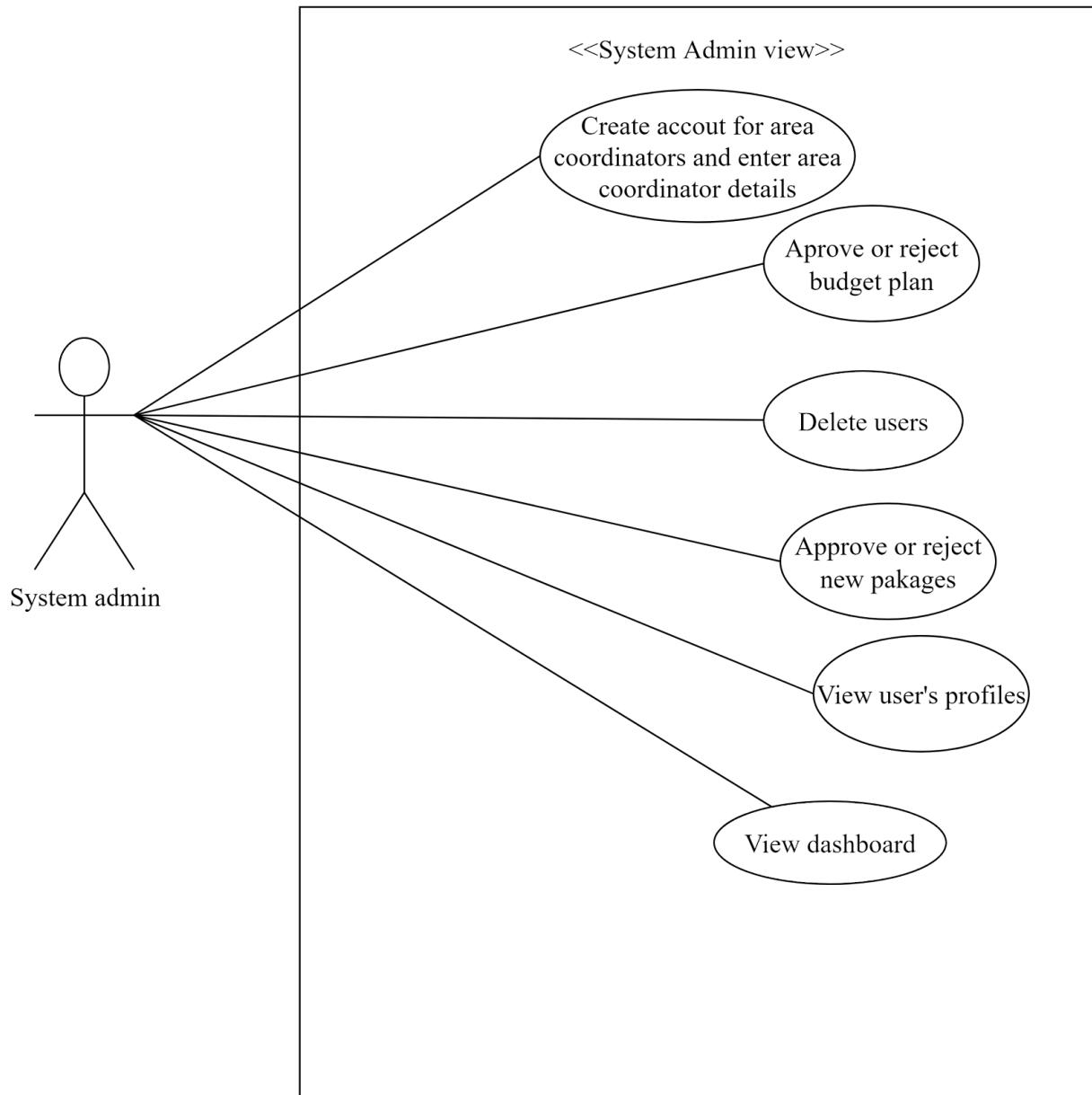
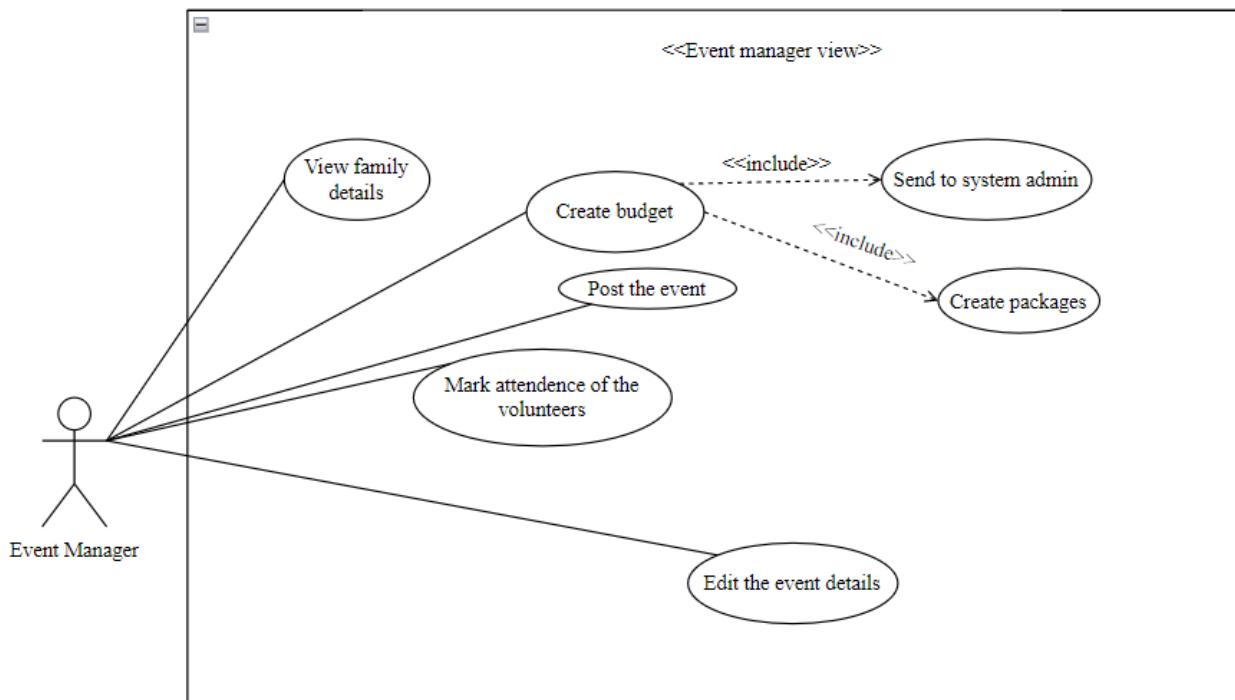


Figure 11# Use case # Event manager view#



4.3. Use Case Narratives

Table 4-1# Use case Narratives # View homepage #

Use Case ID	1
Use Case Name	View homepage
Primary Actor/s	Guest User, Registered User, Organization Admin, System Admin
Description	Users can view the home page of the system
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Search the URL • View the homepage
Exceptions	
Post-Conditions	

Table 4-2# Use case Narratives # Add reviews/complaints#

Use Case ID	2
Use Case Name	Add reviews/complaints
Primary Actor/s	Registered User
Description	Users can select an organization and write a review or a complaint
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Search and filter organization • Select an organization from the list • Select add a review • Write a review/complaint • Post the review
Exceptions	
Post-Conditions	The system sends a notification to the organization admin

Table 4-3# Use case Narratives #View contact details#

Use Case ID	3
Use Case Name	View contact details
Primary Actor/s	Guest User, Registered User, System Admin
Description	User can contact organizations via the phone number/email
Pre-Conditions	There must be contact details added by the organization
Main Scenario	<ul style="list-style-type: none"> • Search and filter organization • Select an organization from the list • View contact details
Exceptions	
Post-Conditions	

Table 4-4# Use case Narratives #Donate#

Use Case ID	4
Use Case Name	Donate
Primary Actor/s	Registered User
Description	User can donate to any organization of his preference

Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Signup as a user • Go to events section • Select an event and click donate • Donate amount by selecting no. of food packs or enter any preferred amount • Be directed to payment gateway • Enter payment details including amount to be donated • System credits the amount to the organization's account • Updates the user's donation history • Generate receipt • Email it to the user
Exceptions	User enters invalid payment details
Post-Conditions	Show confirmation of successful payment

Table 4-5# Use case Narratives #Send request to volunteer#

Use Case ID	5
Use Case Name	Send request to volunteer
Primary Actor/s	Registered User
Description	User must request from the organization to become a volunteer of the selected event
Pre-Conditions	Organization admin must check the notification and approve/reject
Main Scenario	<ul style="list-style-type: none"> • Signup as a user • Go to events section • Select an event and click volunteer • Select category of volunteering • Send volunteer request
Exceptions	Organization admin doesn't respond at all
Post-Conditions	Show request in requests section

Table 4-6# Use case Narratives #View volunteering request status#

Use Case ID	6
Use Case Name	View volunteering request status

Primary Actor/s	Registered User
Description	User can see whether the request is still pending, rejected, or approved
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • Go to My Requests • View request status
Exceptions	
Post-Conditions	

Table 4-7# Use case Narratives #Receive notification regarding the status of a request#

Use Case ID	7
Use Case Name	Receive notification regarding the status of a request
Primary Actor/s	Registered User
Description	User receives a notification saying whether the request was rejected or approved
Pre-Conditions	Organization admin must check the notification of volunteering request
Main Scenario	<ul style="list-style-type: none"> • Organization admin approves or rejects the registered user's volunteering request • User receives notification • Check if request was accepted or rejected
Exceptions	Organization admin does not respond to request at all
Post-Conditions	

Table 4-8# Use case Narratives #View activity log#

Use Case ID	8
Use Case Name	View activity log
Primary Actor/s	Registered User

Description	User who's registered to the system can view all the donations made or events volunteered through his activity log
Pre-Conditions	User has donated or volunteered
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • Go to my activity
Exceptions	User hasn't donated or volunteered
Post-Conditions	

Table 4-9# Use case Narratives #Add event#

Use Case ID	9
Use Case Name	Add event
Primary Actor/s	Organization User
Description	Organization User adds a new event and assign an event manager to handle an upcoming event
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Organization User navigates to Add event section • Add details of the event • Assign an event manager • Confirm the details • Click add event
Exceptions	
Post-Conditions	An event will be added

Table 4-10# Use case Narratives #Maintain virtual organization information#

Use Case ID	10
Use Case Name	Maintain virtual organization information
Primary Actor/s	Organization Admin
Description	Each organization displays the description of the organization on its site.

Pre-Conditions	Sign up as an organization
Main Scenario	<ul style="list-style-type: none"> • Sign in as organization admin • Edit the profile • Update the profile
Exceptions	
Post-Conditions	Display the edited profile

Table 4-11# Use case Narratives #View dashboard#

Use Case ID	11
Use Case Name	View dashboard
Primary Actor/s	Organization user
Description	Organization users can view a summary of the past and upcoming events, volunteers' and donors' involvement.
Pre-Conditions	Sign up as an organization
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to user account • View dashboard
Exceptions	
Post-Conditions	

Table 4-12# Use case Narratives #Add family/ individuals#

Use Case ID	12
Use Case Name	Add family/ individuals
Primary Actor/s	Area Coordinator
Description	Area coordinators add family information that needs to be supported.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Area coordinator navigates to the add/remove family details • Select add family details • Enter the family details • Confirm details
Exceptions	

Post-Conditions	Area coordinator can edit details
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Table 4-13# Use case Narratives #Remove or update family/ individual details#

Use Case ID	13
Use Case Name	Remove or Update family/individual details
Primary Actor/s	Area coordinator
Description	Area coordinators delete the information of families that don't need support.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Area coordinator navigates to the add/remove family details • Select the family • Select remove/update family details • Make changes • Confirm
Exceptions	
Post-Conditions	

Table 4-14# Use case Narratives #Manage available families#

Use Case ID	14
Use Case Name	Manage available families
Primary Actor/s	Event manager
Description	The event manager can view the family details of a certain area.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Navigate to the family details section • Filter the family • View family details. • Select families to donate
Exceptions	No families are available
Post-Conditions	System will generate the details needed to create the budget

Table 4-15# Use case Narratives #View family details#

Use Case ID	15
Use Case Name	View family details
Primary Actor/s	Area Coordinator
Description	The Area Coordinator can view the entered family details.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Navigate to the family details section • Filter the family • View family details.
Exceptions	
Post-Conditions	

Table 4-16# Use case Narratives #Sign up#

Use Case ID	16
Use Case Name	Sign up
Primary Actor/s	Registered user, organization admin
Description	Users can create their own account in the system
Pre-Conditions	Log to the web site
Main Scenario	<ul style="list-style-type: none"> • Navigate to the sign-up section • Choose user or organization • Enter the personal details • Confirm the details
Exceptions	
Post-Conditions	

Table 4-17# Use case Narratives #Approve or reject volunteer requests#

Use Case ID	17
Use Case Name	Approve or reject volunteer requests
Primary Actor/s	Organization admin
Description	When a registered user sends a request to be a volunteer for an event, the organization's admin has to accept that request.

Pre-Conditions	The user should be a registered user
Main Scenario	<ul style="list-style-type: none"> • View requests • Check whether the volunteers are still needed • Permit or deny the user from volunteering • Notify the user
Exceptions	There are no vacancies
Post-Conditions	Registered user is notified

Table 4-18# Use case Narratives #View donate cash#

Use Case ID	18
Use Case Name	View donated cash
Primary Actor/s	Organization Admin
Description	Can view the amount of money provided by donors for a particular event
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Go to organization dashboard • Go to event section • Select the event • View donations section
Exceptions	
Post-Conditions	

Table 4-19# Use case Narratives #Send notification to registered users#

Use Case ID	19
Use Case Name	Send notifications to registered users
Primary Actor/s	Organization admin
Description	Notify users about the upcoming events
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Update the events section • Select notify users
Exceptions	There are no users to notify
Post-Conditions	User receives a notification

Table 4-20# Use case Narratives #Enter area coordinator details#

Use Case ID	20
Use Case Name	Enter area coordinator details
Primary Actor/s	System admin
Description	System admin creates the profile for a selected area coordinator
Pre-Conditions	Details should be validated
Main Scenario	<ul style="list-style-type: none"> • Sign in as admin • Go to user profiles settings • Go to area coordinator section • Select new profile • Enter area coordinator details into the system
Exceptions	
Post-Conditions	Area coordinator gets a profile and can sign in

Table 4-21# Use case Narratives #Respond to reviews#

Use Case ID	21
Use Case Name	Respond to reviews
Primary Actor/s	Organization admin
Description	Responding to review left by registered users
Pre-Conditions	Organization receives reviews
Main Scenario	<ul style="list-style-type: none"> • Organization admin views reviews • Leave a response
Exceptions	
Post-Conditions	Display response

Table 4-22# Use case Narratives #Delete users#

Use Case ID	22
Use Case Name	Delete users
Primary Actor/s	System admin
Description	System admin can delete registered users

Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in as admin • Go to user profiles • Search users • Go to profile settings • Delete profile
Exceptions	
Post-Conditions	Deleted user cannot login again

Table 4-23# Use case Narratives #Sign in#

Use Case ID	23
Use Case Name	Sign in
Primary Actor/s	Registered user, Organization admin, Event manager, Area coordinator, System admin
Description	Enable users to login to the system
Pre-Conditions	Account must be already signed up
Main Scenario	<ul style="list-style-type: none"> • Users enter the username and the password • System verifies username and password • System confirms entered details • User will be logged in to the system
Exceptions	
Post-Conditions	Users are granted access to the system and will be directed from the login screen.

Table 4-24# Use case Narratives #Update user profile#

Use Case ID	24
Use Case Name	Update user profile
Primary Actor/s	Registered user, organization admin, Area coordinator
Description	Enable users to update their user profiles
Pre-Conditions	User should be login to the web site
Main Scenario	<ul style="list-style-type: none"> • User enters the data need to be changed • User confirmed entered data will be sent to the system

	<ul style="list-style-type: none"> • System verifies the validity of the entered data • System updates the database with new data
Exceptions	
Post-Conditions	The system informs the user that updates were successfully completed and directs them to the main settings.

Table 4-25# Use case Narratives #Change password#

Use Case ID	25
Use Case Name	Change password
Primary Actor/s	Registered user, organization admin, Area coordinator
Description	Enable users to change their own password
Pre-Conditions	User should be login to the website The user should enter their current password correctly.
Main Scenario	<ul style="list-style-type: none"> • User enters the current password • System verifies the password • User enters the new password • User re-enters the new password • System checks validity of new password • User's password will be updated
Exceptions	<ul style="list-style-type: none"> • Old password is incorrect • New password is invalid
Post-Conditions	The system informs the user that the password was changed successfully, and the user will be directed to the section on changing passwords.

Table 4-26# Use case Narratives #Reset password#

Use Case ID	26
Use Case Name	Reset password
Primary Actor/s	Registered user, organization admin, Area coordinator
Description	Enable users to reset their password if forgotten
Pre-Conditions	<ul style="list-style-type: none"> • User must be Signed up to the website • User must enter the correct email or phone number assigned with his\her account.

	<ul style="list-style-type: none"> User must enter correct verification code
Main Scenario	<ul style="list-style-type: none"> Go to sign in page User selects forgot password System will send the verification code to the given email/phone number. User enters verifications code System checks whether the verification code is correct or not. User enters and re-enters the new password. System checks the validity of the new password. System updates database
Exceptions	<ul style="list-style-type: none"> Email or phone number is not working User enters wrong verification code New password is invalid
Post-Conditions	System informs the user that the password reset successfully, and the user will be directed to the login screen

Table 4-27# Use case Narratives #View user profiles#

Use Case ID	27
Use Case Name	View user profiles
Primary Actor/s	System admin
Description	System admin can view profiles of the system
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> Sign in Search for required user or organization View profile
Exceptions	
Post-Conditions	

Table 4-28# Use case Narratives #View dashboard#

Use Case ID	28
Use Case Name	View dashboard
Primary Actor/s	System admin
Description	System admin can view the no. of organizations, no. of

	events and no. of registered users, etc. by viewing the dashboard.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to dashboard • View dashboard
Exceptions	
Post-Conditions	

Table 4-29# Use case Narratives #View users involved in an event#

Use Case ID	29
Use Case Name	View users involved in an event
Primary Actor/s	Organization admin
Description	Organization admin can view the list of donors and volunteers of an event
Pre-Conditions	Users have to involved in an event organized by the organization
Main Scenario	<ul style="list-style-type: none"> • Navigate to the events section • Go to donations made to view donors • Go to assigned volunteered to view volunteers
Exceptions	
Post-Conditions	

Table 4-30# Use case Narratives #Post photos and information on event#

Use Case ID	30
Use Case Name	Post photos and information on events
Primary Actor/s	Event manager
Description	Event manager can post photos related to the event to promote it
Pre-Conditions	There is an upcoming event
Main Scenario	<ul style="list-style-type: none"> • Navigate to events page • Select edit data • Upload photos

Exceptions	Photos are too large Photos exceed the limit
Post-Conditions	Photos are uploaded to the events page

Table 4-31# Use case Narratives #View event page#

Use Case ID	31
Use Case Name	View Events page
Primary Actor/s	Guest User, Registered User, Organization Admin, System Admin
Description	Events conducted by the organizations will be displayed here.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Filter events by date, venue, organization • Select events • View details of the event
Exceptions	
Post-Conditions	

Table 4-32# Use case Narratives #Visit the shop#

Use Case ID	32
Use Case Name	Visit the shop
Primary Actor/s	Guest User, Registered User, Organization Admin, System Admin
Description	Users can view the shops handled by the organizations
Pre-Conditions	Organization has to maintain a shop
Main Scenario	<ul style="list-style-type: none"> • Go to shop • View items
Exceptions	
Post-Conditions	

Table 4-33# Use case Narratives #View calendar#

Use Case ID	33
Use Case Name	View calendar
Primary Actor/s	Registered User
Description	User who's registered to the system can view the events he's interested and volunteering through the calendar maintained in his profile
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • Go to calendar
Exceptions	
Post-Conditions	

Table 4-34# Use case Narratives #View certificate#

Use Case ID	34
Use Case Name	View certificates
Primary Actor/s	Registered User
Description	User who's registered to the system can view all the certificates he received as an appreciation of his volunteering in events
Pre-Conditions	User has volunteered before
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • View certificates
Exceptions	User hasn't volunteered before
Post-Conditions	

Table 4-35# Use case Narratives #View reminders#

Use Case ID	35
Use Case Name	View reminders
Primary Actor/s	Registered User

Description	User who's registered to the system get reminders when a new event is added or an event he/she is involved or interested close by
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • Go to reminders
Exceptions	No upcoming events
Post-Conditions	

Table 4-36# Use case Narratives #View leaderboard#

Use Case ID	36
Use Case Name	View leaderboard
Primary Actor/s	Registered User
Description	User who's registered to the system can view the system generated leaderboard based on all the registered users donations and volunteering
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit profile • View leaderboard
Exceptions	
Post-Conditions	

Table 4-37# Use case Narratives #Mark interested events#

Use Case ID	37
Use Case Name	Mark interested events
Primary Actor/s	Registered User
Description	After checking the details of each event, a user who has registered with the system can examine all the events held by organizations and add those to his or her interest events.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in

	<ul style="list-style-type: none"> • Visit Events page • Tick interested events
Exceptions	
Post-Conditions	

Table 4-38# Use case Narratives #Buy merchandise#

Use Case ID	38
Use Case Name	Buy merchandise
Primary Actor/s	Registered User
Description	Registered user can view shops maintained by each organization and buy merchandise.
Pre-Conditions	Organizations must maintain a merchandise store
Main Scenario	<ul style="list-style-type: none"> • Sign in • Visit shop • Select items and quantity • Be directed to payment gateway • Enter payment details • System credits the amount to the organization's account • Generate receipt • Email it to the user
Exceptions	
Post-Conditions	

Table 4-39# Use case Narratives #Pay subscription fee#

Use Case ID	39
Use Case Name	Pay subscription fee
Primary Actor/s	Organization user
Description	Organization users pay a monthly fee for the management of FoodForALL
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to pay subscription • Be directed to payment gateway

	<ul style="list-style-type: none"> • Enter payment details including the amount to be paid • System credits the amount to the FoodForALL account • Generate receipt • Email it to the user
Exceptions	
Post-Conditions	

Table 4-40# Use case Narratives #View report#

Use Case ID	40
Use Case Name	View reports
Primary Actor/s	Organization user
Description	Organization gets a system generated report including the summary of the events conducted by the organization
Pre-Conditions	Organization has to have hold any event
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to reports • View reports
Exceptions	Organization hasn't held any event
Post-Conditions	

Table 4-41# Use case Narratives #Delete event#

Use Case ID	41
Use Case Name	Delete event
Primary Actor/s	Organization admin
Description	Organization admin can delete an event if it's unnecessary
Pre-Conditions	Event has to be added
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to event section • Select required event • Click delete
Exceptions	

Post-Conditions	Event will be removed from event page
-----------------	---------------------------------------

Table 4-42# Use case Narratives #Post the event#

Use Case ID	42
Use Case Name	Post the event
Primary Actor/s	Event manager
Description	Event manager can post the event in the events page after getting approval of the system admin
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Select events • Click on launch event button if enabled
Exceptions	Launch button isn't activated due to the absence of organization admin's approval
Post-Conditions	The event will be added in the events page

Table 4-43# Use case Narratives #Respond to the budget relevant to an event#

Use Case ID	43
Use Case Name	Respond to the budget relevant to an event
Primary Actor/s	System admin
Description	System admin has to respond to budgets created by organizations
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Select request • Analyze budget • Respond by clicking accept, reject or enter suggestions • Click send response
Exceptions	
Post-Conditions	A notification will be sent to the organization admin

Table 4-44# Use case Narratives #Create budget#

Use Case ID	44
Use Case Name	Create budget
Primary Actor/s	Event manager
Description	Event manager has to create a budget by analyzing the family details
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Select create budget • Select required item packs based on family details • Define new item packs if needed • Select packs with required quantity • Add other expenses details • Click create budget • Click get approval
Exceptions	
Post-Conditions	<p>A request will be sent to the system admin for the approval of the budget</p> <p>A copy of the budget will be sent to the organization admin</p>

Table 4-45# Use case Narratives #Mark attendance of the volunteer#

Use Case ID	45
Use Case Name	Mark attendance of the volunteers
Primary Actor/s	Event manager
Description	The attendance of the volunteers will be marked by the event manager on the day of the event
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to volunteers • Mark attendance
Exceptions	
Post-Conditions	A certificate will be issued to the volunteer by the system based on his/her attendance

Table 4-46# Use case Narratives #Edit event details#

Use Case ID	46
Use Case Name	Edit event details
Primary Actor/s	Event manager
Description	The details of the event can be edited by the event manager assigned to the relevant event
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to edit event • Do relevant changes
Exceptions	
Post-Conditions	Details of the event posted in the event page will be updated

Table 4-47# Use case Narratives #Subscribe to the newsletter#

Use Case ID	47
Use Case Name	Subscribe to the newsletter
Primary Actor/s	Registered User
Description	User who's registered to the system can subscribe to the newsletter
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Select subscribe to the newsletter
Exceptions	
Post-Conditions	Newsletter will be mailed to the user's email monthly

Table 4-48# Use case Narratives #Add event manager#

Use Case ID	48
Use Case Name	Add event manager
Primary Actor/s	Organization Admin
Description	Organization admin can add event managers of the system who're to be assigned in upcoming events

Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Go to add event manager • Enter relevant details • Click add
Exceptions	
Post-Conditions	Event managers' list will be updated

Table 4-49# Use case Narratives #Create food pack#

Use Case ID	49
Use Case Name	Create food pack
Primary Actor/s	Organization admin
Description	Organization defines packages to be donated
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to add package • Enter relevant details • Confirm details
Exceptions	
Post-Conditions	A package will be displayed. Organizations can edit or delete the package.

Table 4-50# Use case Narratives #Create food pack#

Use Case ID	50
Use Case Name	Create food pack
Primary Actor/s	Event manager
Description	Event manager can define additional packages if needed other than the packages define by the organization.
Pre-Conditions	
Main Scenario	<ul style="list-style-type: none"> • Sign in • Go to create budget • Click on add symbol (+) • Enter package details • Confirm details

Exceptions	
Post-Conditions	A package will be displayed. Event manager can edit or delete the package.

4.4. Functional Requirements

4.4.1. Donating

- Users who are registered as donors shall be able to browse and select available charity organizations and their events.
- Registered users shall be able to donate to events.
- Registered users should be able to select the number of packages to be donated.
- Donors should be directed to a payment gateway when donating.
- Registered users should be able to view their past donations and past activities of organizations.
- Registered users should be able to view the required amount of donations and the progress of the collection of donations.

4.4.2. Volunteering

- Users who are registered as volunteers shall be able to browse and select available charity organizations.
- Volunteers shall be able to check available event details of an organization and select an event.
- Registered users should be able to view the required number of volunteers and the current number of volunteers.
- Volunteers should be able to select the level for volunteering (minor, moderate and heavy)
- Registered users will be able to view the dates of the events they have volunteered for on the calendar
- When a user volunteers to an event, he/she will receive a QR code for marking the attendance
- After the volunteer has been confirmed to have attended the event, he/she will receive a certificate through email.

- Registered users can view past volunteer records

4.4.3. Charity Organizations

- Can sign in as an organization
- Organizations can make changes to their accounts
- Organization admin can create an event
- Organization admin can add/delete an event manager to an event
- Defining food packages
- View statistical reports of past events generated by the system
- Organizations shall be able to post updates about their upcoming events.
- Registered/unregistered users shall be able to view the work that an organization has done.
- Registered/unregistered users shall be able to provide feedback & complaints to organizations.
- Organizations shall be able to view/respond to users' feedback and handle complaints.
- Organization admin shall be able to check the status of the event
- Organizations can add, delete or update items to their stores
- Organizations must pay a monthly subscription fee to the website

4.4.4. Events

- Event manager can send a budget to system admin
- Can launch an accepted event
- Add event requirements and details (targeted donations, required number of volunteers, Images, volunteer levels)
- Edit event details
- Scan QR code and mark volunteer attendance
- Event manager shall be able to filter out families submitted by the area coordinator who are assigned to a certain area.

4.4.5. System or admin

- Area coordinator can submit details of needy families to the website

- Area coordinator can edit their account
- Registered users should be able to view the leaderboard (donation and volunteer)
- Registered users can make purchases from the organization shop
- System admin can add/delete area coordinators
- System admin can add/delete organization accounts
- System admin can accept/reject budgets sent by event managers
- System admin can view all users
- System will delete an organization account if the subscription is not paid by the end of a month

4.5. Activity diagrams

4.5.1. View home page

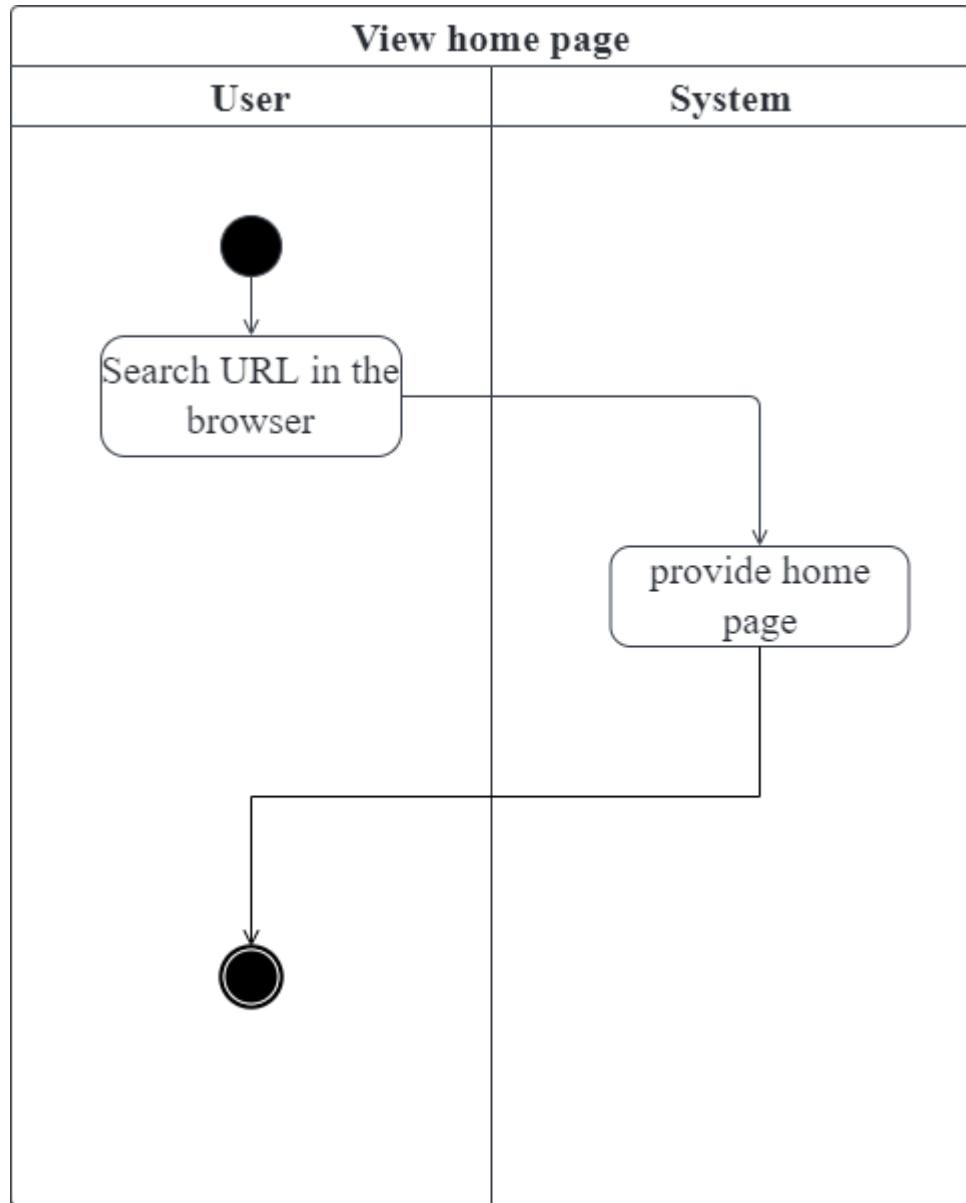


Figure 12#Activity diagram # View homepage#

4.5.2. Add reviews / complaints

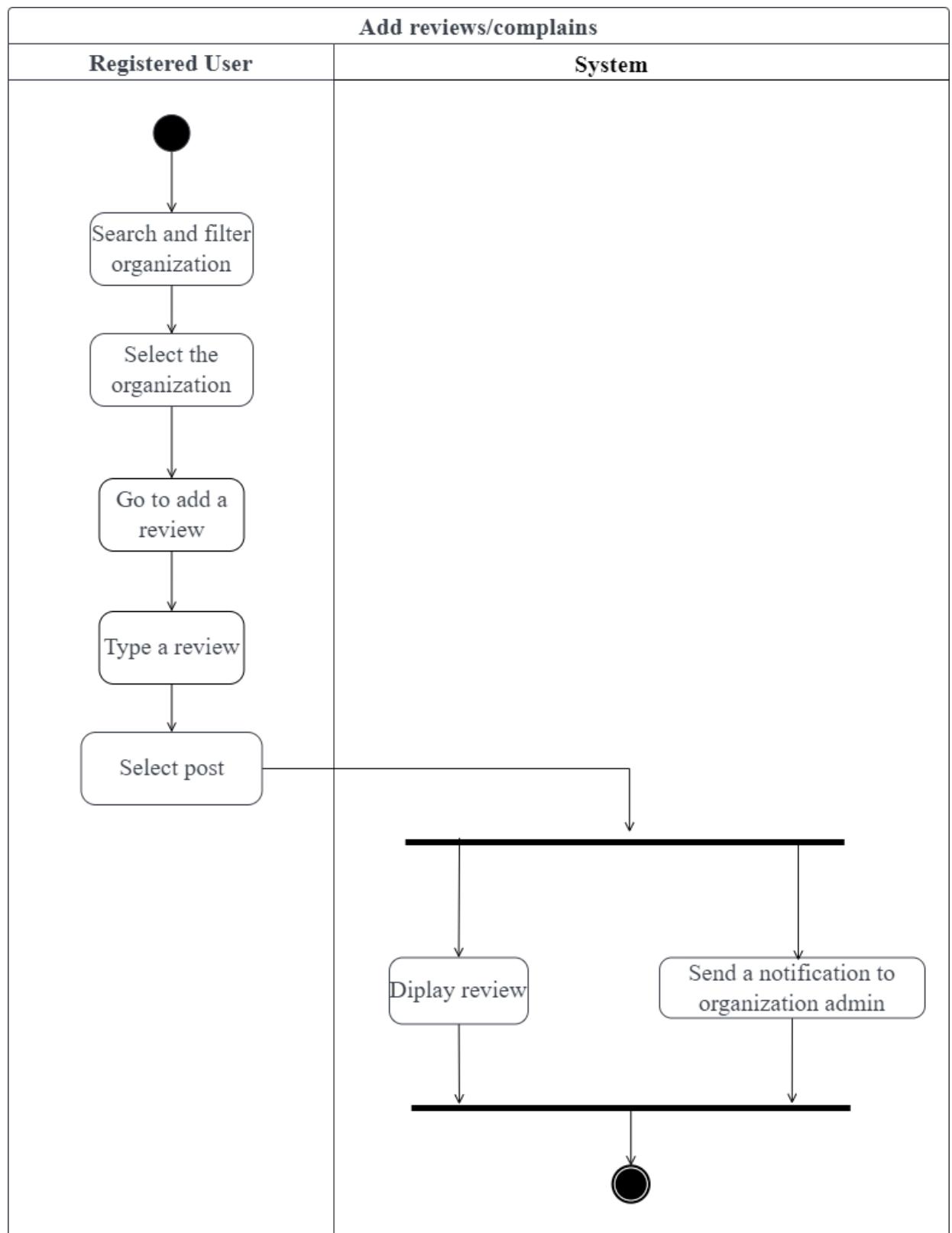


Figure 13#Activity diagram # Add reviews/complaints#

4.5.3. View contact details

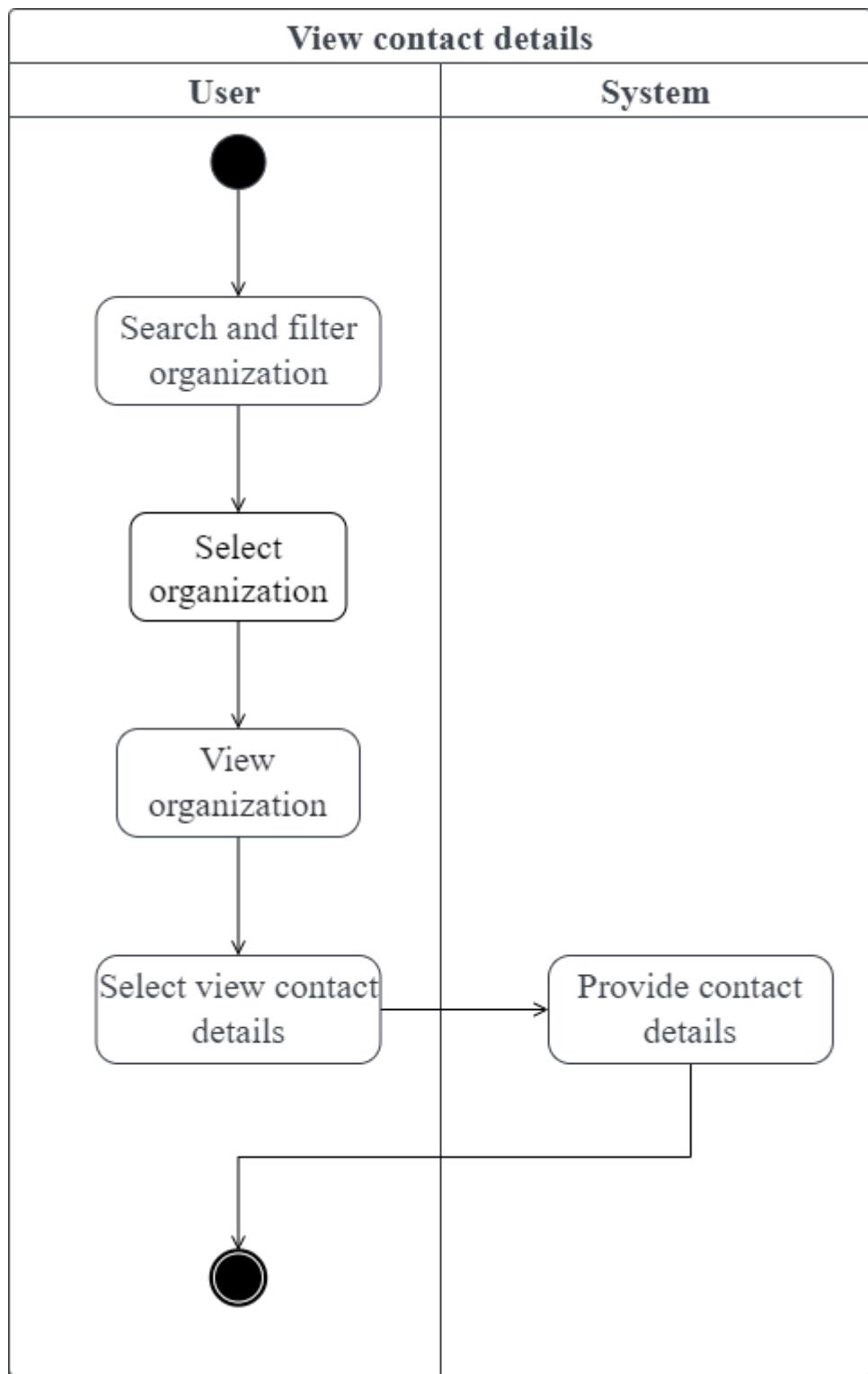


Figure 14#Activity diagram # View contact details#

4.5.4. Donate

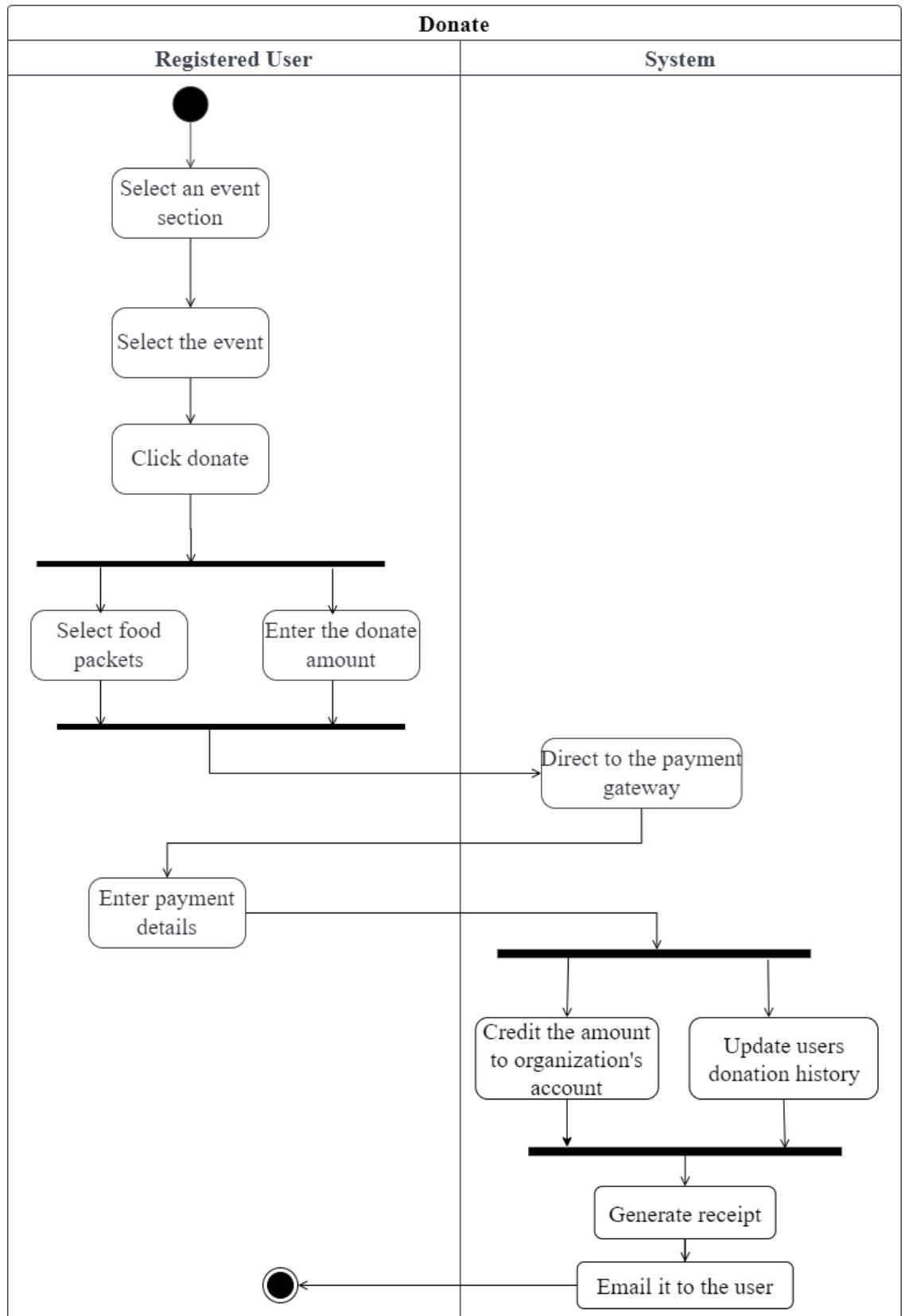


Figure 15#Activity diagram # Donate#

4.5.5. Send request to volunteer

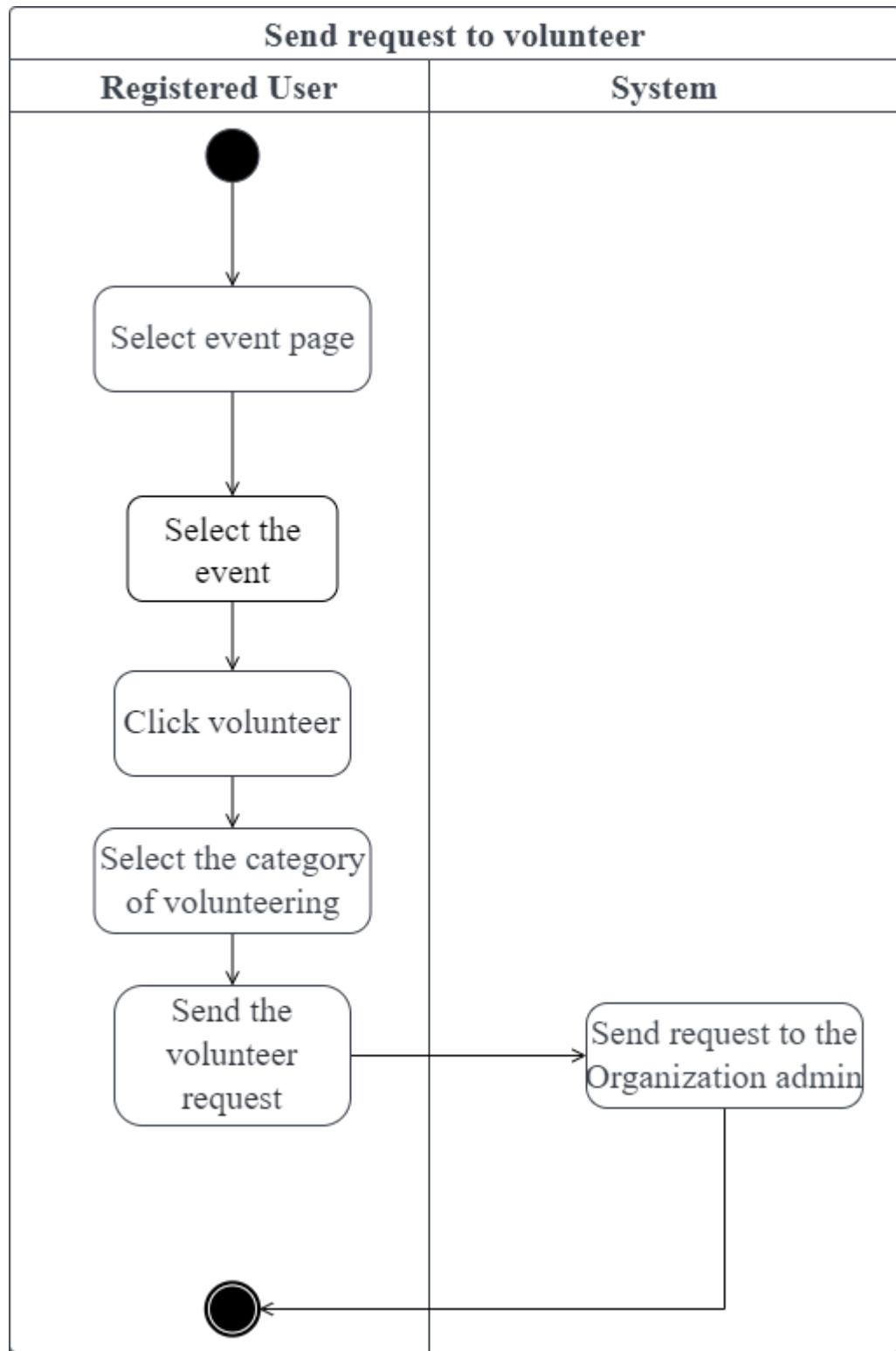


Figure 16#Activity diagram # Send request to volunteer#

4.5.6. View volunteering request status

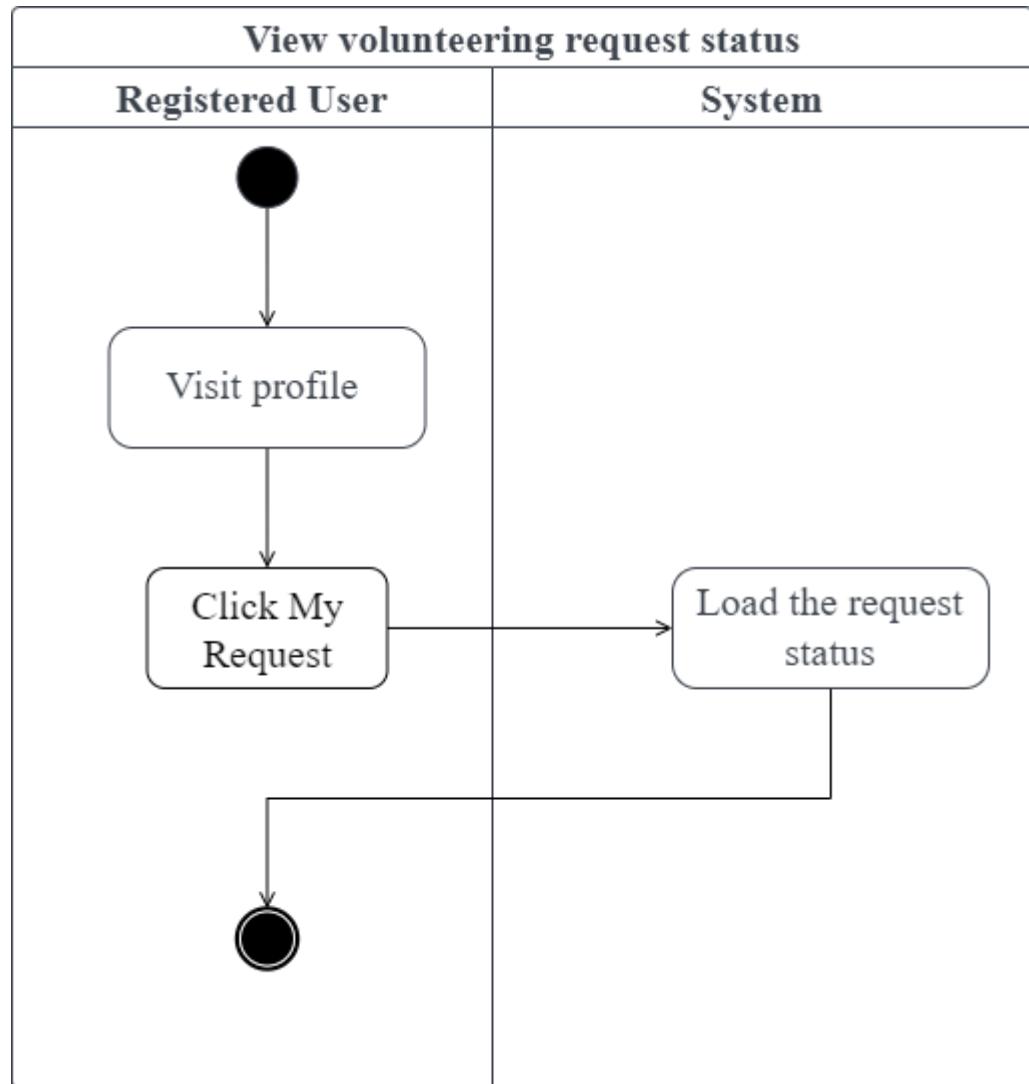


Figure 17#Activity diagram # View volunteer request status#

4.5.7. Receive notification regarding the states of the request

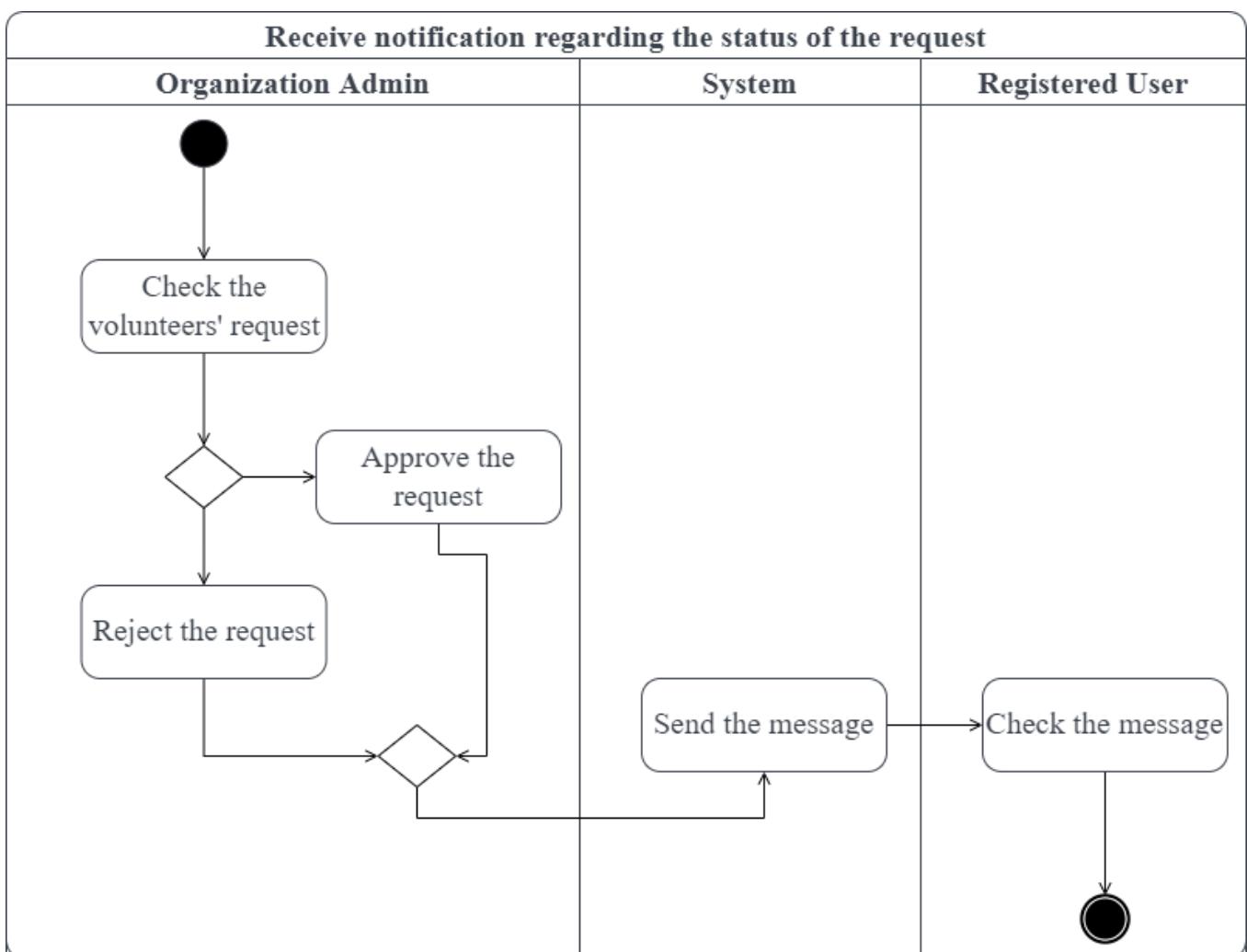


Figure 18#Activity diagram # Receive notification regarding the status of the request#

4.5.8. View activity log

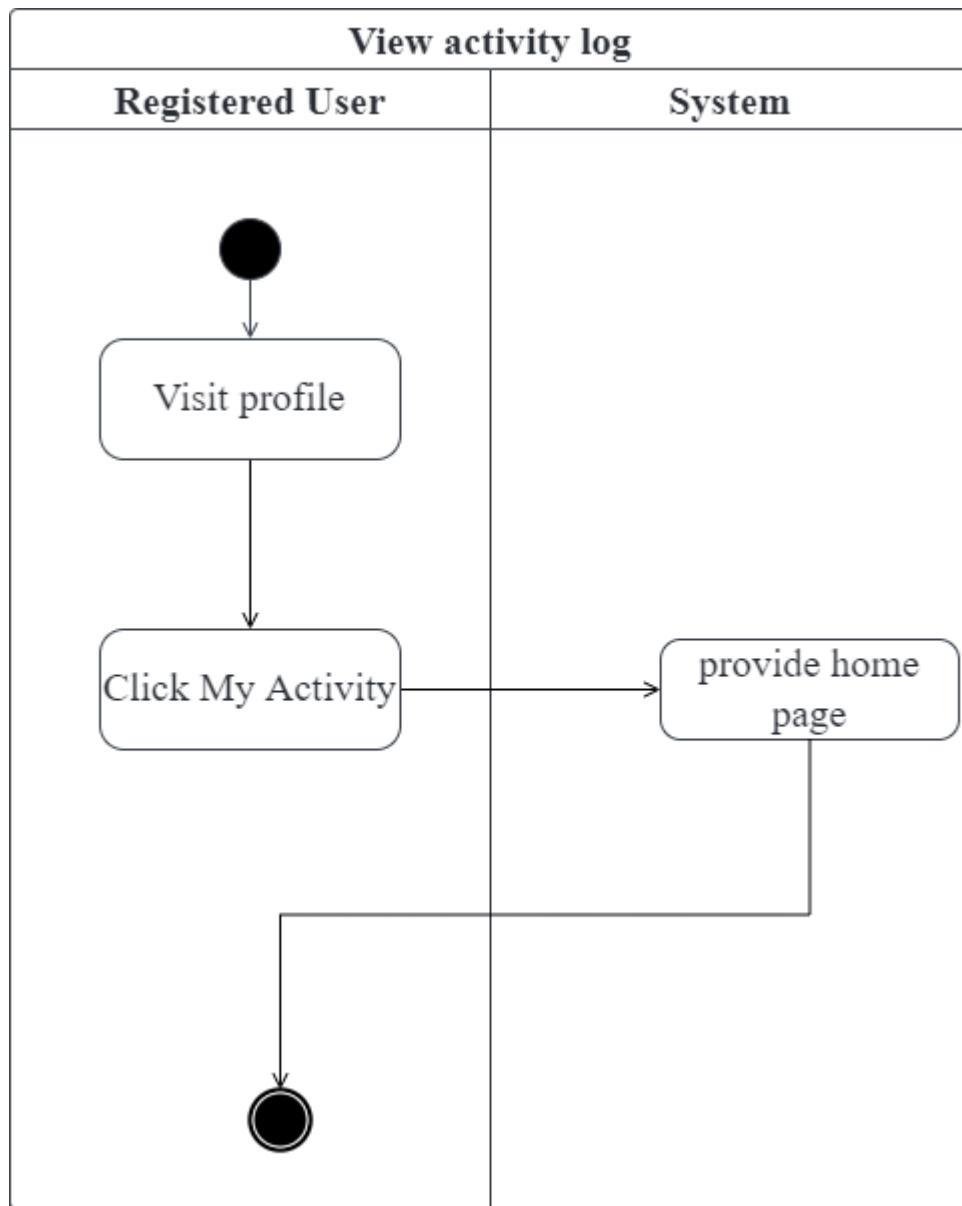


Figure 19#Activity diagram # View activity log#

4.5.9. Add event

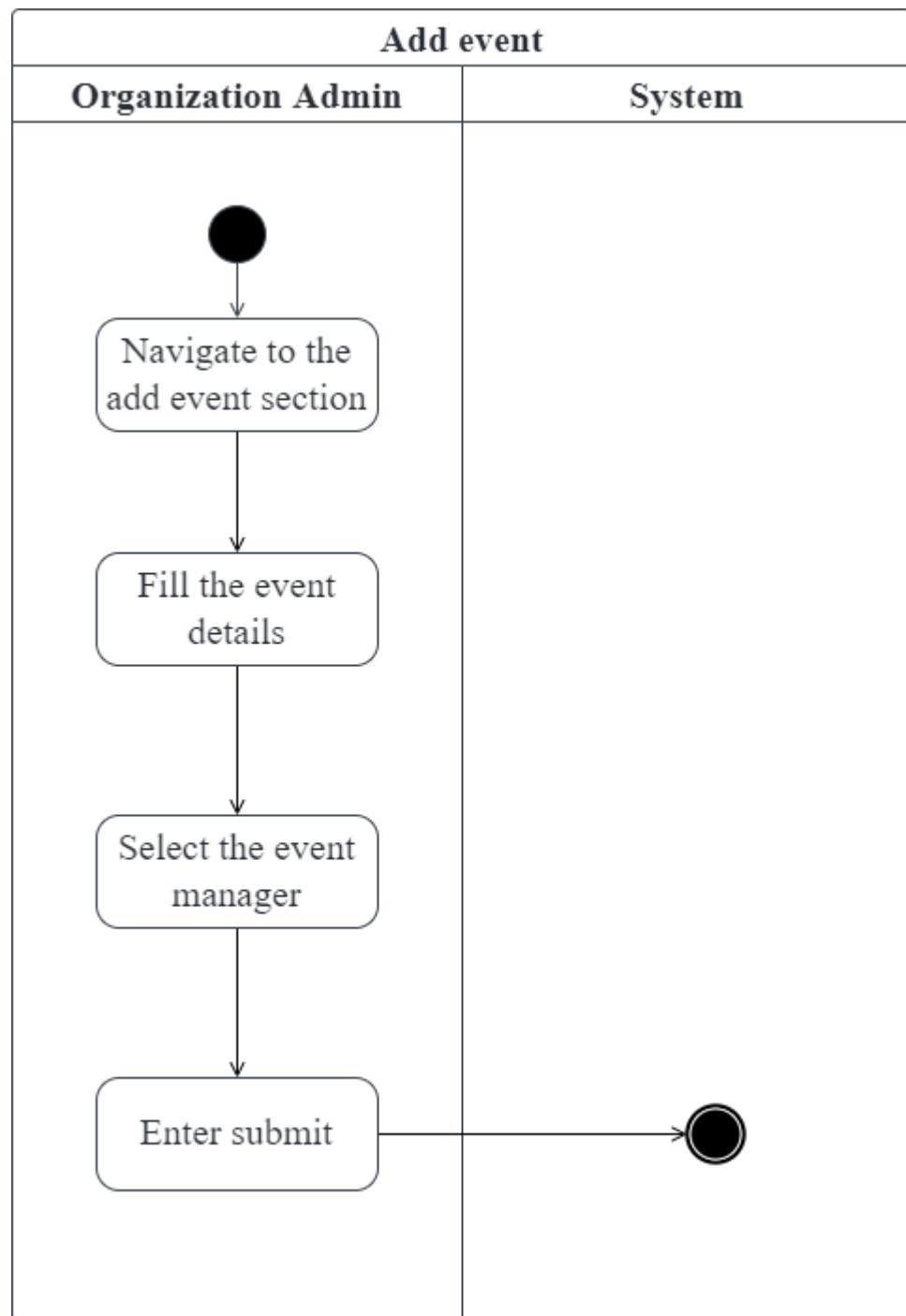
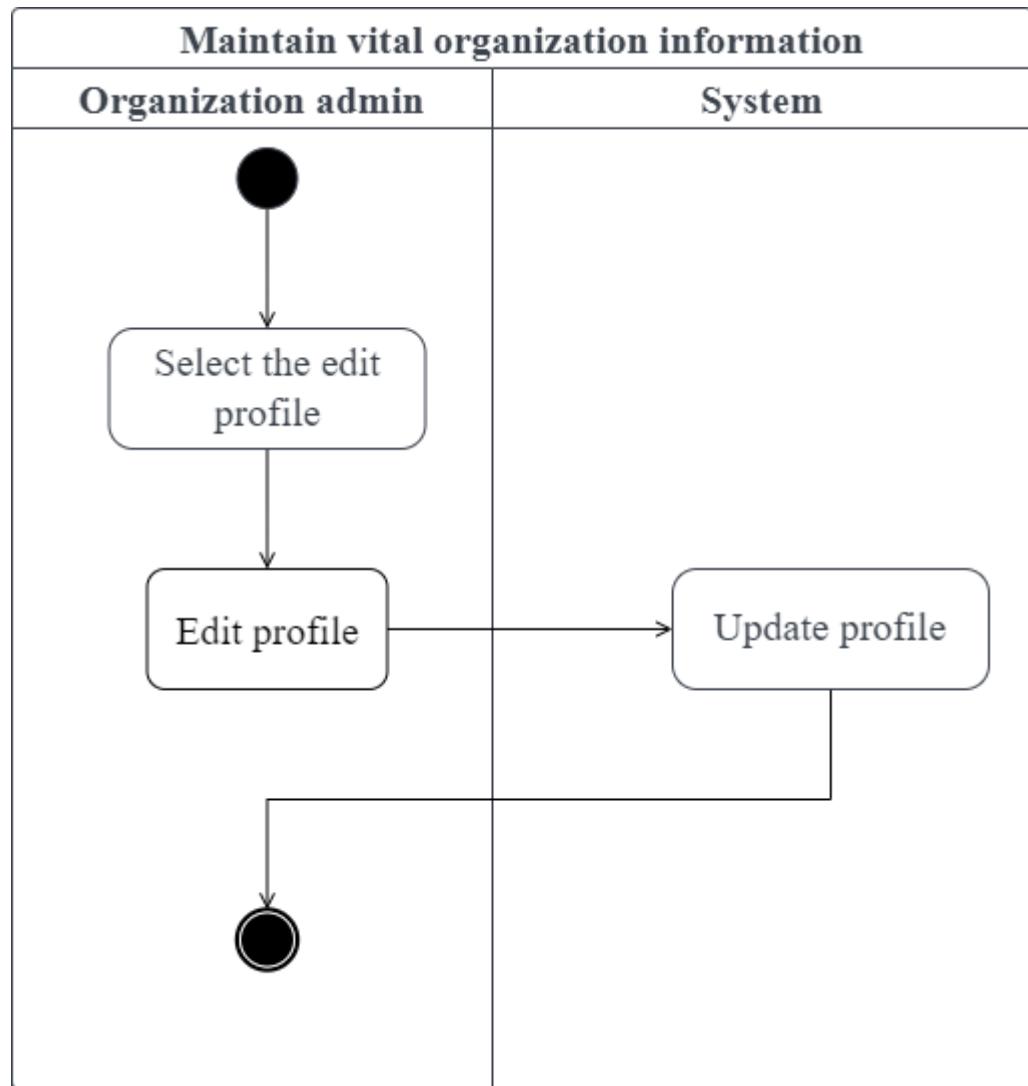


Figure 20#Activity diagram # Add event#

4.5.10. Maintain vital organization information*Figure 21#Activity diagram # Maintain vital organization information#*

4.5.11. View dashboard

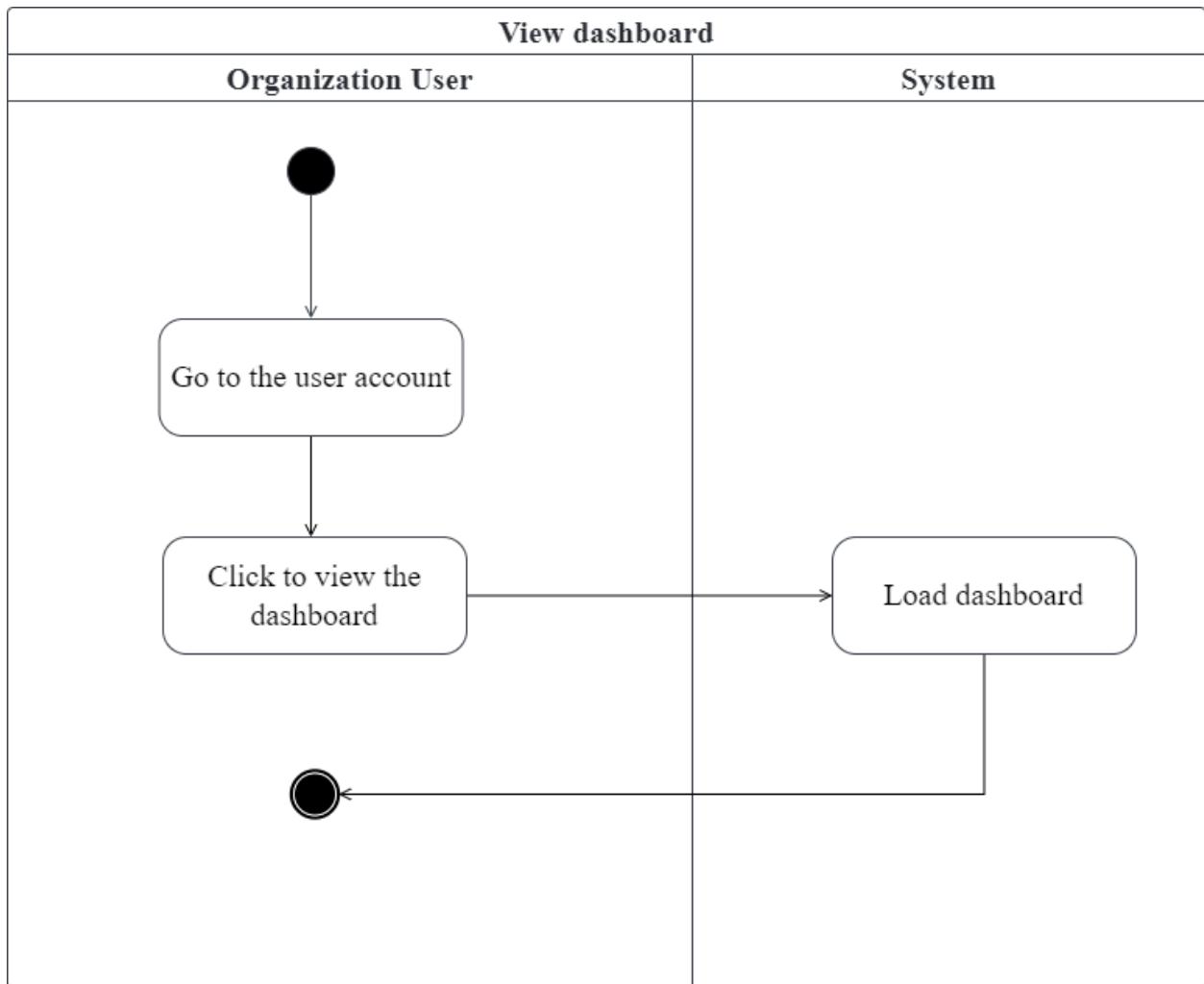


Figure 22#Activity diagram # View dashboard#

4.5.12. Add family/ individuals

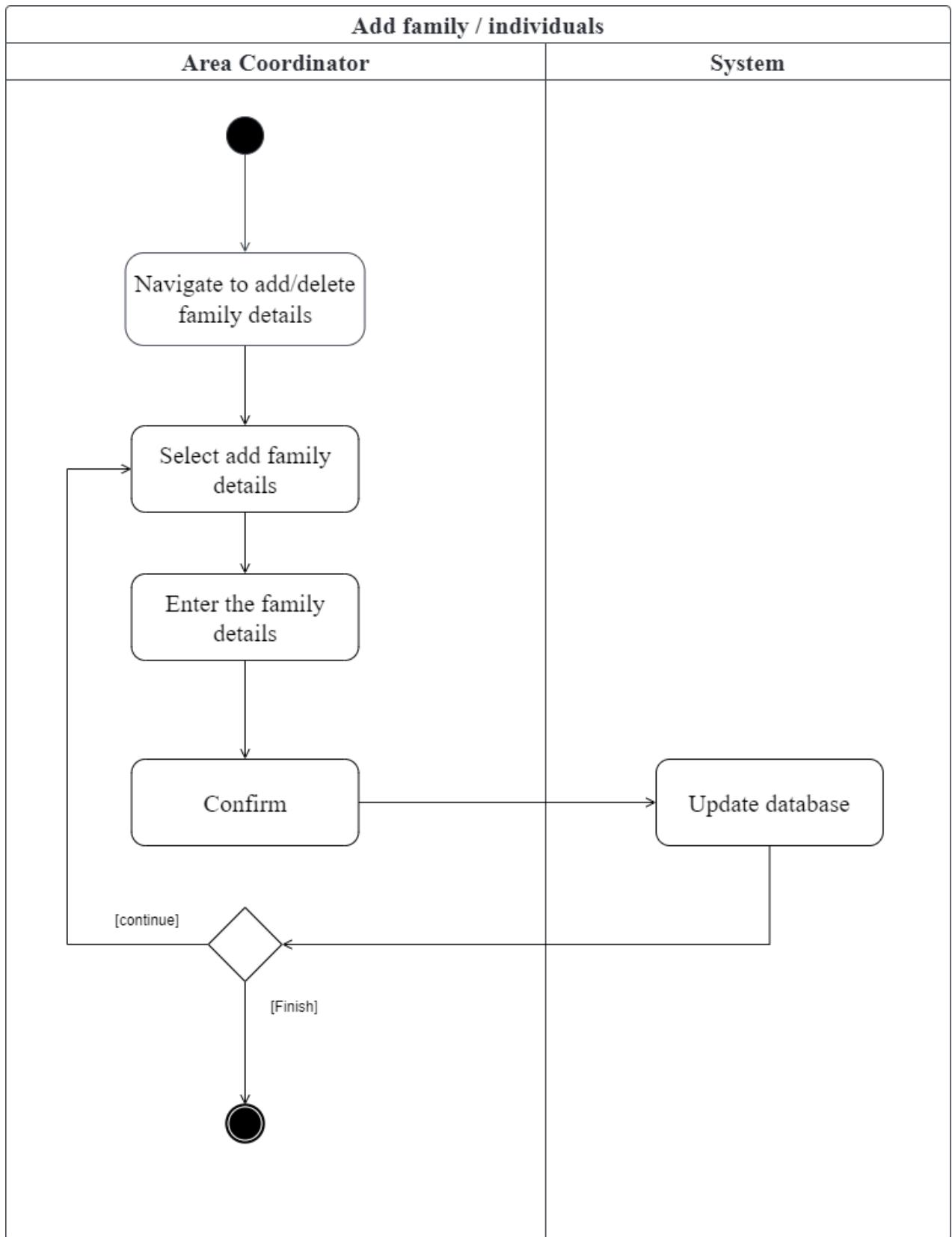


Figure 23#Activity diagram # Add family/ individuals#

4.5.13. Remove or Update family/individual details

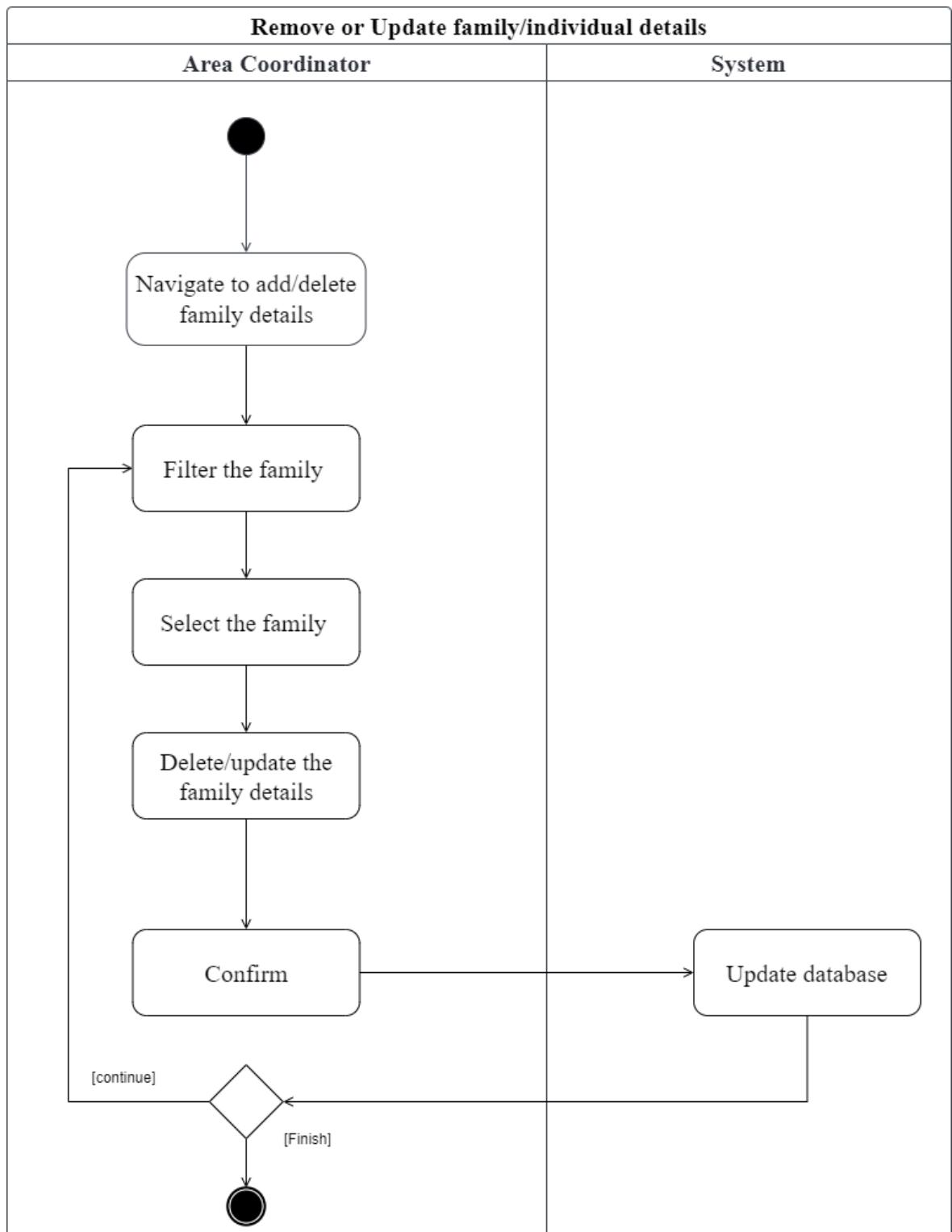


Figure 24#Activity diagram # Remove or Update family/individual details#

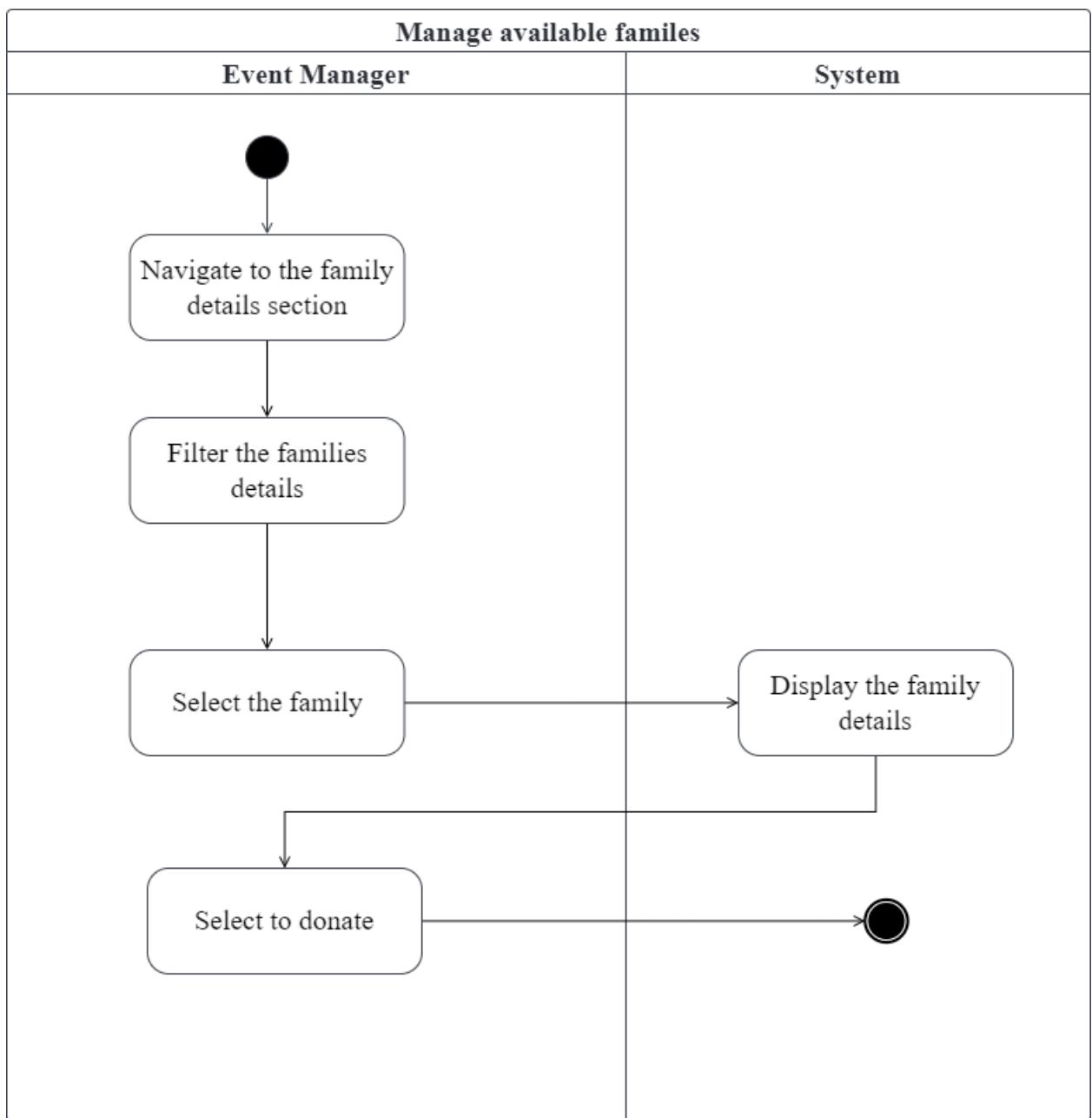
4.5.14. Manage available families

Figure 25#Activity diagram # Manage available families#

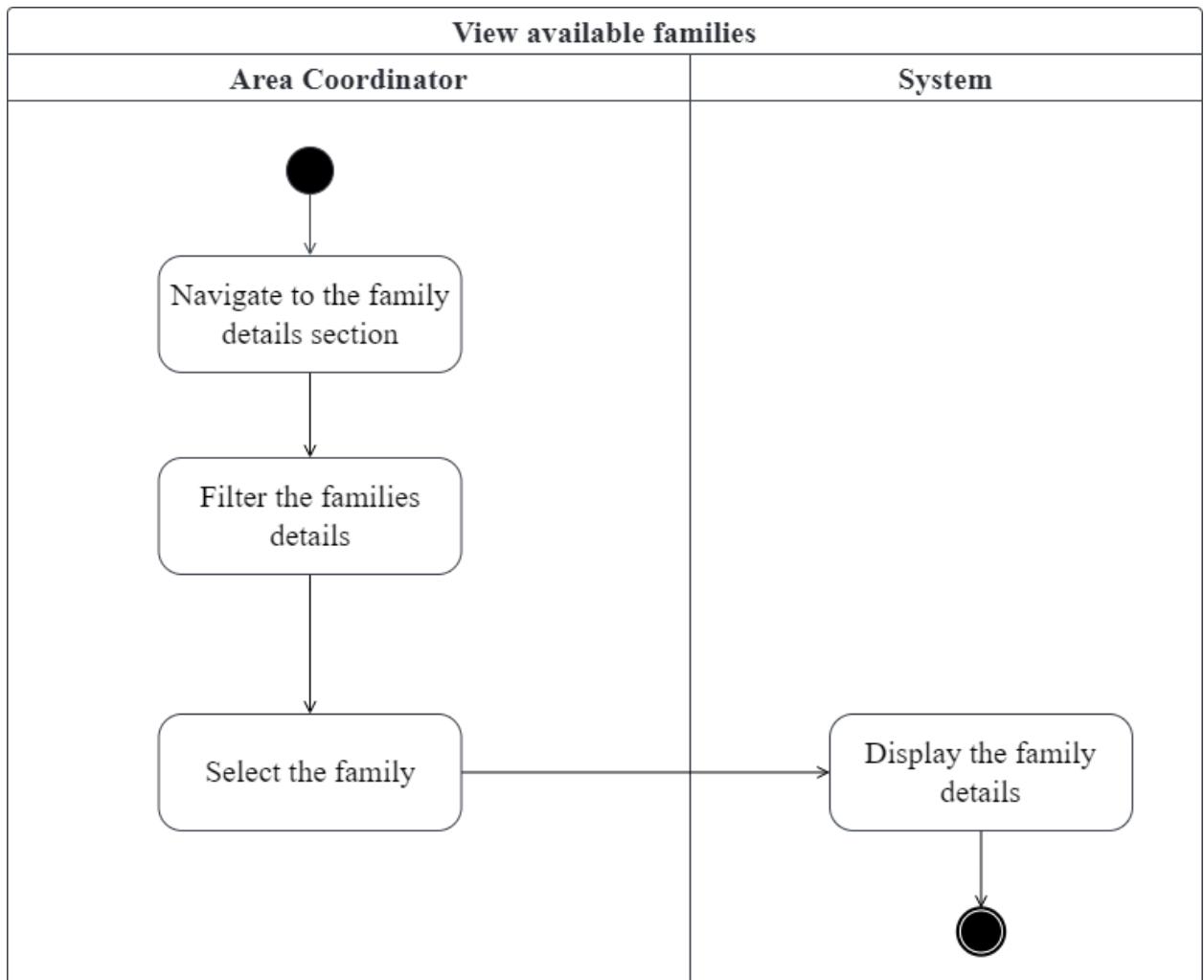
4.5.15. View family details

Figure 26#Activity diagram # View family details#

4.5.16. Sign up

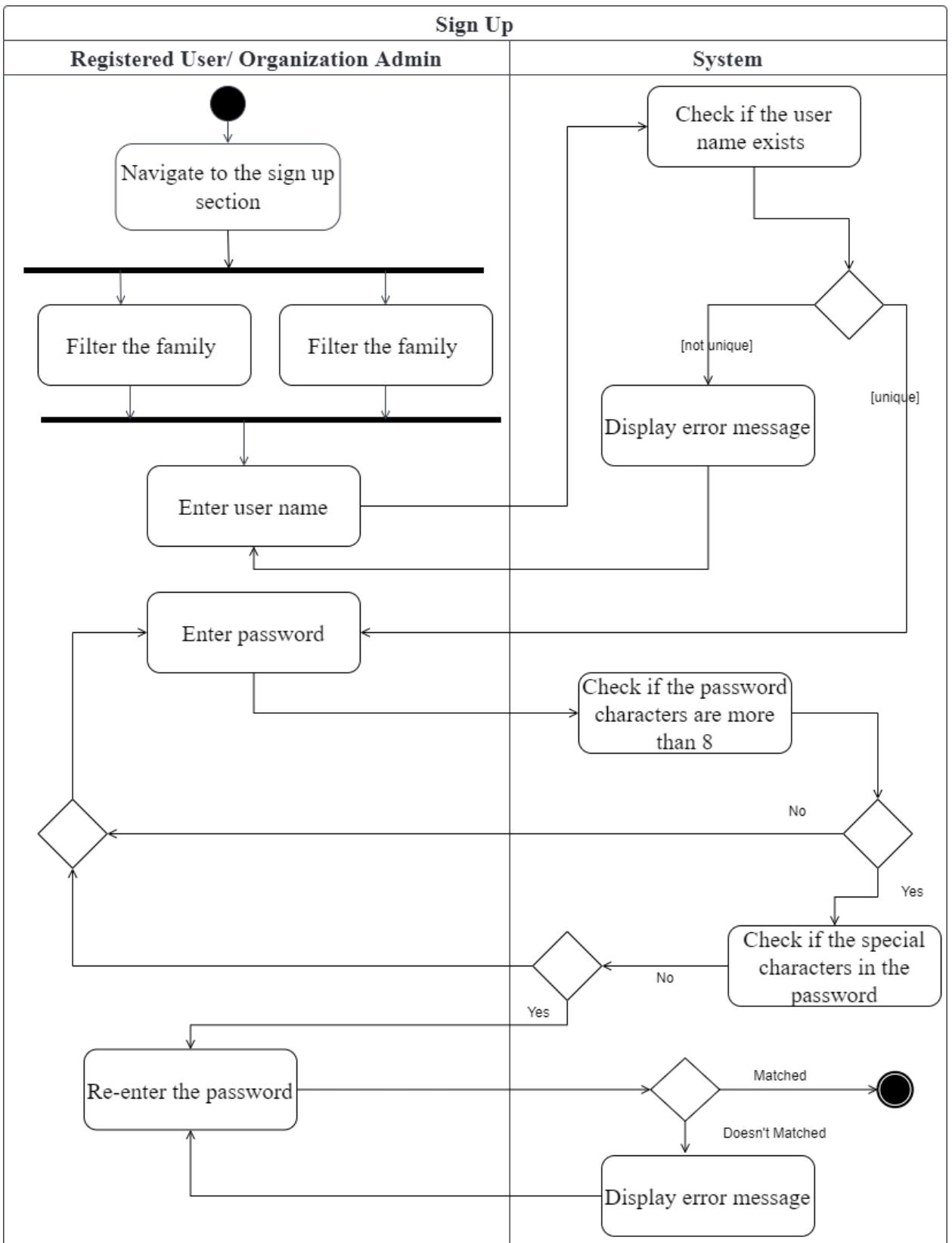


Figure 27#Activity diagram # Sign up#

4.5.17. Approve or reject volunteer requests

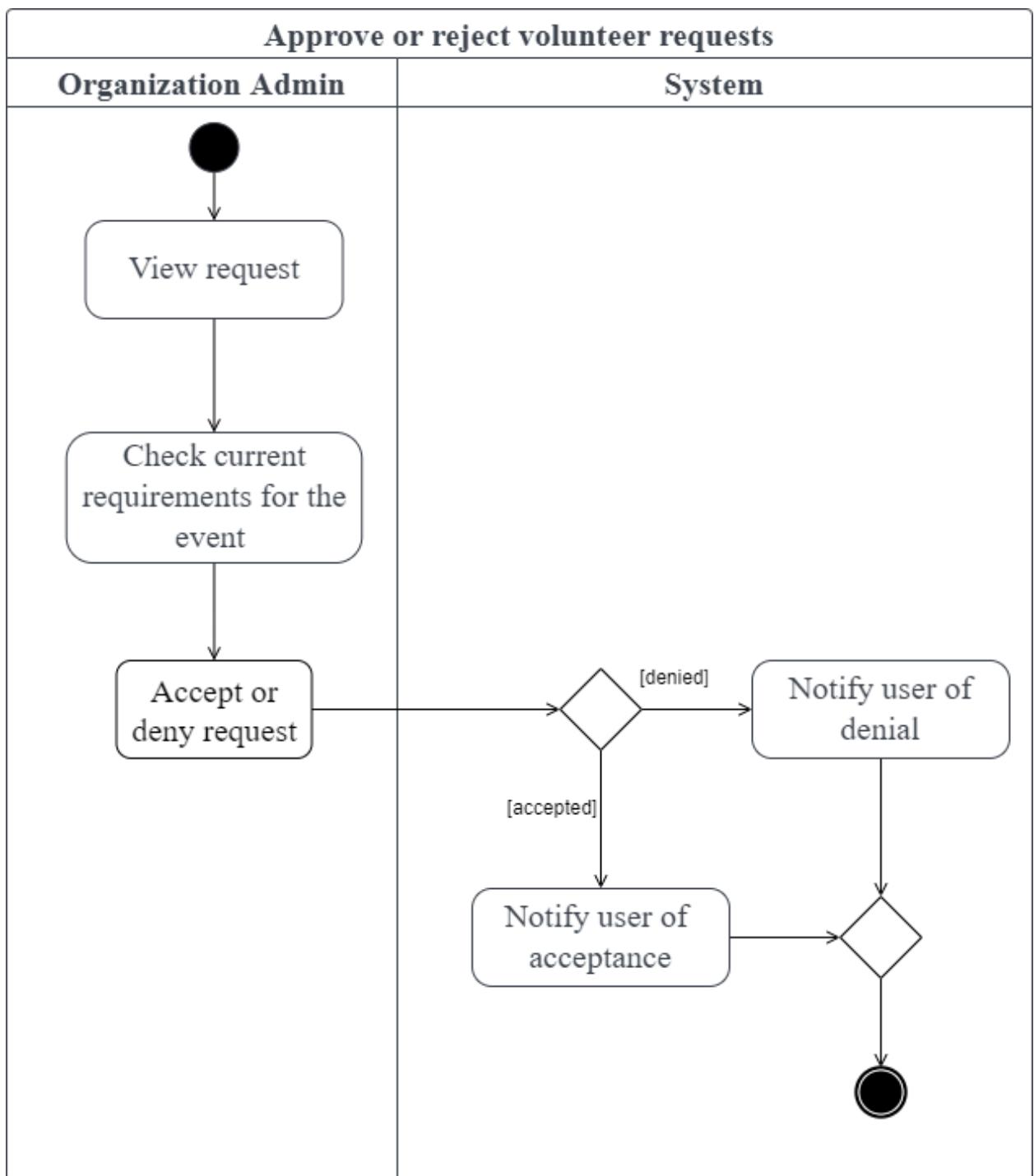


Figure 28#Activity diagram # Approve or reject volunteer requests#

4.5.18. View donated cash

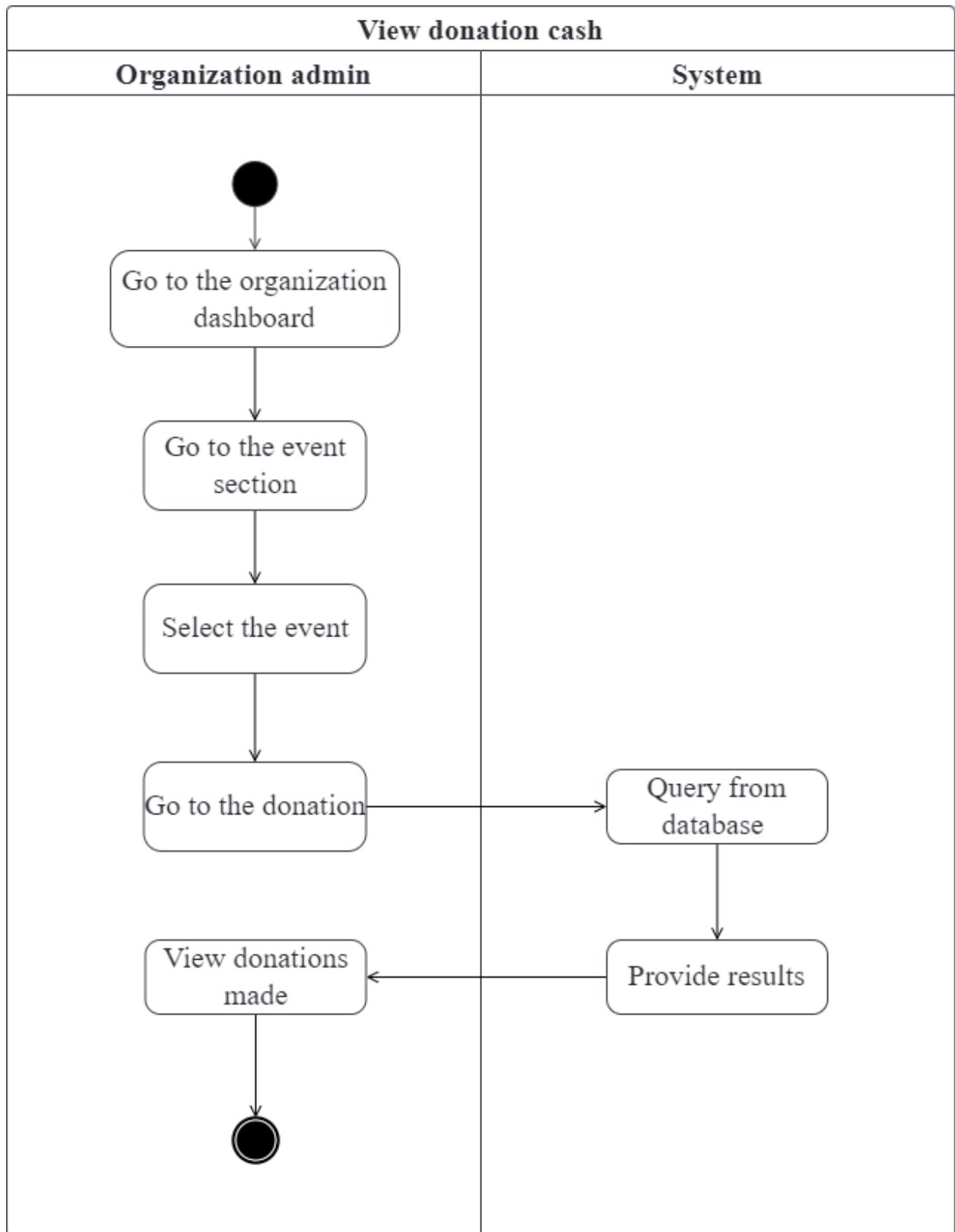
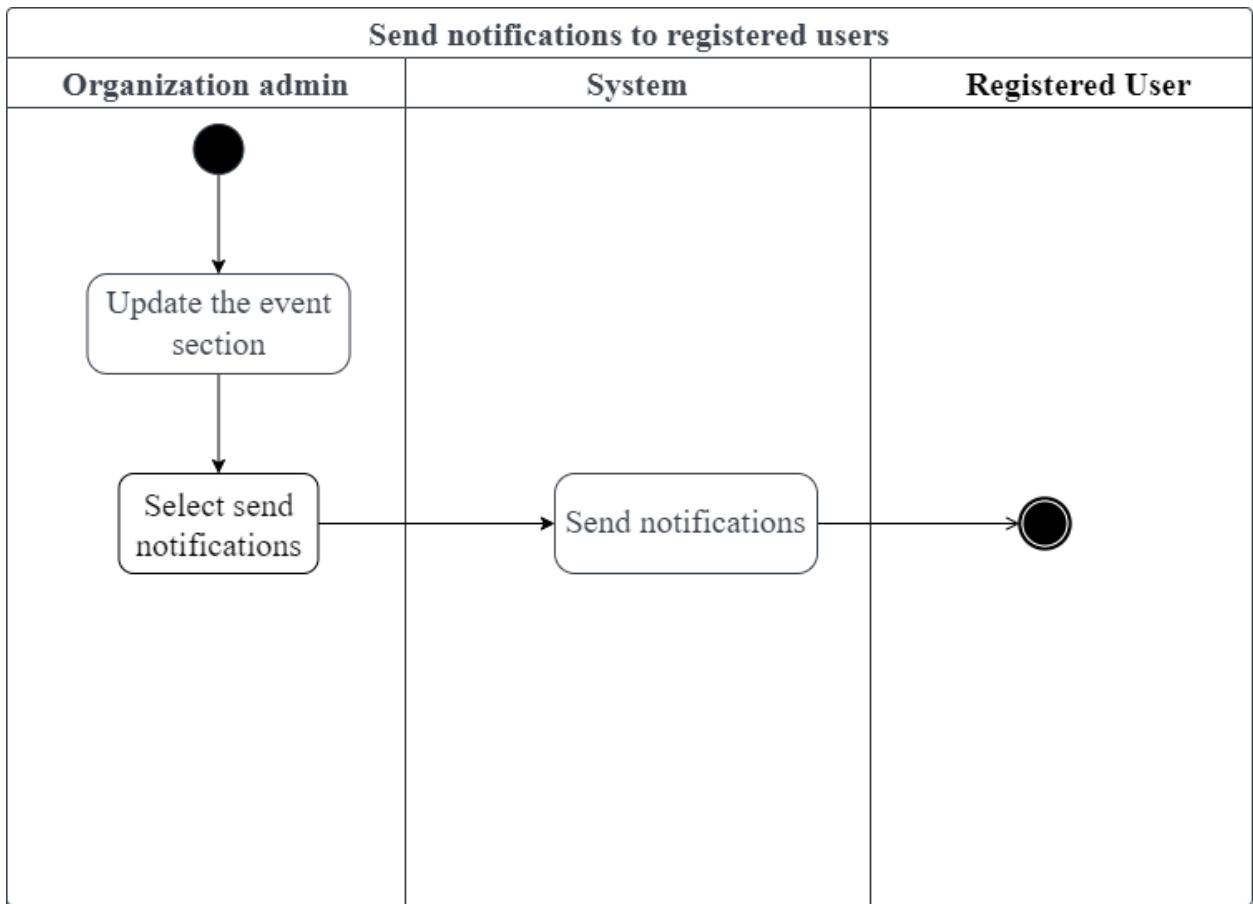


Figure 29#Activity diagram # View donated cash#

4.5.19. Send notifications to registered users*Figure 30#Activity diagram # Send notifications to registered users#*

4.5.20. Enter area coordinator details

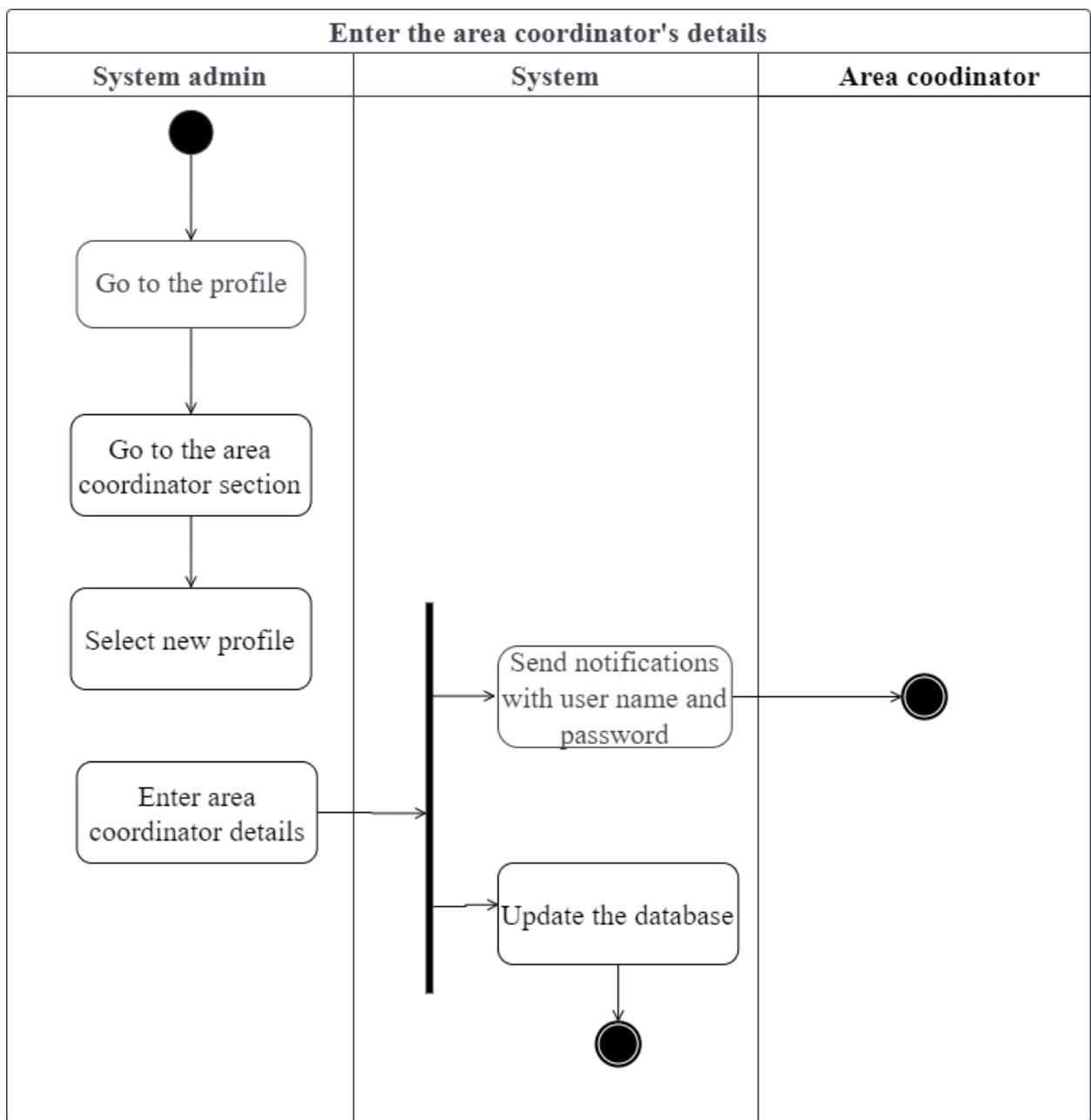


Figure 31#Activity diagram #Enter the area coordinators details#

4.5.21. Respond to reviews

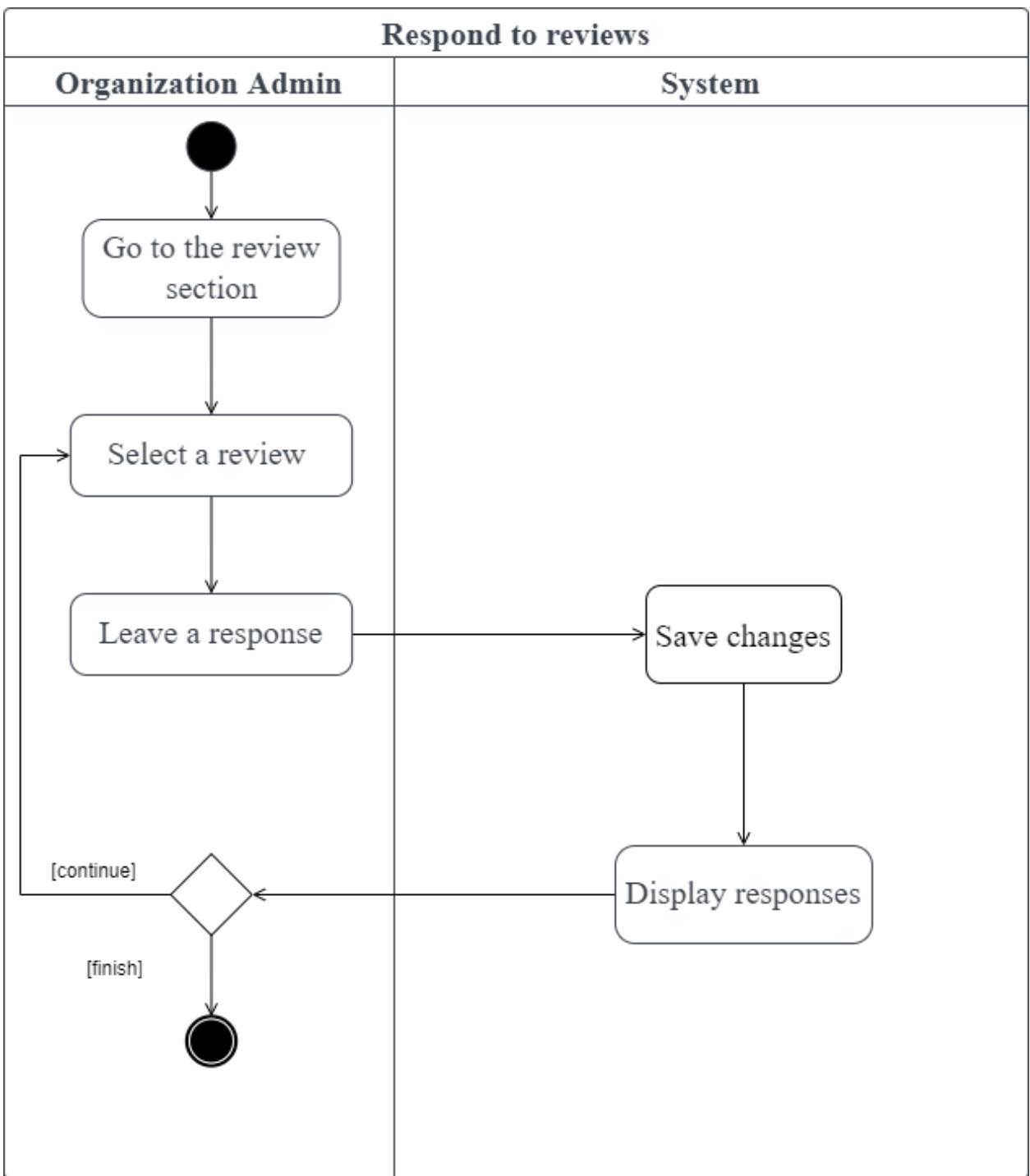


Figure 32#Activity diagram # Respond to reviews#

4.5.22. Delete users

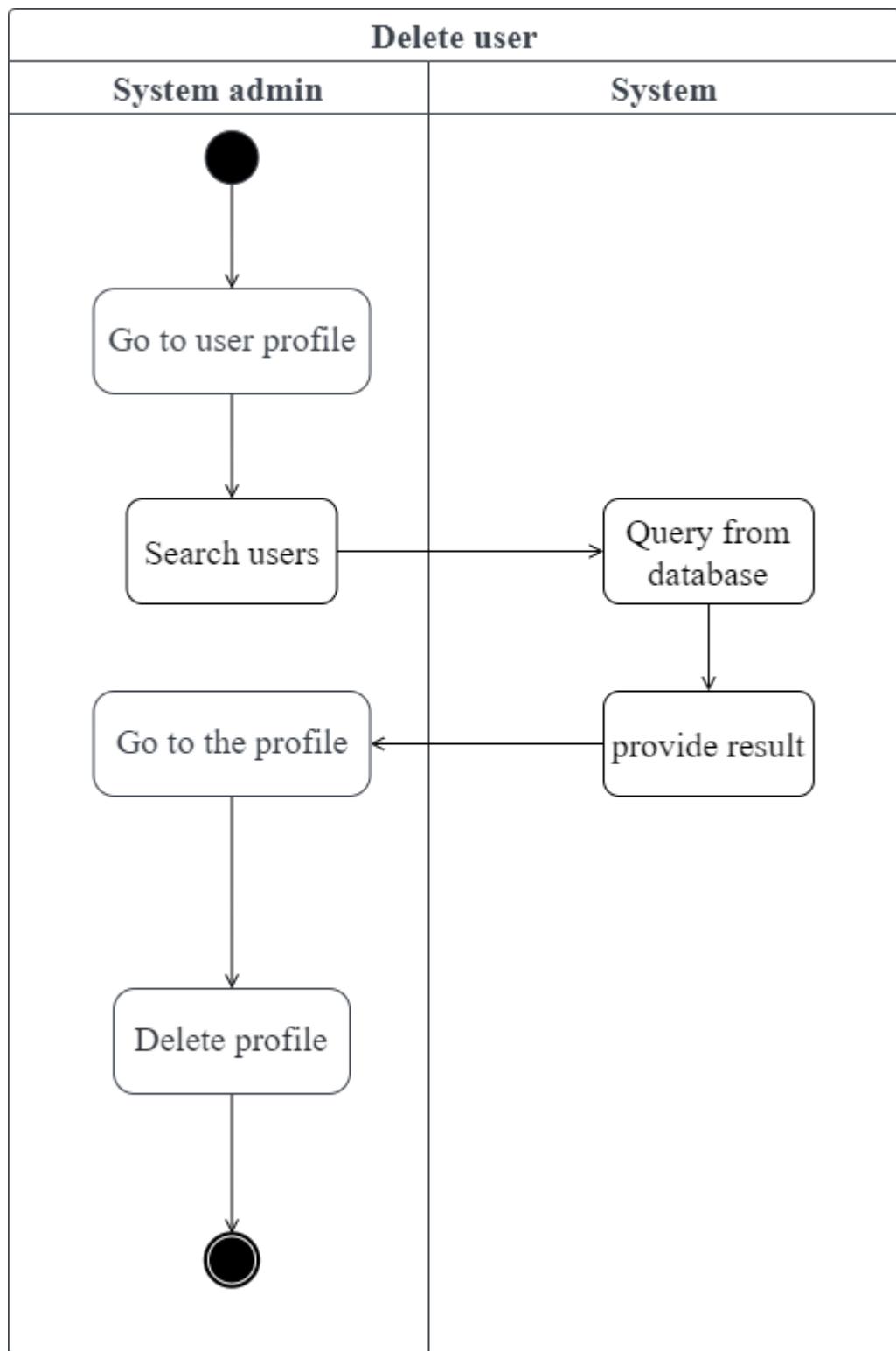
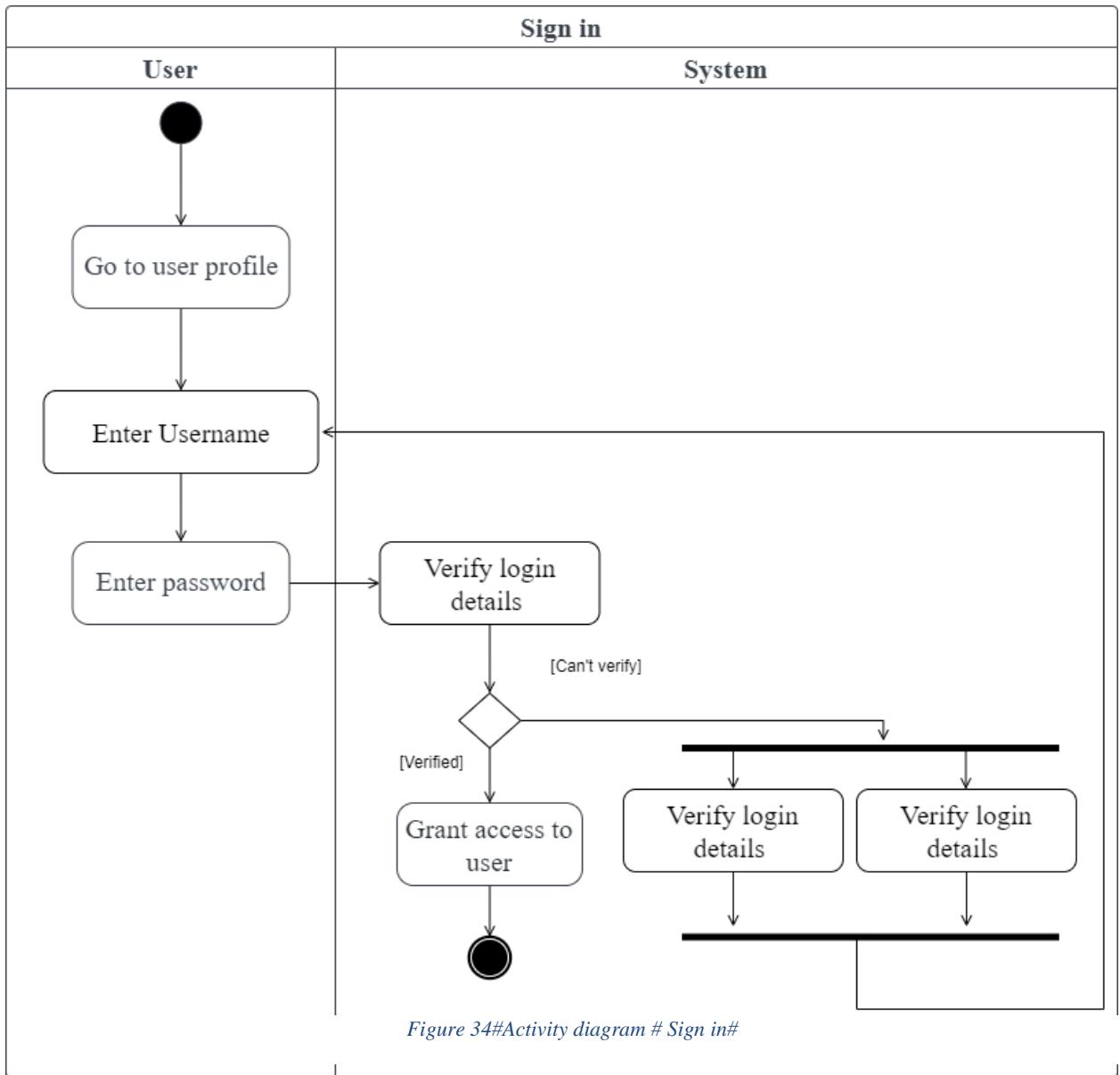


Figure 33#Activity diagram # Delete user#

4.5.23. Sign in



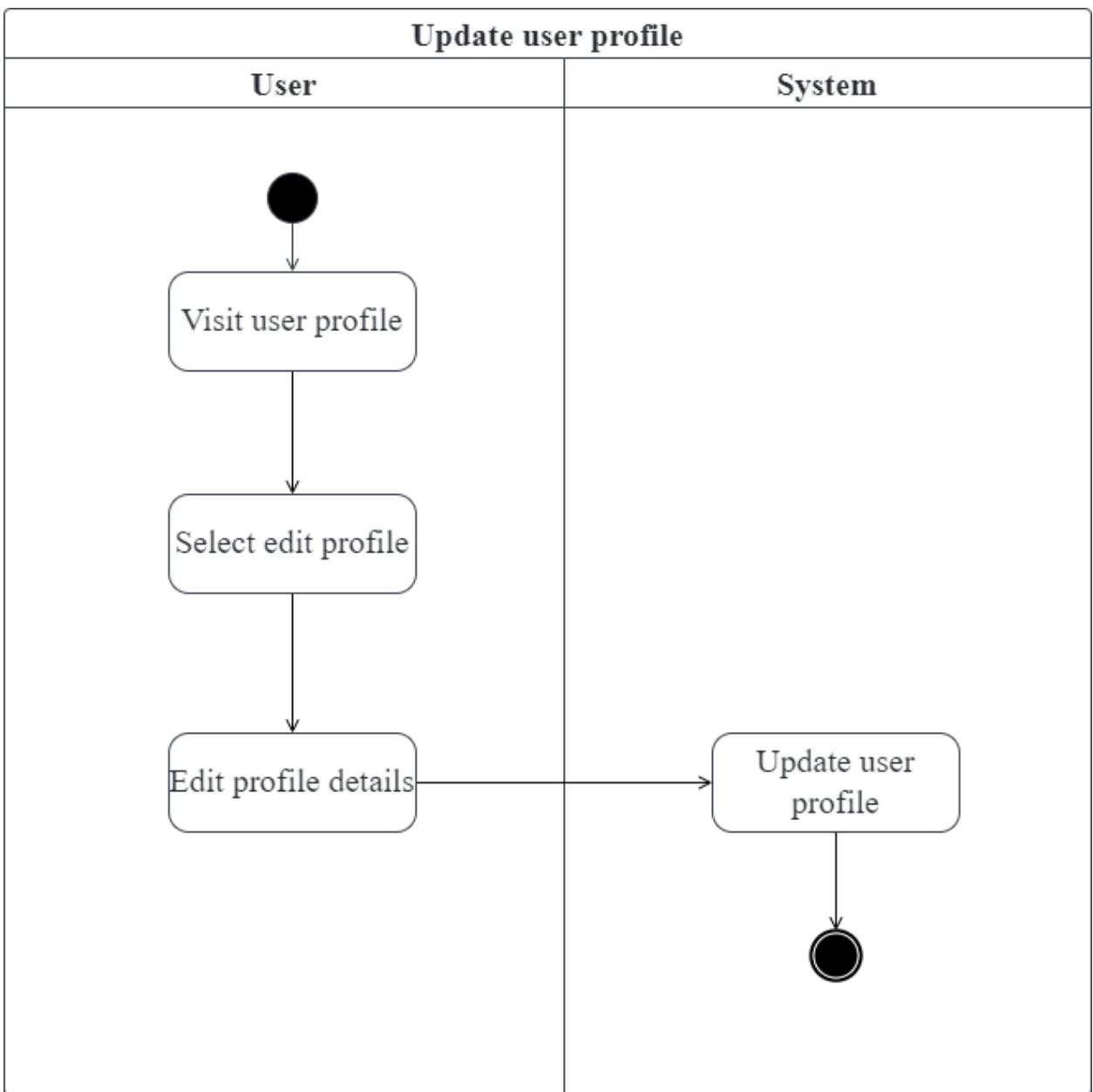
4.5.24. Update user profile

Figure 35#Activity diagram # Update user profile#

4.5.25. Change password

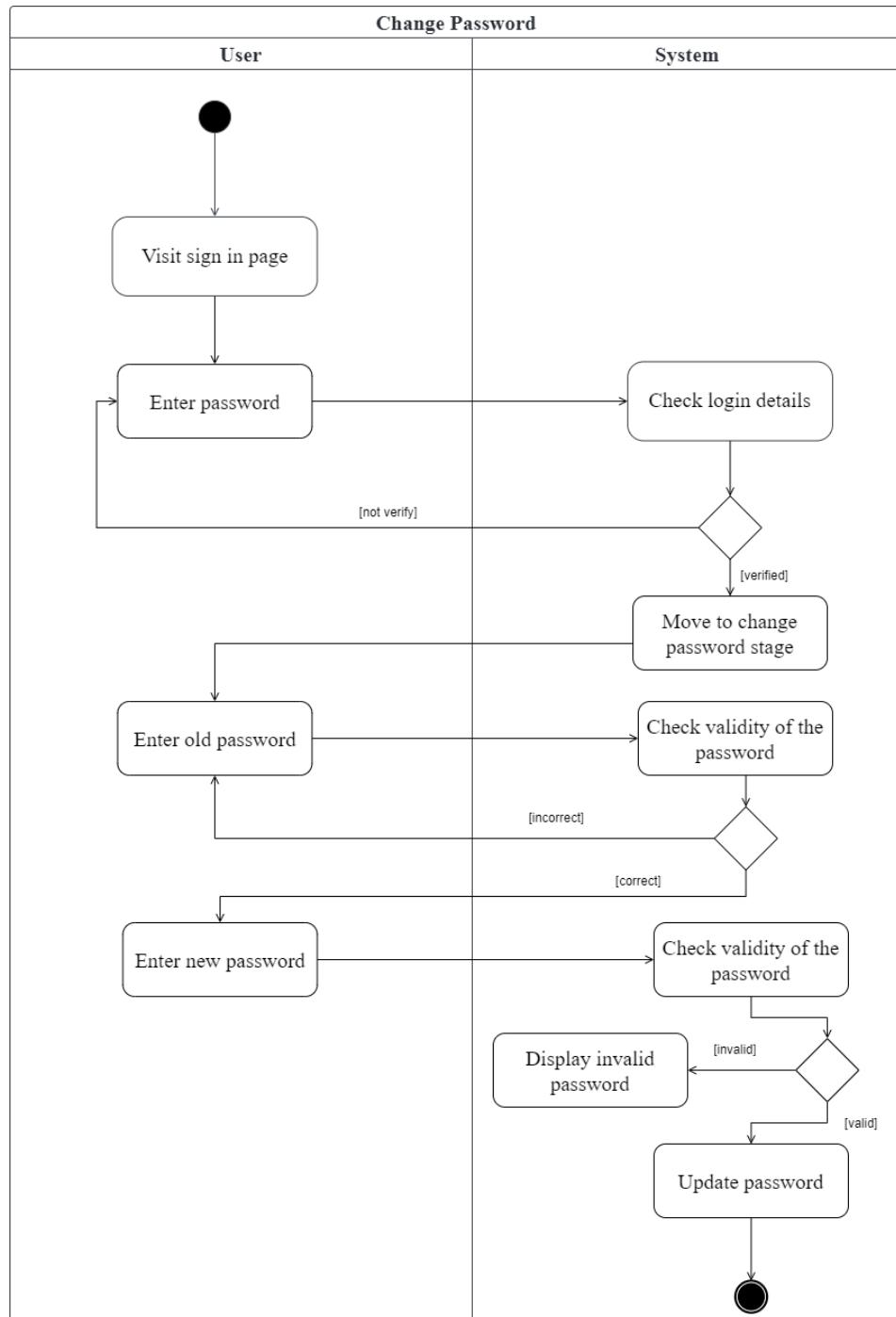


Figure 36#Activity diagram #Change password#

4.5.26. Reset password

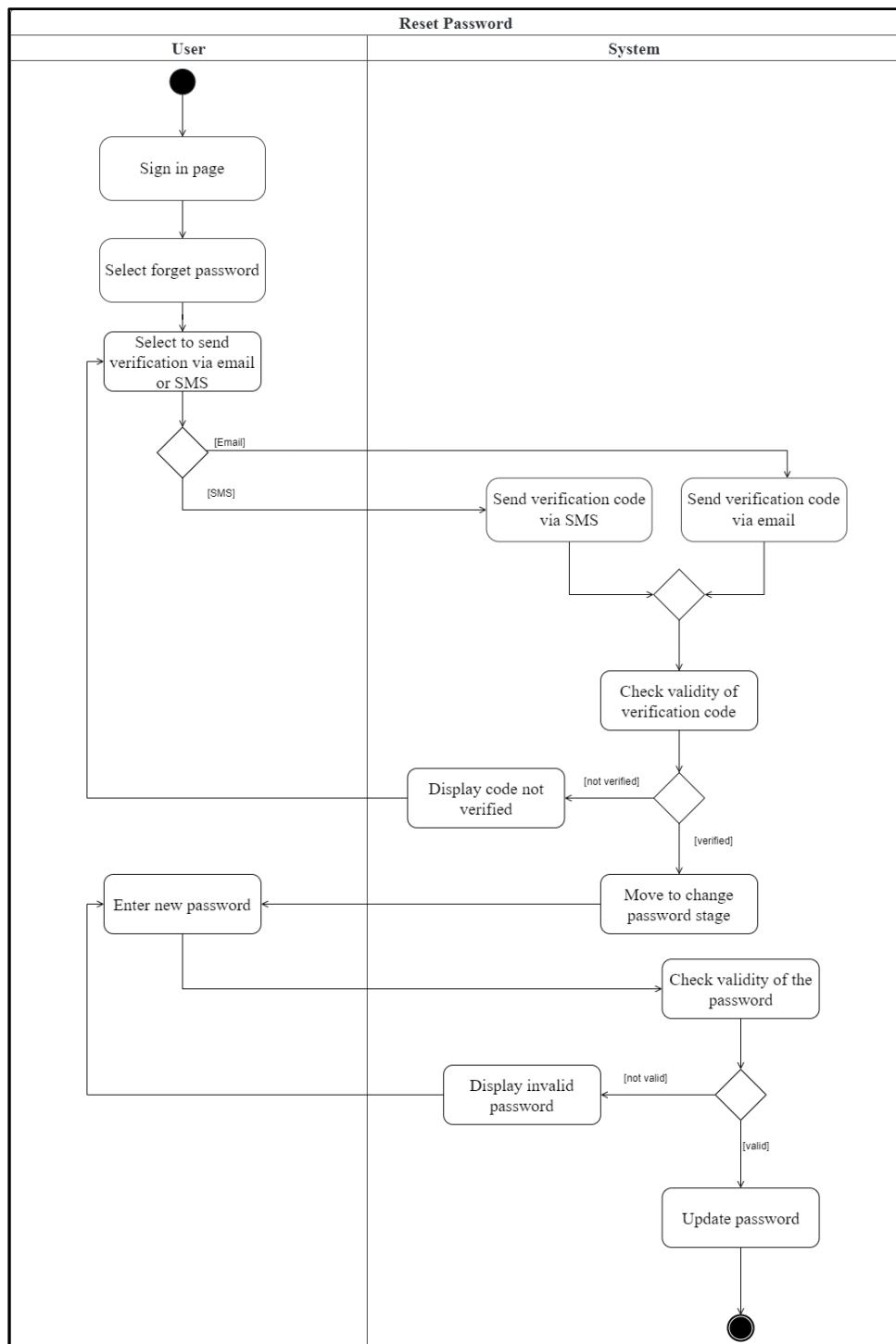
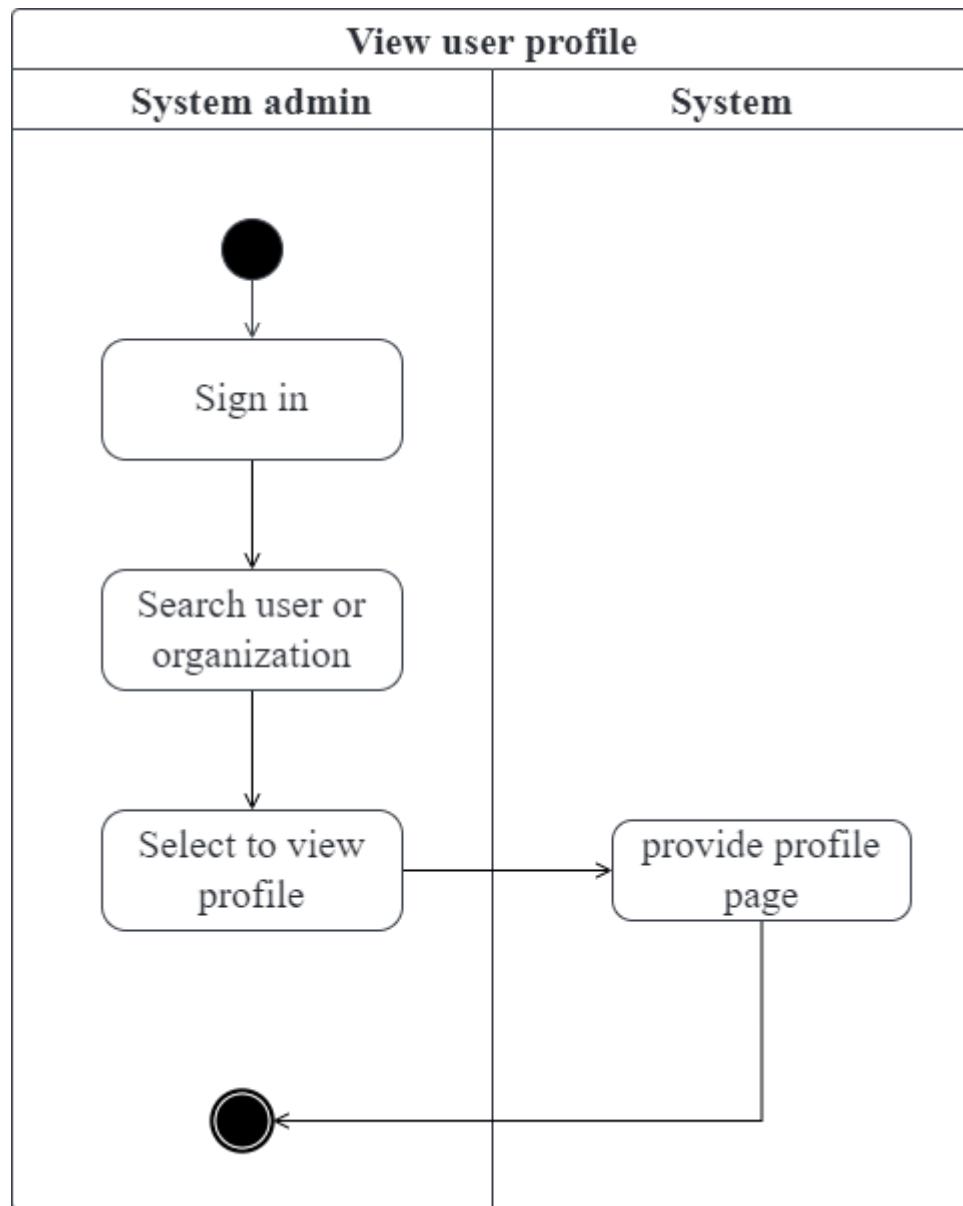


Figure 37#Activity diagram #Reset password#

4.5.27. View user profiles*Figure 38#Activity diagram # View user profile#*

4.5.28. View dashboard

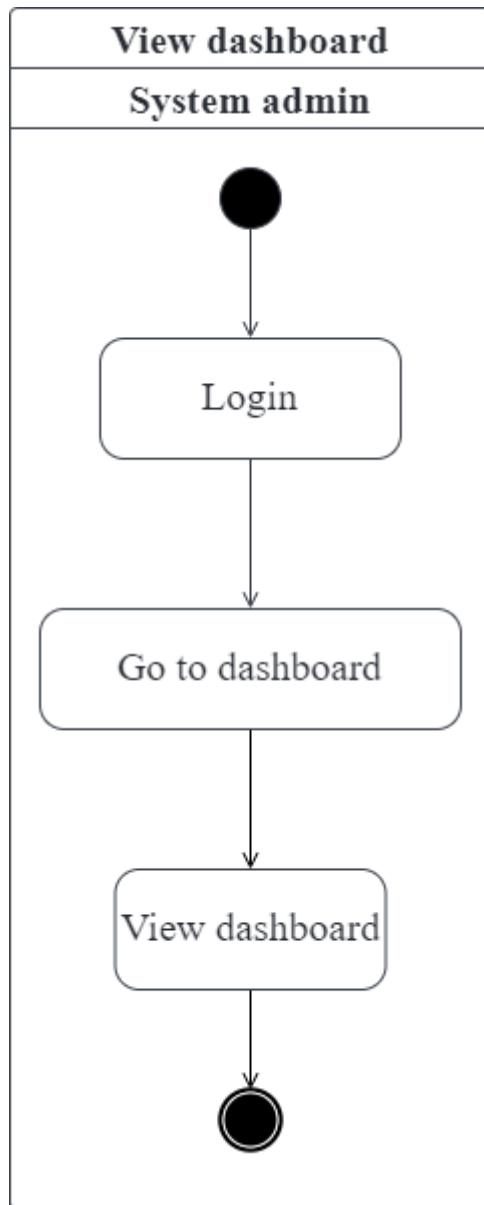
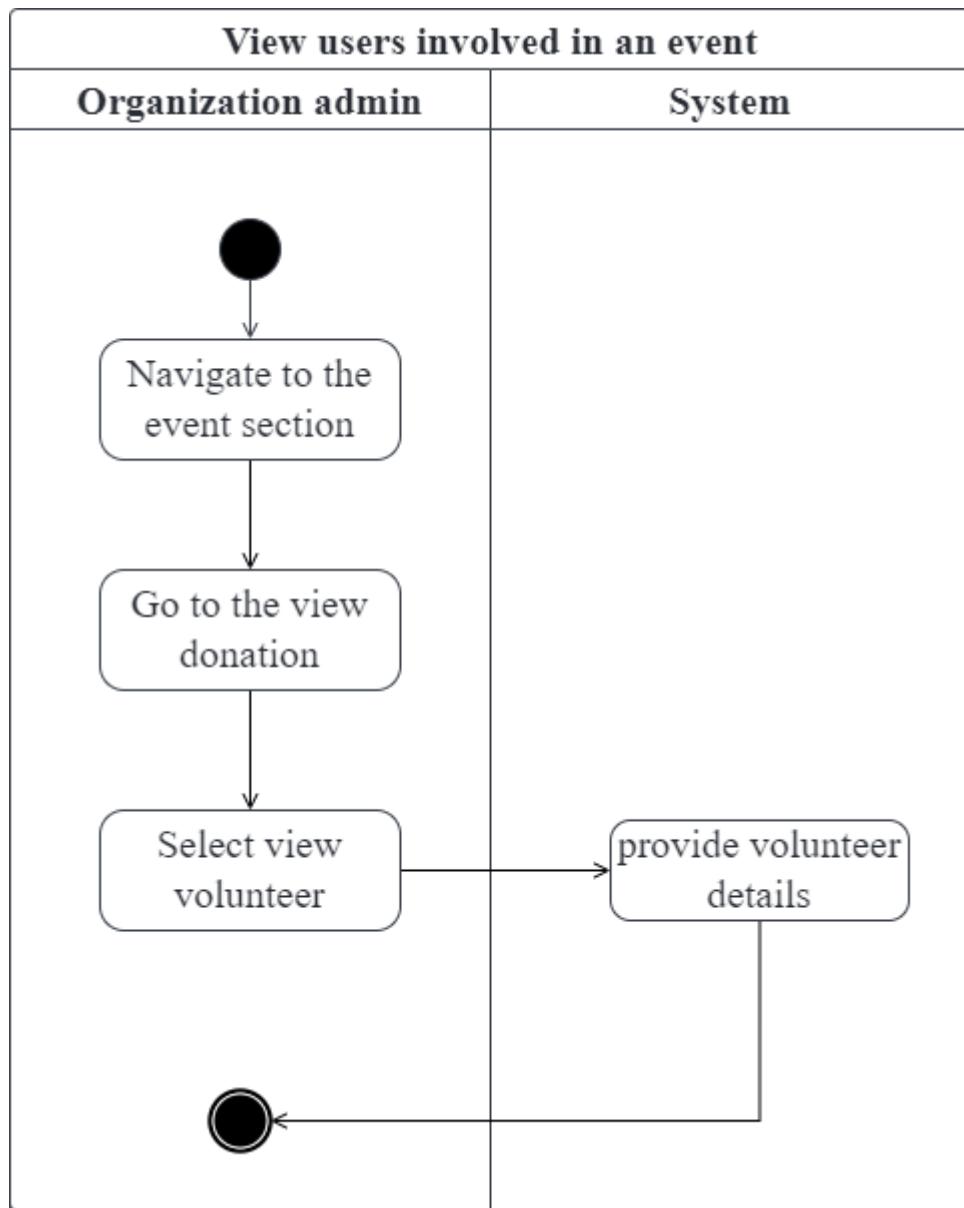


Figure 39#Activity diagram # View dashboard#

4.5.29. View users involved in an event*Figure 40#Activity diagram # View users involved in an event#*

4.5.30. Post photos and information on events

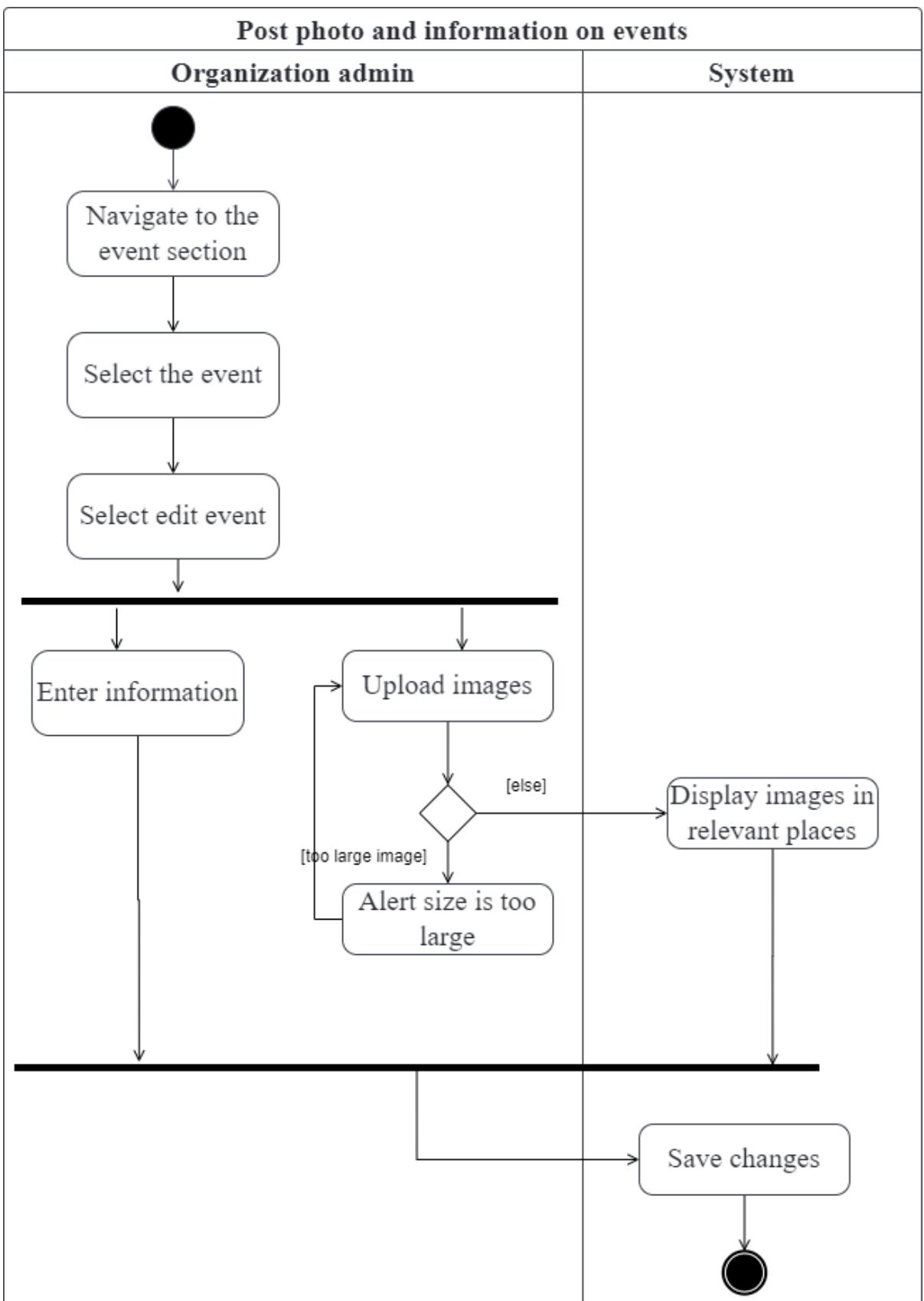


Figure 41#Activity diagram # Post photo and information on events#

4.5.31. View Events page

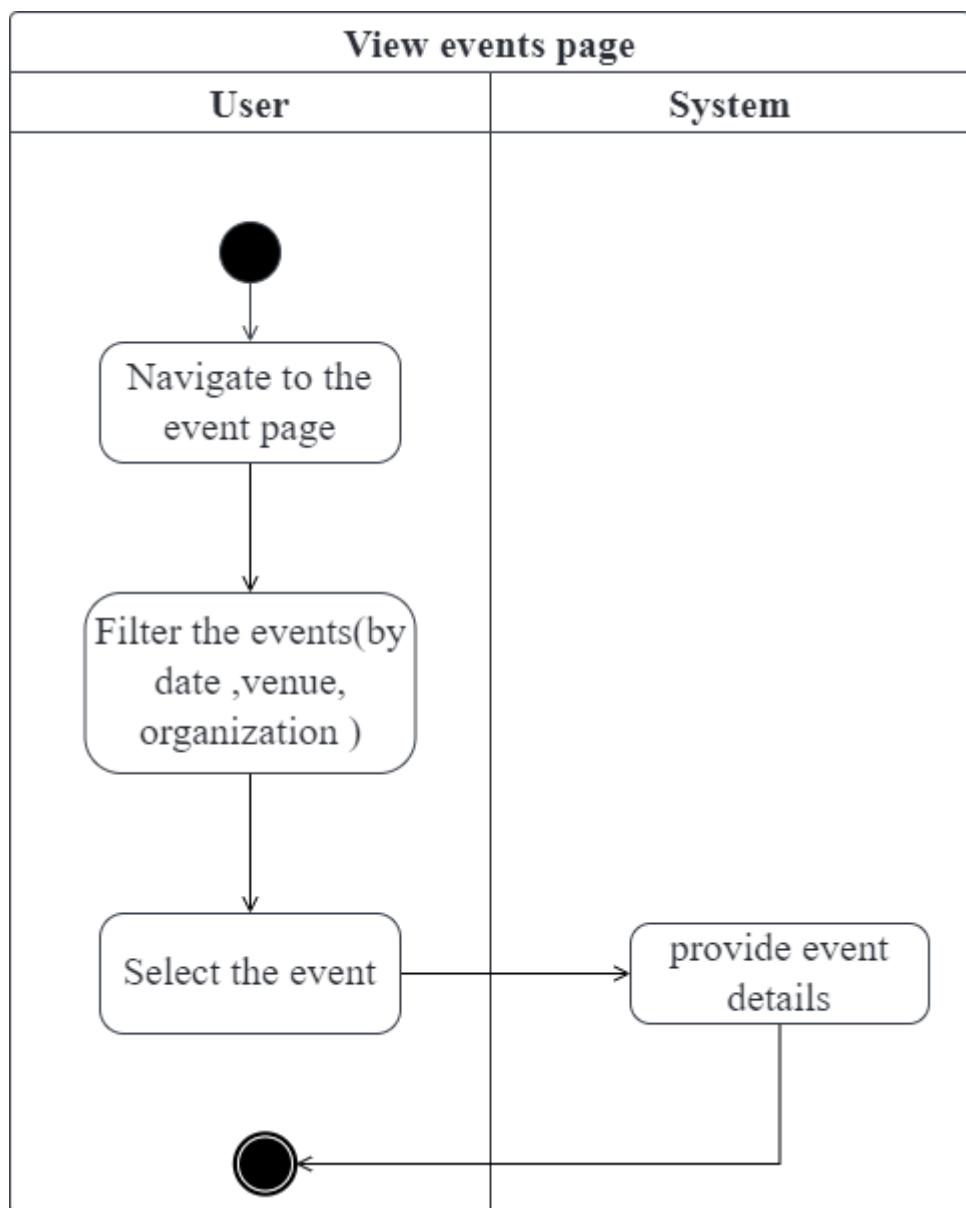


Figure 42#Activity diagram # View event page#

4.5.32. Visit the shop

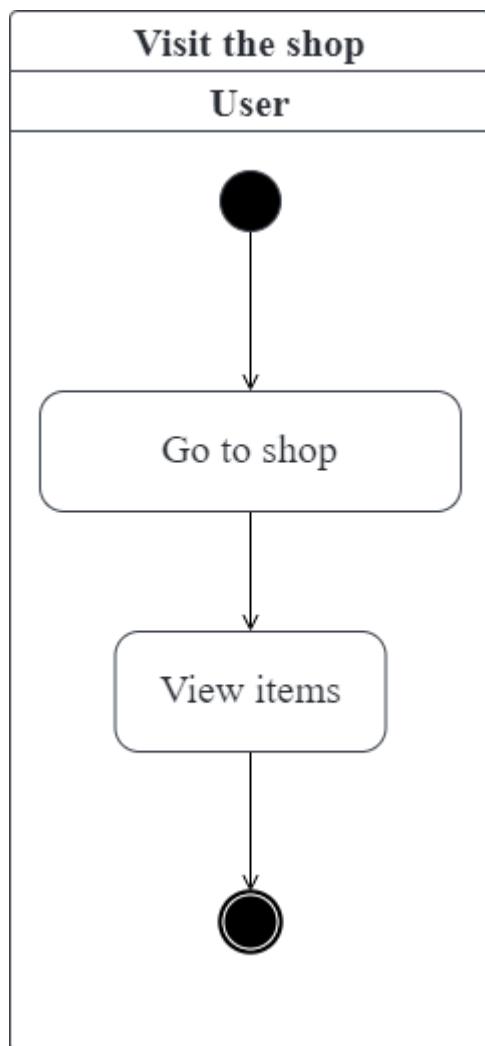


Figure 43#Activity diagram #Visit the shop#

4.5.33. View calendar

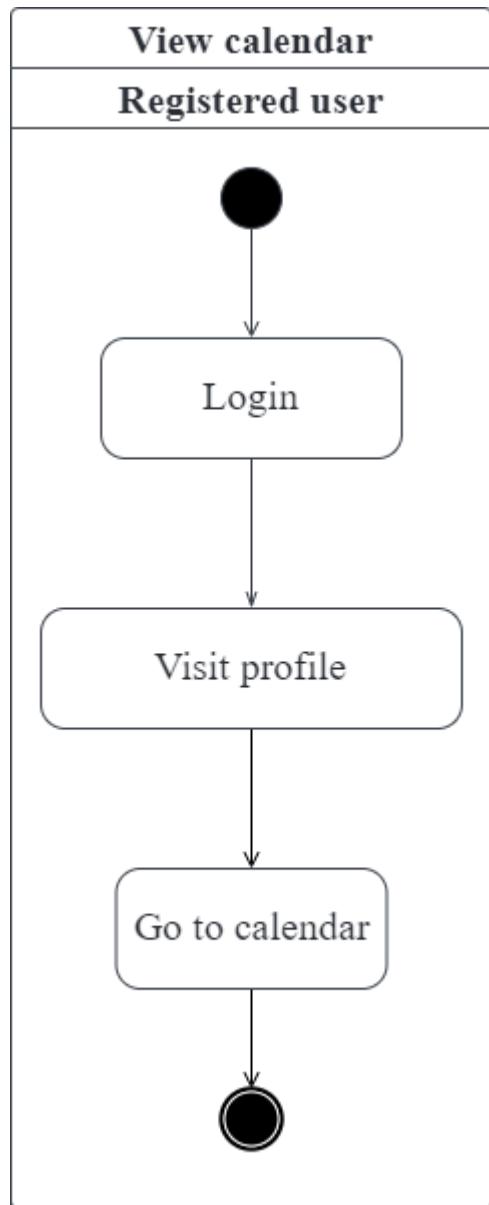


Figure 44#Activity diagram # View calendar#

4.5.34. View certificates

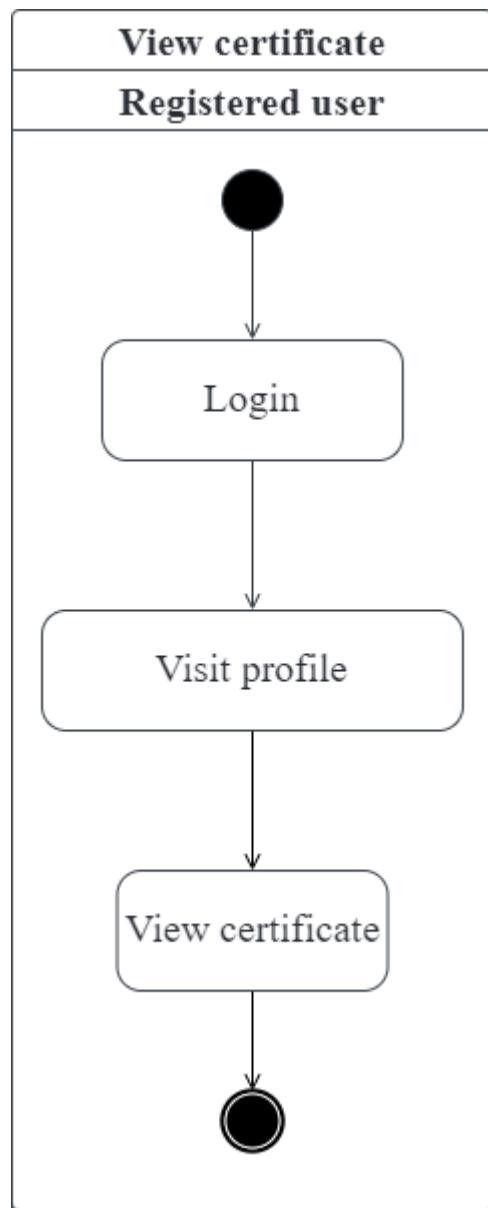


Figure 45#Activity diagram # View certificate#

4.5.35. View reminders

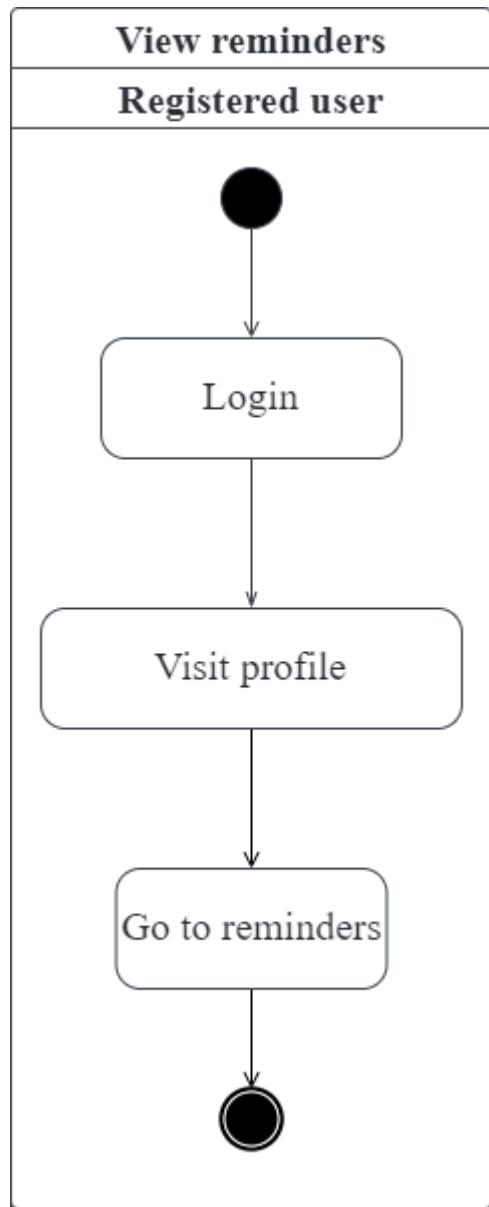


Figure 46#Activity diagram # View reminders#

4.5.36. View leaderboard

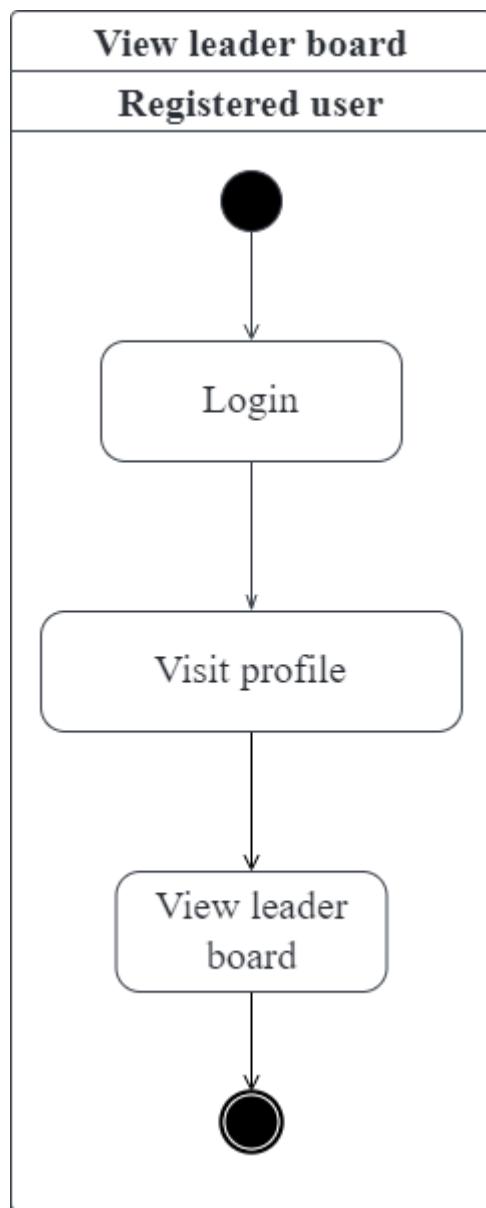


Figure 47#Activity diagram # View leader board#

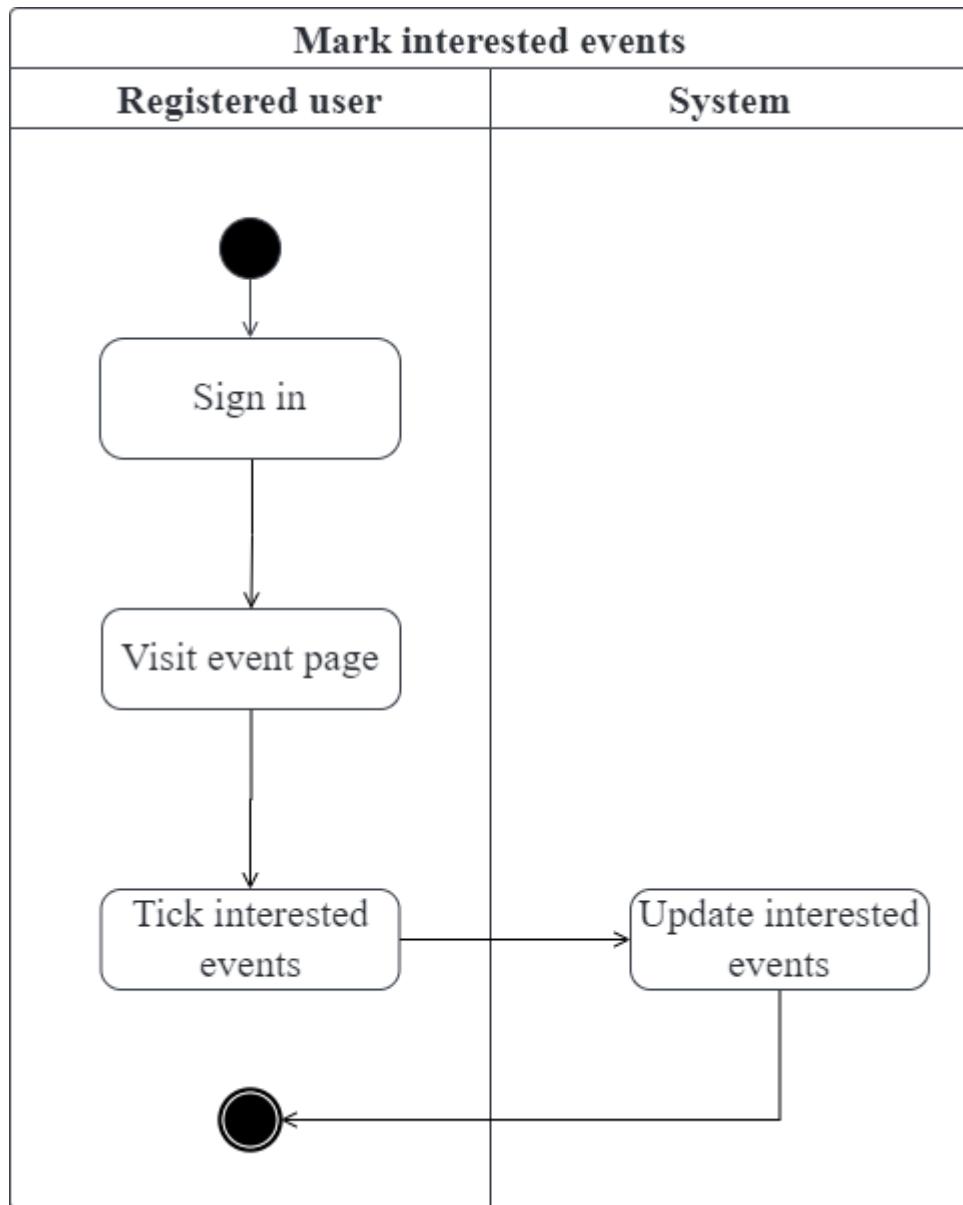
4.5.37. Mark interested events

Figure 48#Activity diagram # Mark interested events#

4.5.38. Buy merchandise

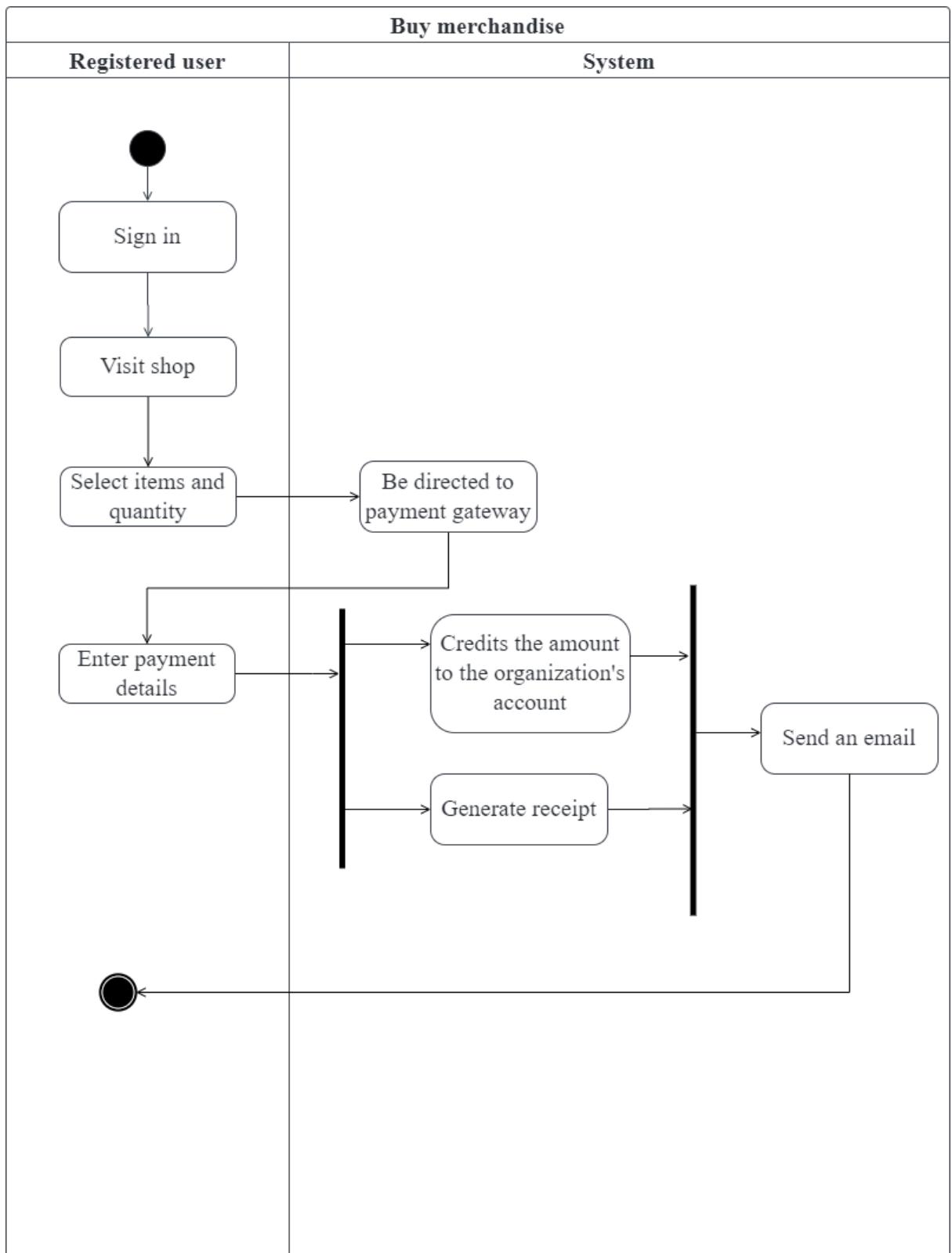


Figure 49#Activity diagram # Buy merchandise#

4.5.39. Pay subscription fee

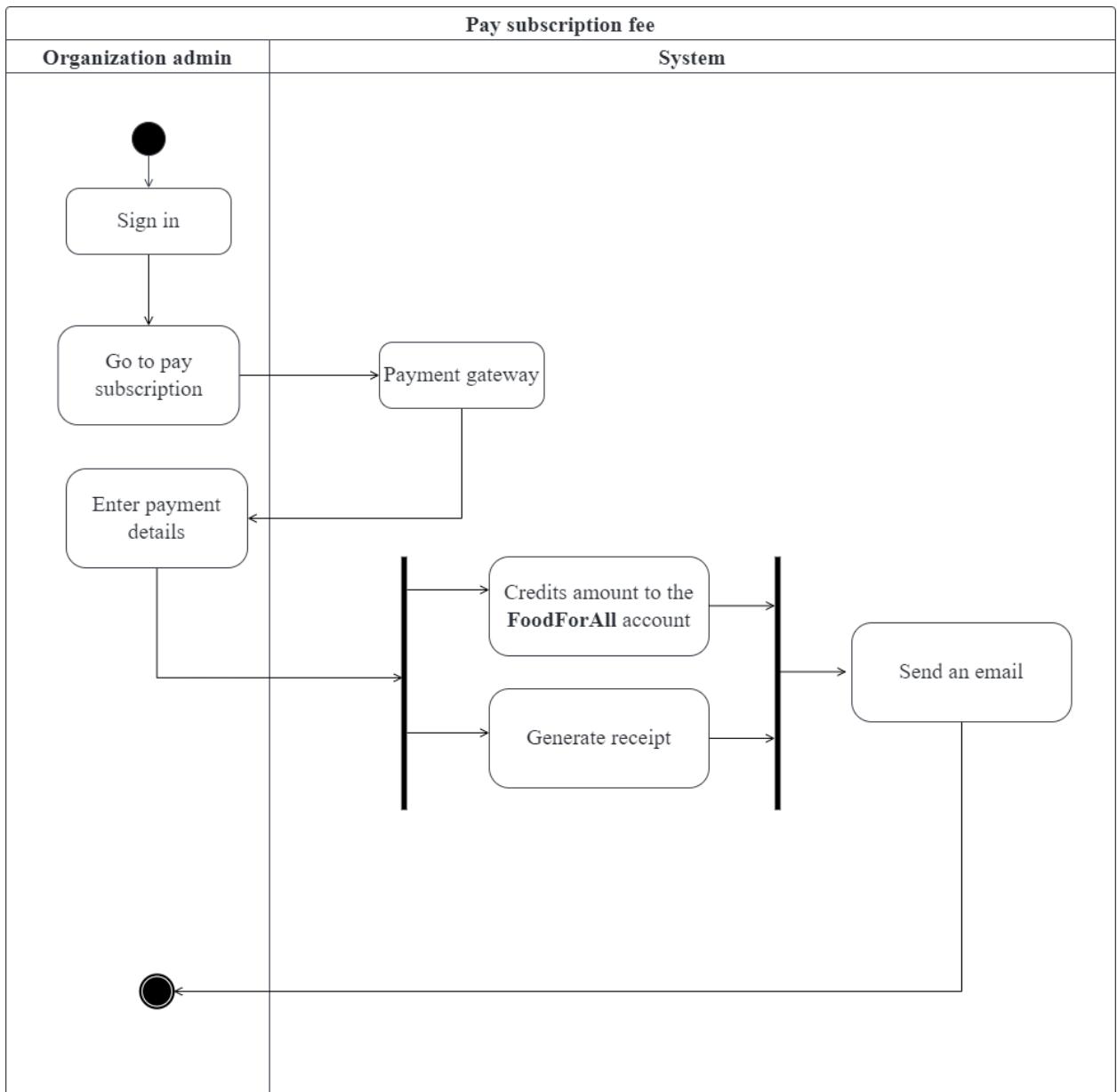


Figure 50#Activity diagram # Pay subscription fee#

4.5.40. View reports

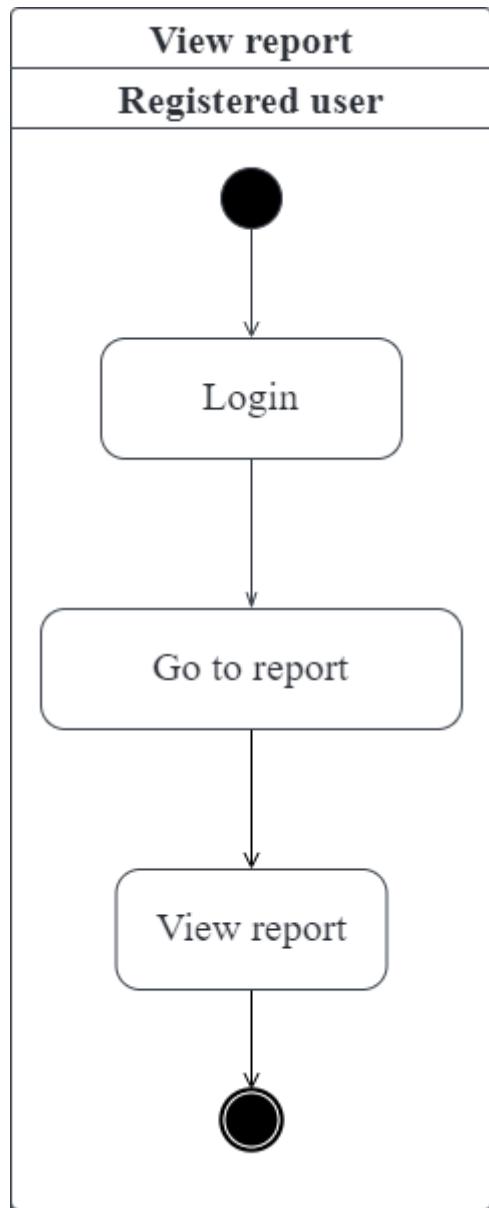


Figure 51#Activity diagram # View report#

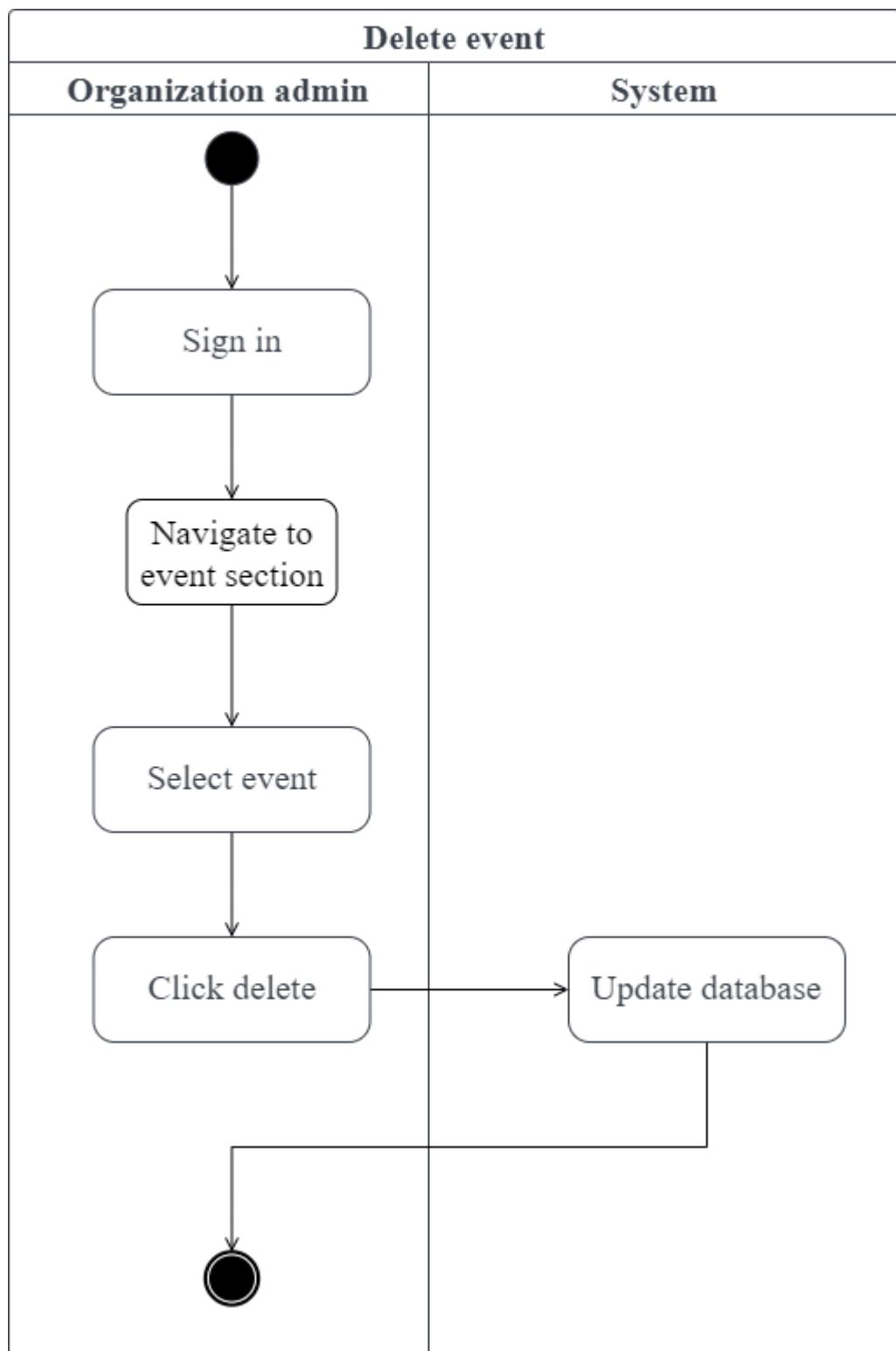
4.5.41. Delete event

Figure 52#Activity diagram # Delete event#

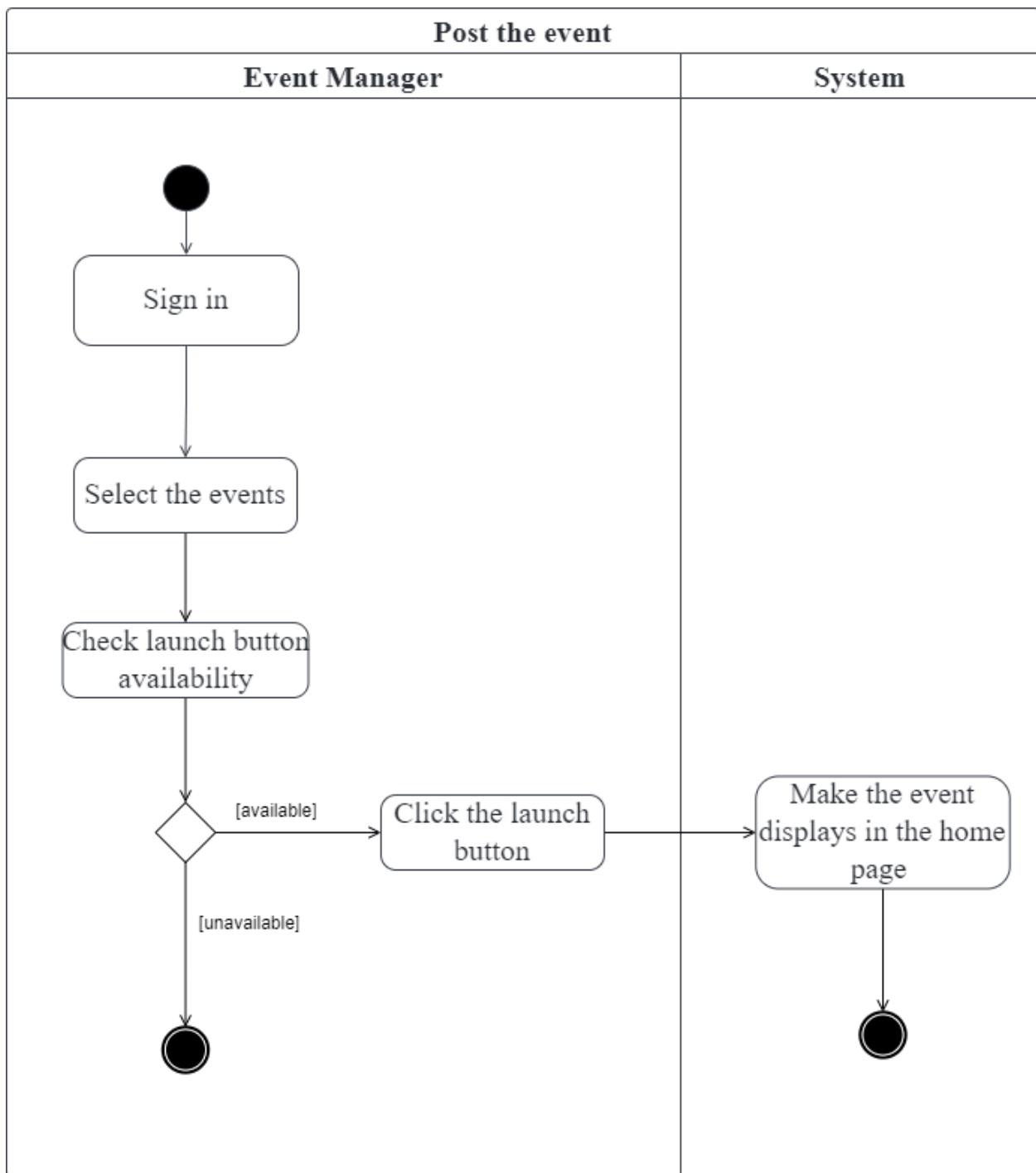
4.5.42. Post the event

Figure 53#Activity diagram # Post the event#

4.5.43. Respond to the budget relevant to an event

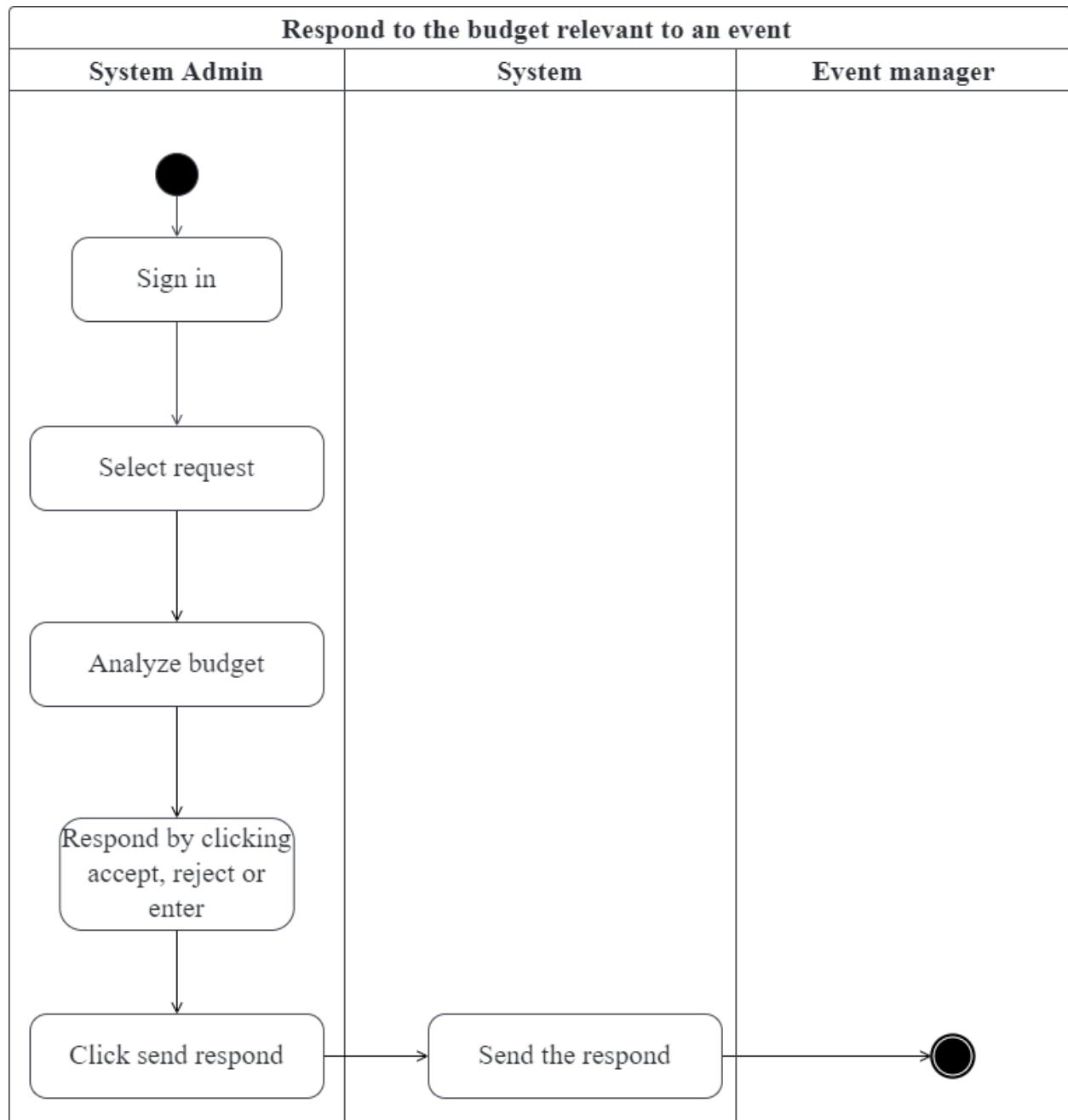


Figure 54#Activity diagram # Respond to the budget relevant to an event#

4.5.44. Create budget

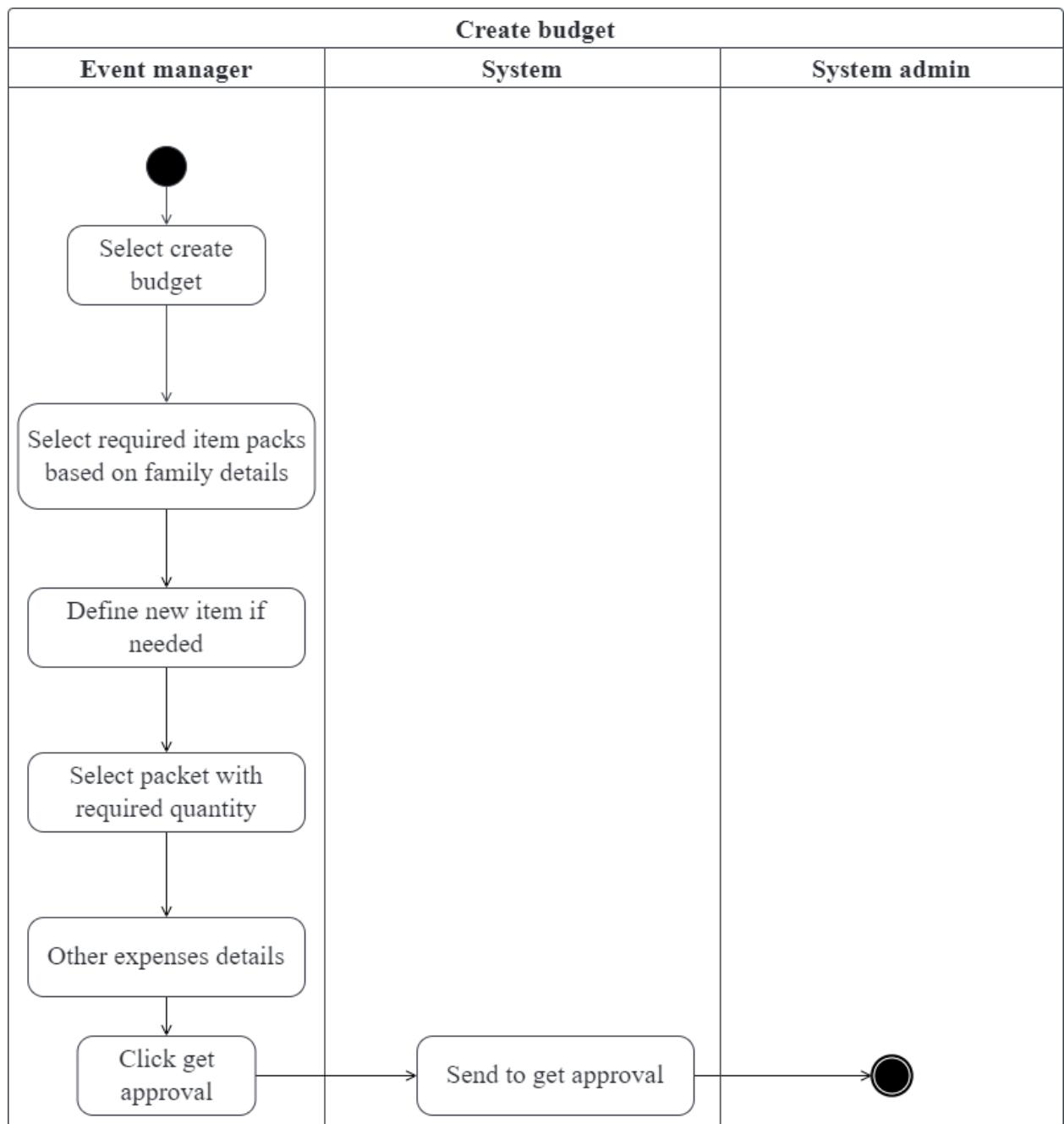
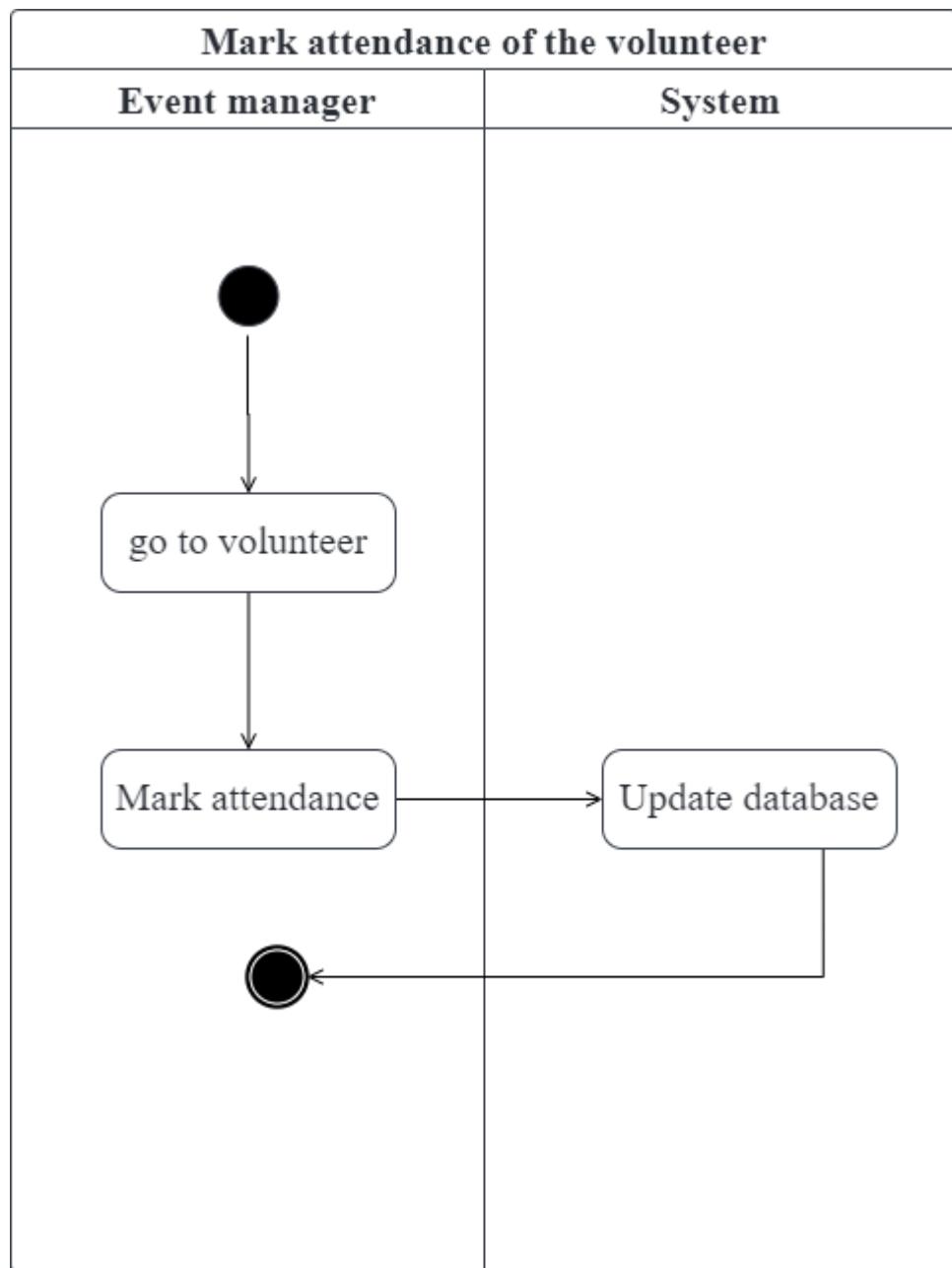


Figure 55#Activity diagram # Create budget#

4.5.45. Mark attendance of the volunteers*Figure 56#Activity diagram # Mark attendance of the volunteer#*

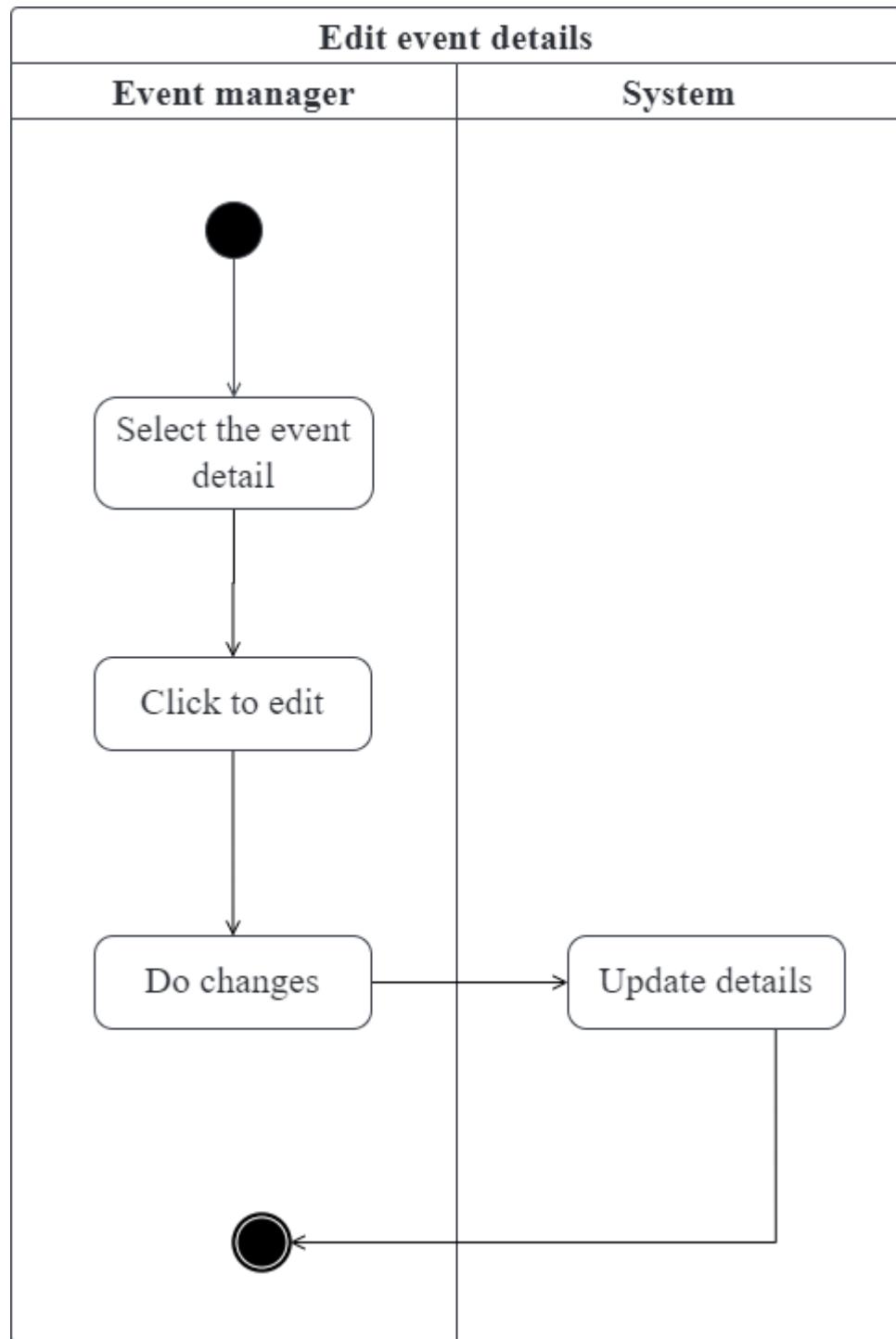
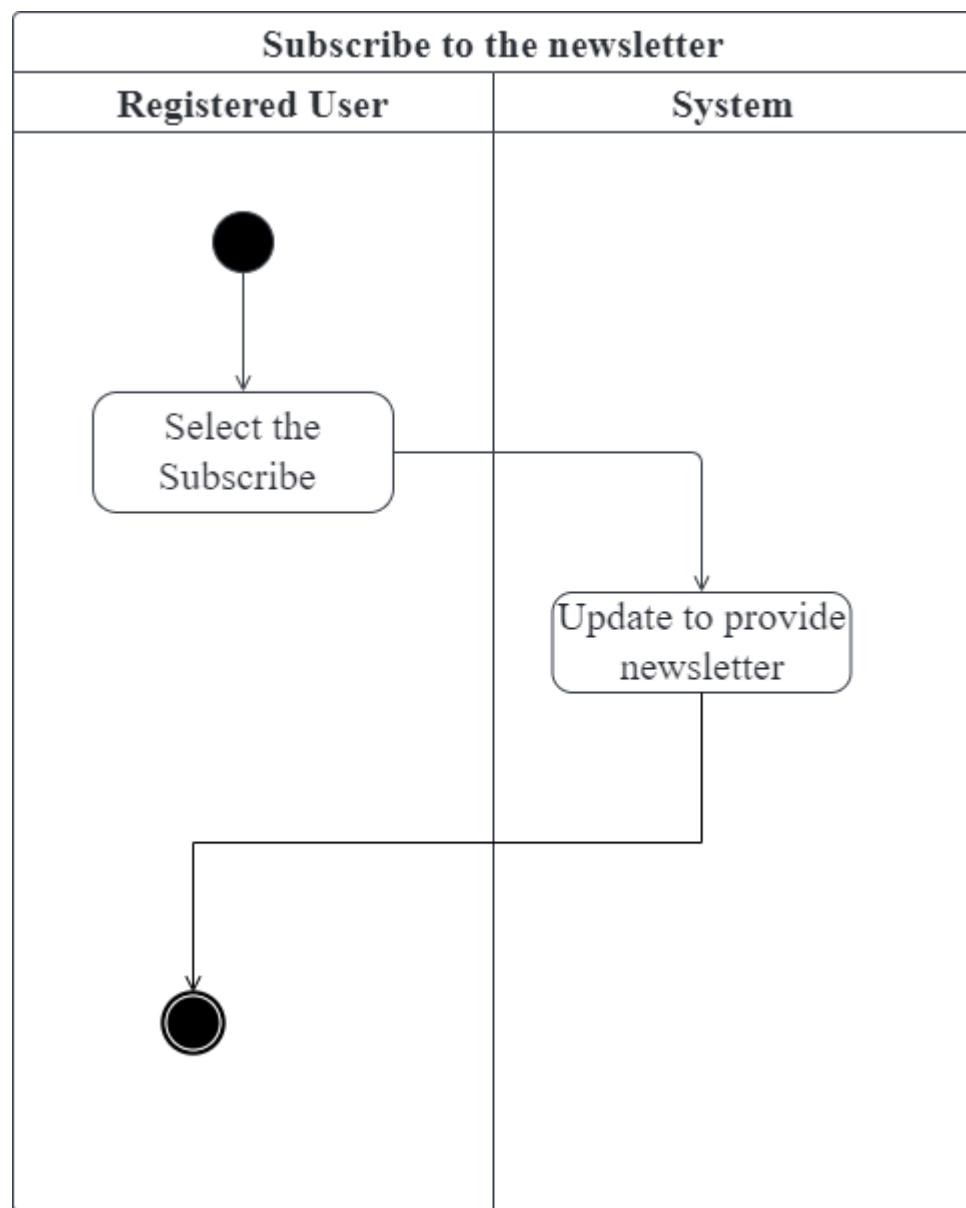
4.5.46. Edit event details

Figure 57#Activity diagram # View Edit event details#

4.5.47. Subscribe to the newsletter*Figure 58#Activity diagram # Subscribe to the newsletter#*

4.5.48. Add event manager

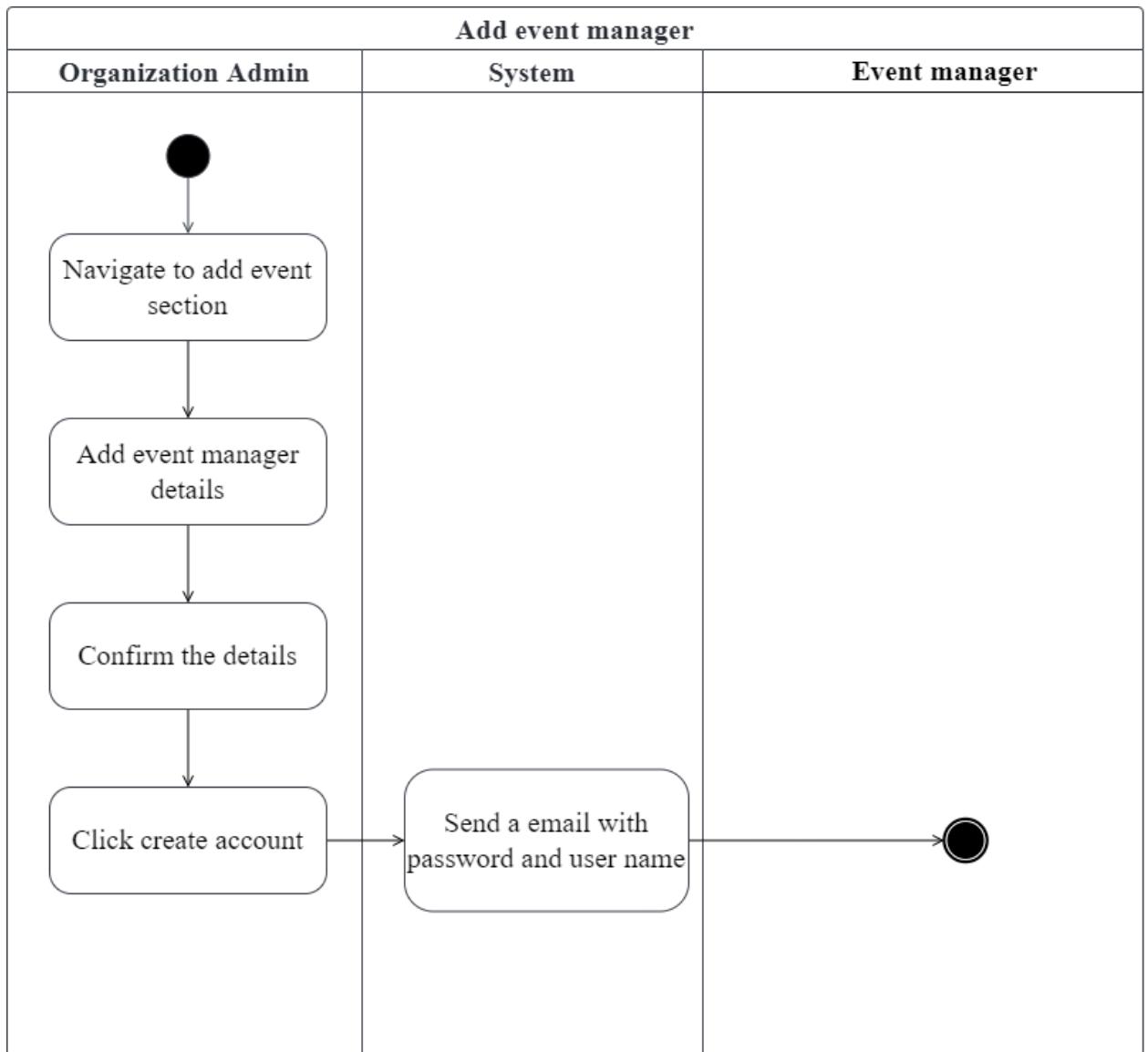


Figure 59#Activity diagram # Add event manager#

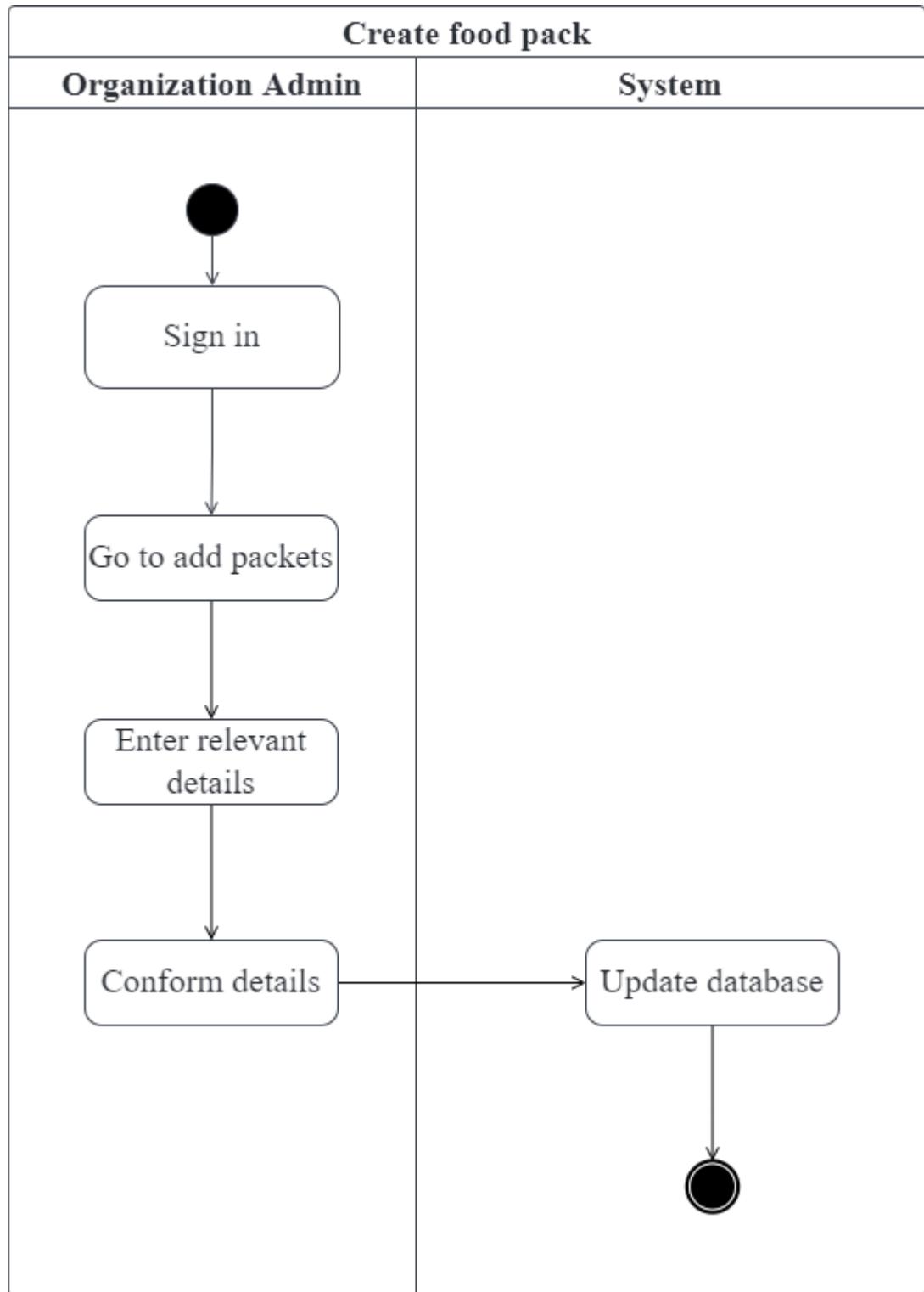
4.5.49. Create food pack

Figure 60#Activity diagram # Create food pack#

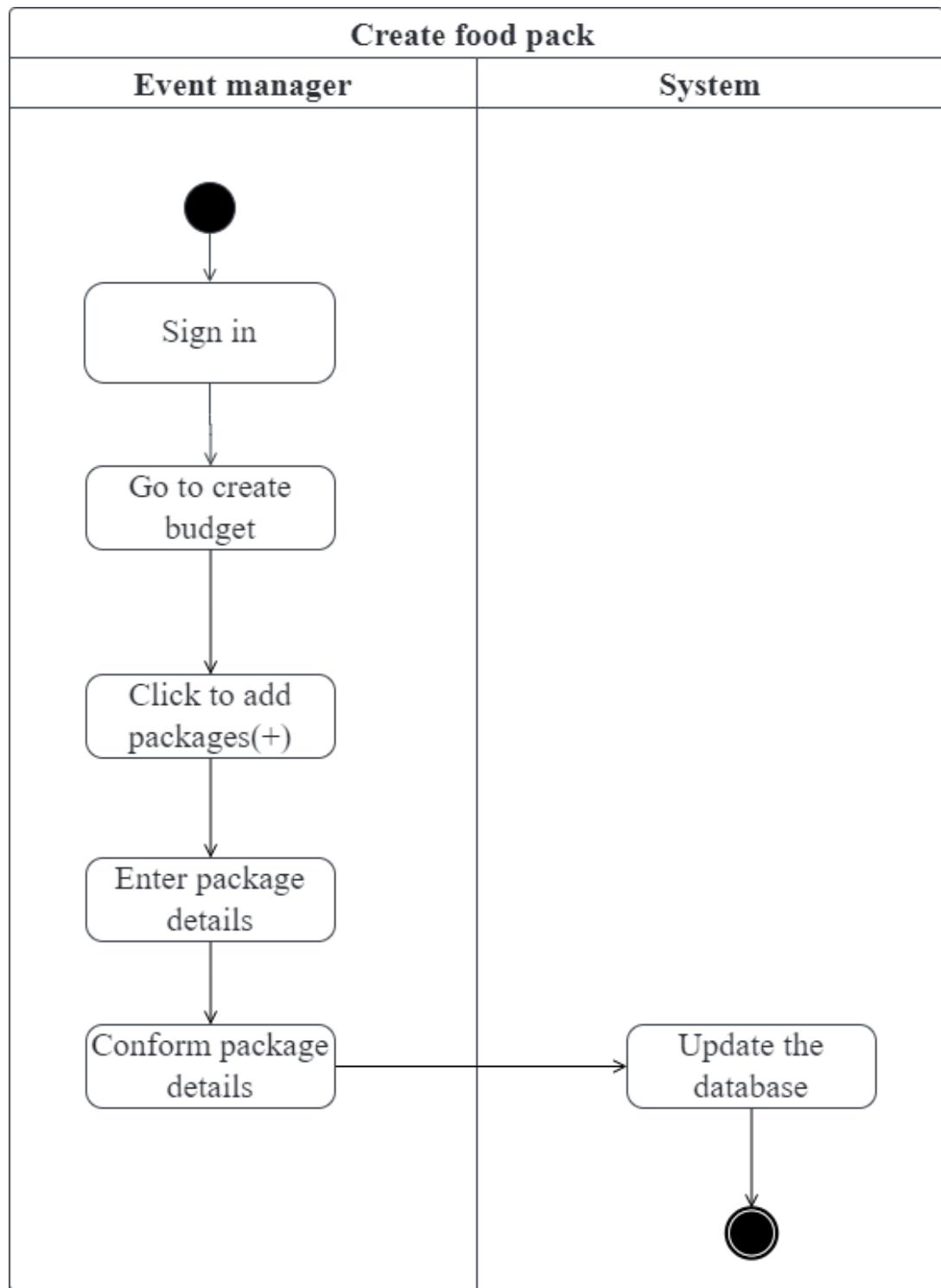
4.5.50. Create food pack

Figure 61#Activity diagram # Create food pack#

4.6.Quality attributes

4.6.1. Security

Since monetary donations and other payments are made through the system, this is made secure by encrypting the customer's sensitive details using SSL (Security Socket Layer) which provides privacy, authentication, and integrity to internet communication. User accounts are secured by hashing passwords when storing in the database.

Also, the system will include countermeasures against SQL injection attacks, CORs-based attacks and RCE (remote code execution) as there are user generated content.

Tactics

- Detecting Attacks
 - Password reset links and other sensitive data is encrypted and they are validated for their integrity using cryptographic methods when used as input.
 - User Sessions, system generated links should have an expiration time and expired ones must be denied by the system.
 - Email addresses and telephone numbers used to register in the system must be verified.
- Resisting Attacks
 - A strong password policy shall be maintained (Authentication).
 - Access to the system administration tasks must be protected with additional security measures (Authorization).
- Reacting to Attacks
 - User accounts should be able to be disabled or blocked.
 - IP addresses shall be able to be blocked in case of an attack coming from certain addresses
- Recovering From Attacks
 - System shall be able to recover after an attack using backed-up data

4.6.2. Modifiability

System maintenance and future improvements should be straightforward to carry out and it should be possible to modify components separately. Therefore,

- The system is built with good developer documentation and comments.
- Best practices and good coding standards are followed.
- The system is properly modularized with good system architecture.

Tactics

- Reducing Size of a Module
 - A module should not contain functionality for a broad range of features and should be limited to properly maintainable scope.
- Increase Cohesion
 - Controller & Model classes should only contain the methods related to the same functional area otherwise they should be placed into different classes. Improved by removing responsibilities unaffected by anticipated changes.
- Reduce Coupling
 - External or shared services such as payment gateways, Email & SMS should be integrated via abstract interfaces.
 - Loosely connected modules with restricted dependencies.
- Defer Binding
 - Configuration values such as database credentials, API keys shall be given as a parameter to the application and should not be included in the source code of the system.

4.6.3. Availability

This web application has to be available 24/7 hours. Therefore, it is crucial to maintain the maximum availability and uptime of our application with minimum possible failures.

To prevent failures the system should deal with faults (omissions, crashes, timing faults, and response failures).

Tactics

- Fault detection.
 - Trigger exception handlers when faults occur
- Fault recovery
 - Database & other data modifications should rollback to the original state if an exception occurs during a data mutating task
 - A cloud provider with guaranteed SLAs is used to host the application.
 - The application is containerized and deployed directly on a container runtime (a PaaS) of the cloud provider (which have replicas and failover configured automatically).
- Fault prevention

- Transactions will be used to bundle sequential steps so that they can be undone all at once

4.6.4. Performance and Reliability

The application must be reliable and provide consistent results.

- Response time for any request is 500ms or less. In situations where an asynchronous task is being performed, there should be a proper progress indicator.
- Every data mutating task utilizes a single database transaction to provide better concurrency and to avoid the database getting into an inconsistent state.
- Proper caching headers are set on the static content of the application.

Tactics

- Control resource demands
 - Limit requests received per second
 - Setting an upper bound for responding time. If it is exceeded the request will be timed out.
 - Minimize overhead by reduce loading unnecessary classes
- Manage resources
 - Maintain multiple instances of the server to handle concurrent requests.
 - Limiting file storage (maximum upload limit 8MB) to maximize performance.

4.6.5. Usability

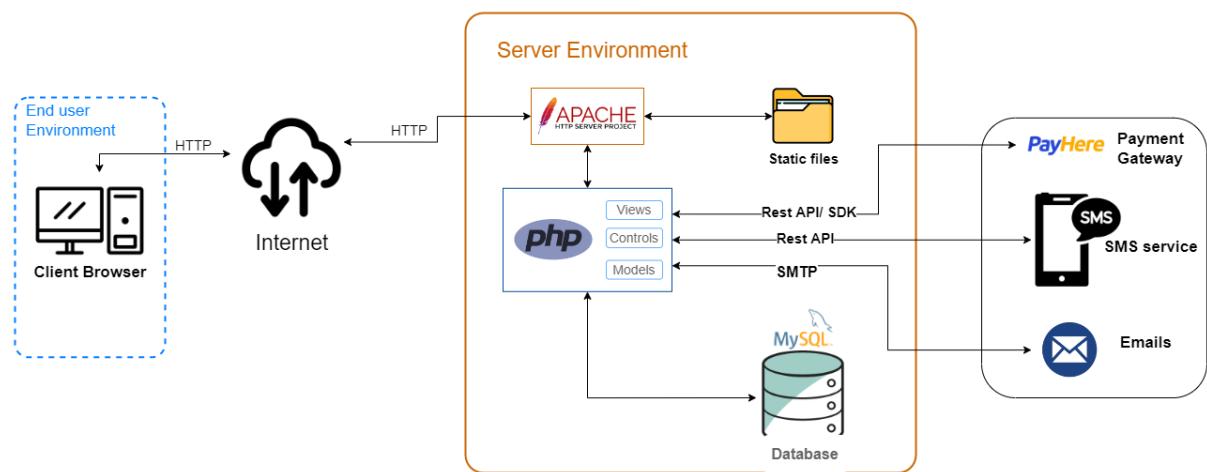
As the target audience is not highly technical people the application should be simple and user-friendly. The interface should be easily navigable for the users to use their required services. A user guide will be provided for organizations and area coordinators.

Tactics

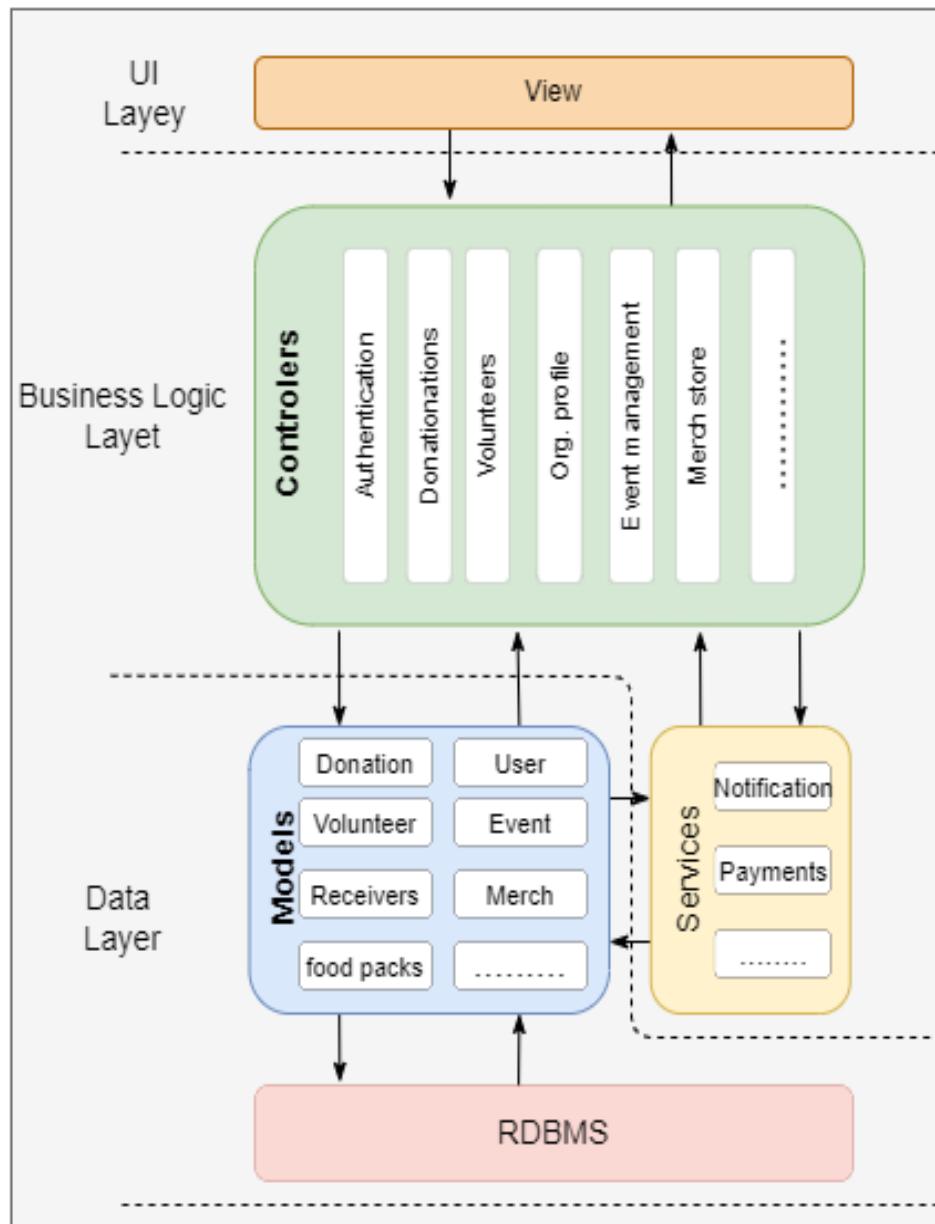
- Back buttons should be provided for the users to go to the previous page.
- User will be able to cancel the incomplete tasks/forms without storing them in the backend.
- User tasks are restricted by considering a user role – Maintains user model in the UIs

5. System Architecture

5.1. High-level Architecture

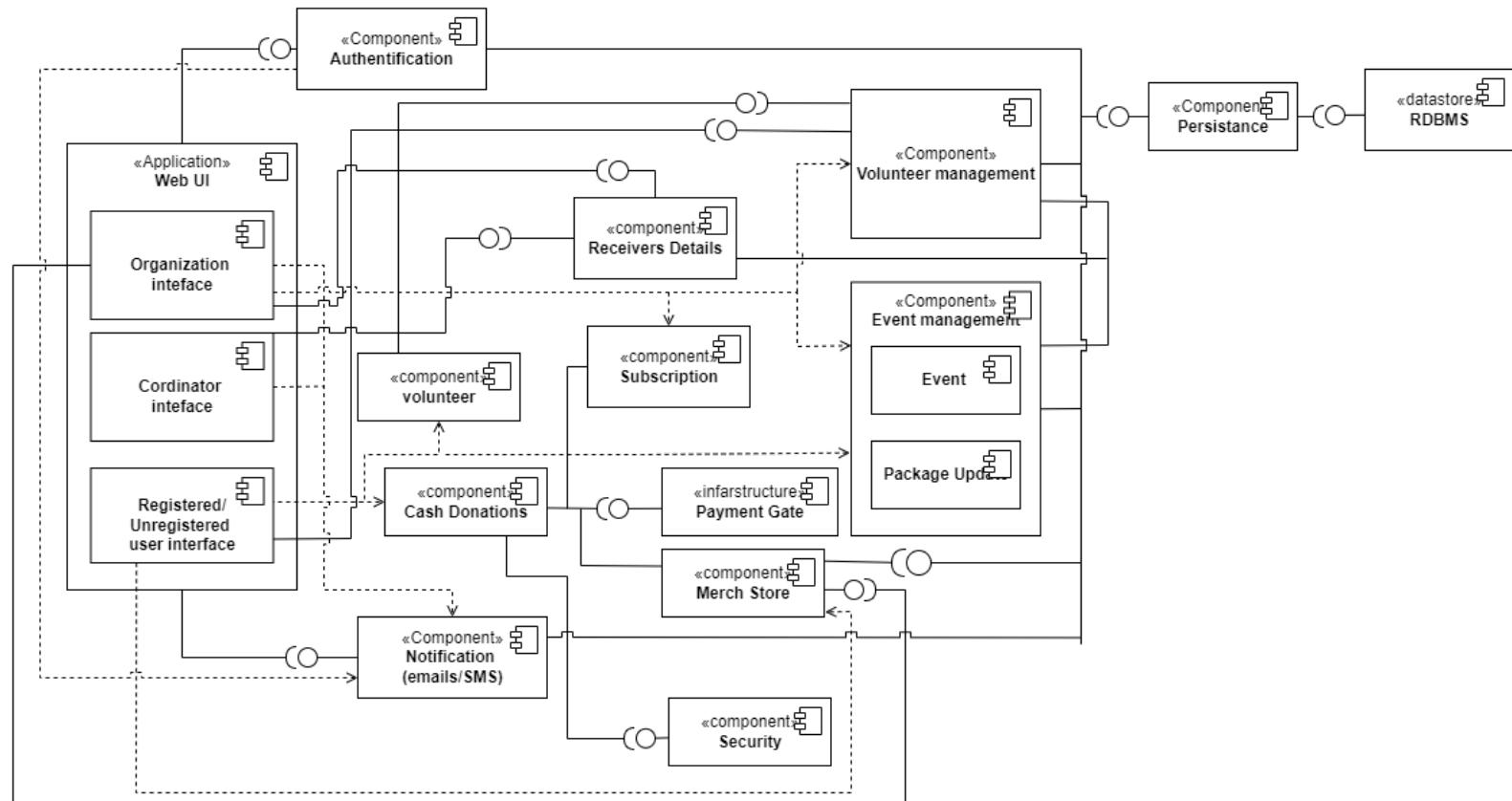


5.2. System Architectural Structure



5.3. System Components

5.3.1. Component Diagram



5.3.2. Component Description

Component	Functionality
Authentication	<ul style="list-style-type: none"> • Verifying credentials of the user • Registration of users • Storing registered user data
Web UI	<ul style="list-style-type: none"> • Organization interface: Used to access organization user functionalities • Registered/unregistered user interface: Used to register or unregistered user functionalities • To view the leaderboard. • Coordinator interface: Used to access area coordinator's functionalities
Volunteer	<ul style="list-style-type: none"> • Used to allow registered users to volunteer to provide help for events • To select a certain level of activities to volunteer for • To display the number of volunteers required at each level and the current volunteered amount • Terms and conditions agreement
Cash Donations	<ul style="list-style-type: none"> • Used by users to make donations for events • Select the amount they want to donate
Receivers Details	<ul style="list-style-type: none"> • Area coordinators to maintain records of food receiving families • Event managers to get information on families to deliver food.

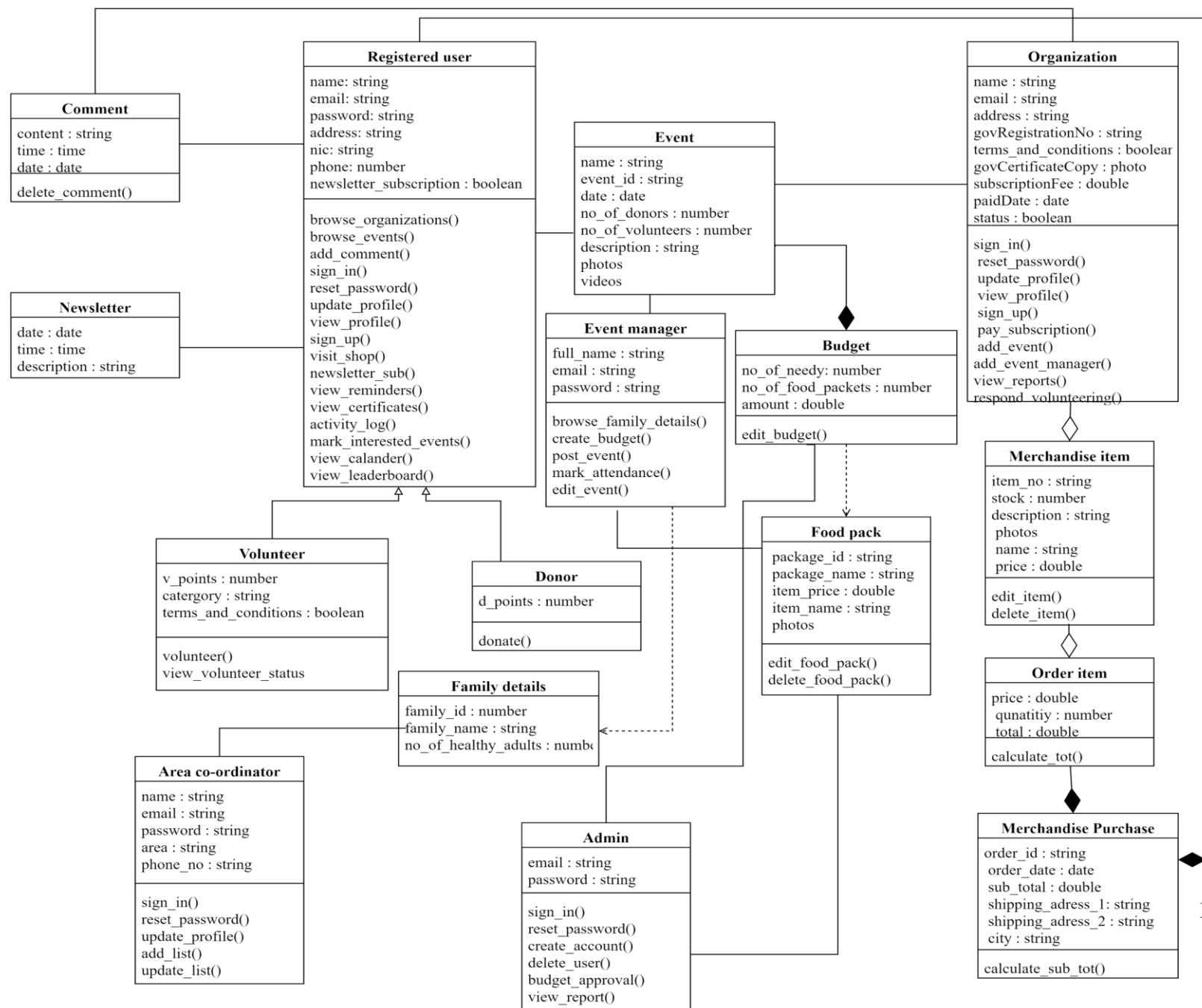
Subscription	<ul style="list-style-type: none"> • Organizations can pay their subscription • Send a notification if the payment was not made on time • Canceling subscriptions.
Merch Store	<ul style="list-style-type: none"> • Organizations can list their merchandise • Users can view and purchase items
Security	<ul style="list-style-type: none"> • Provides Access control and encryption for data
Volunteer management	<ul style="list-style-type: none"> • Send a verification code or a QR code to volunteers • For event manager to confirm volunteer attendance • Send certificate to volunteers through email
Event Management	<ul style="list-style-type: none"> • For maintaining event page details • Make updates for food packages • Make statistical report
Persistence	<ul style="list-style-type: none"> • Providing persistence to data as and when required through a connection to the database
RDBMS	<ul style="list-style-type: none"> • Database component that stores all data pertinent to System

6. System Design

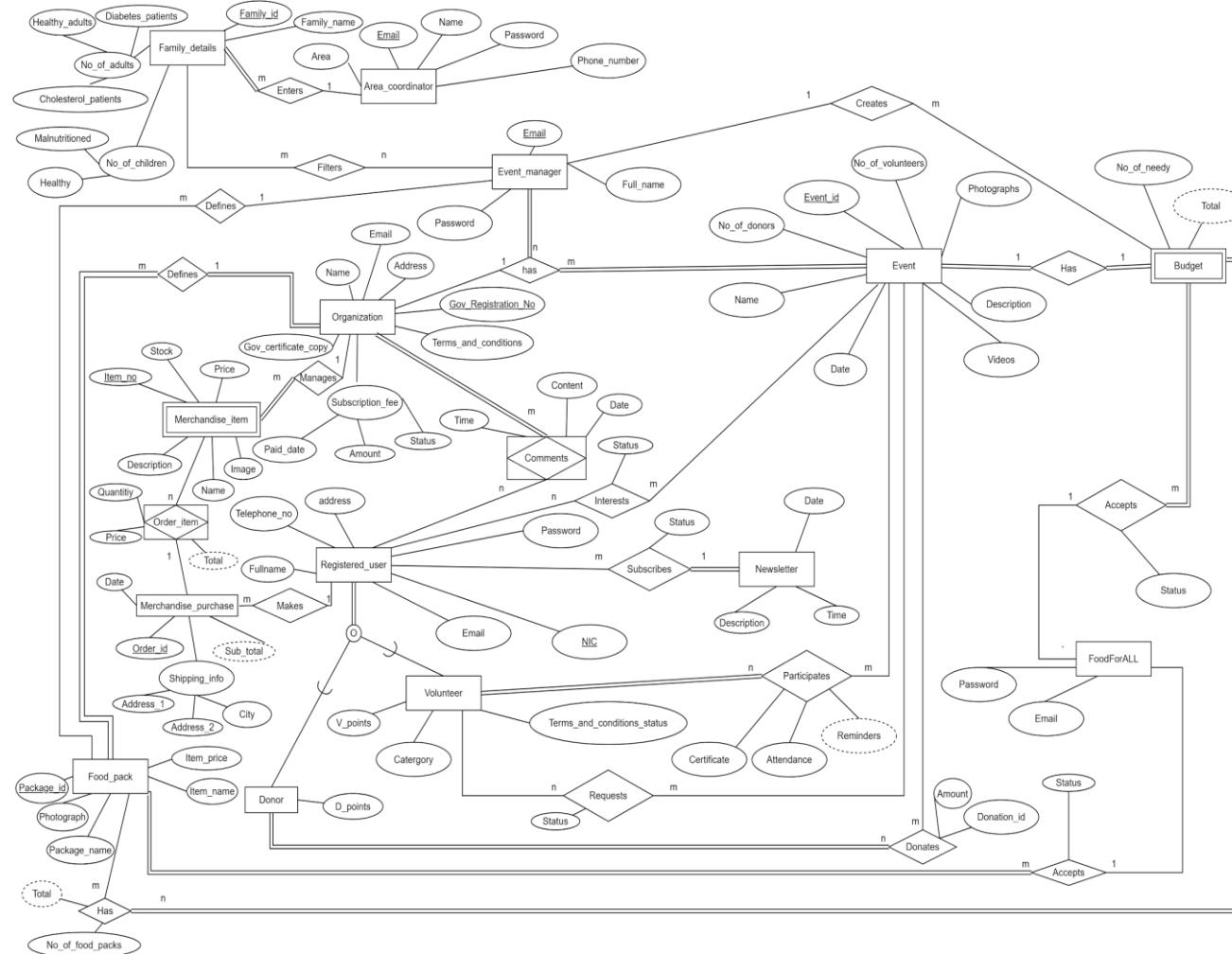
6.1. Class Diagram

The system's overall functionality is broken down into the following classes.

1. Registered User
2. Donor
3. Volunteer
4. Organization
5. Event manager
6. Area Coordinator
7. Admin
8. Event
9. Budget
10. Food Pack
11. Family details
12. Merchandise Item
13. Order Item
14. Merchandise Purchase
15. Comment
16. Newsletter



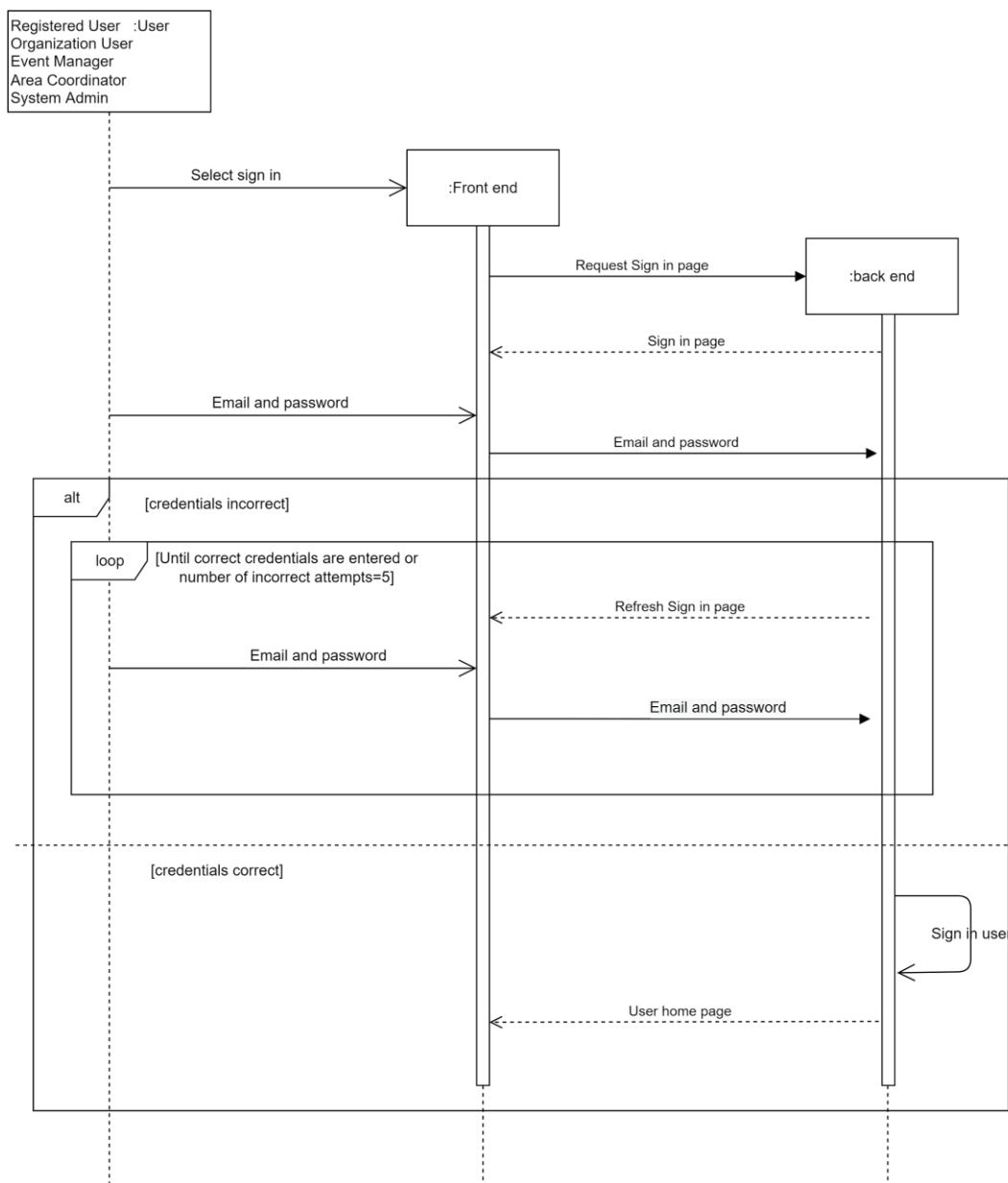
6.2.Entity Relationship Diagram



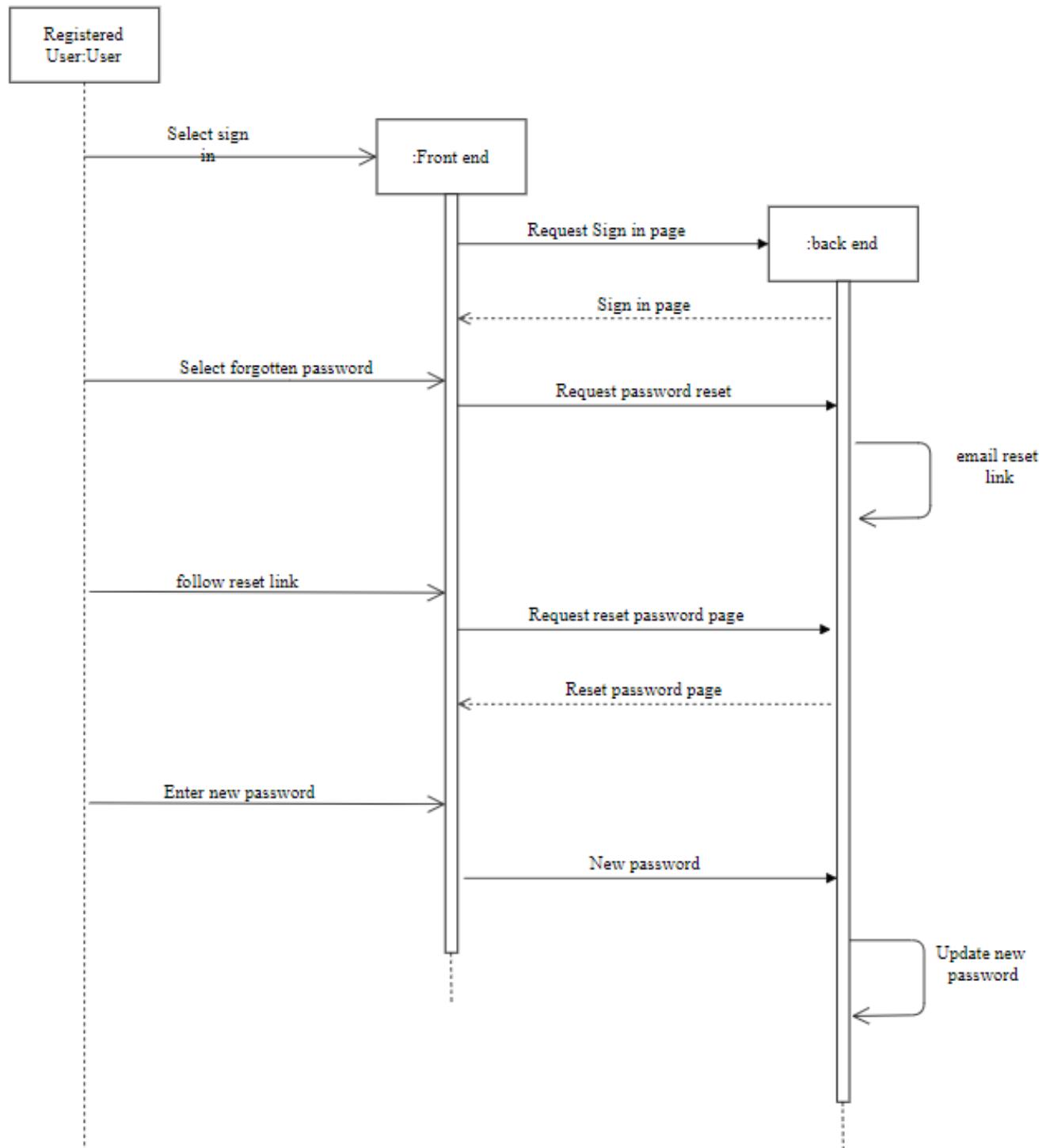
6.3.Sequence Diagrams

6.3.1. User Authentication

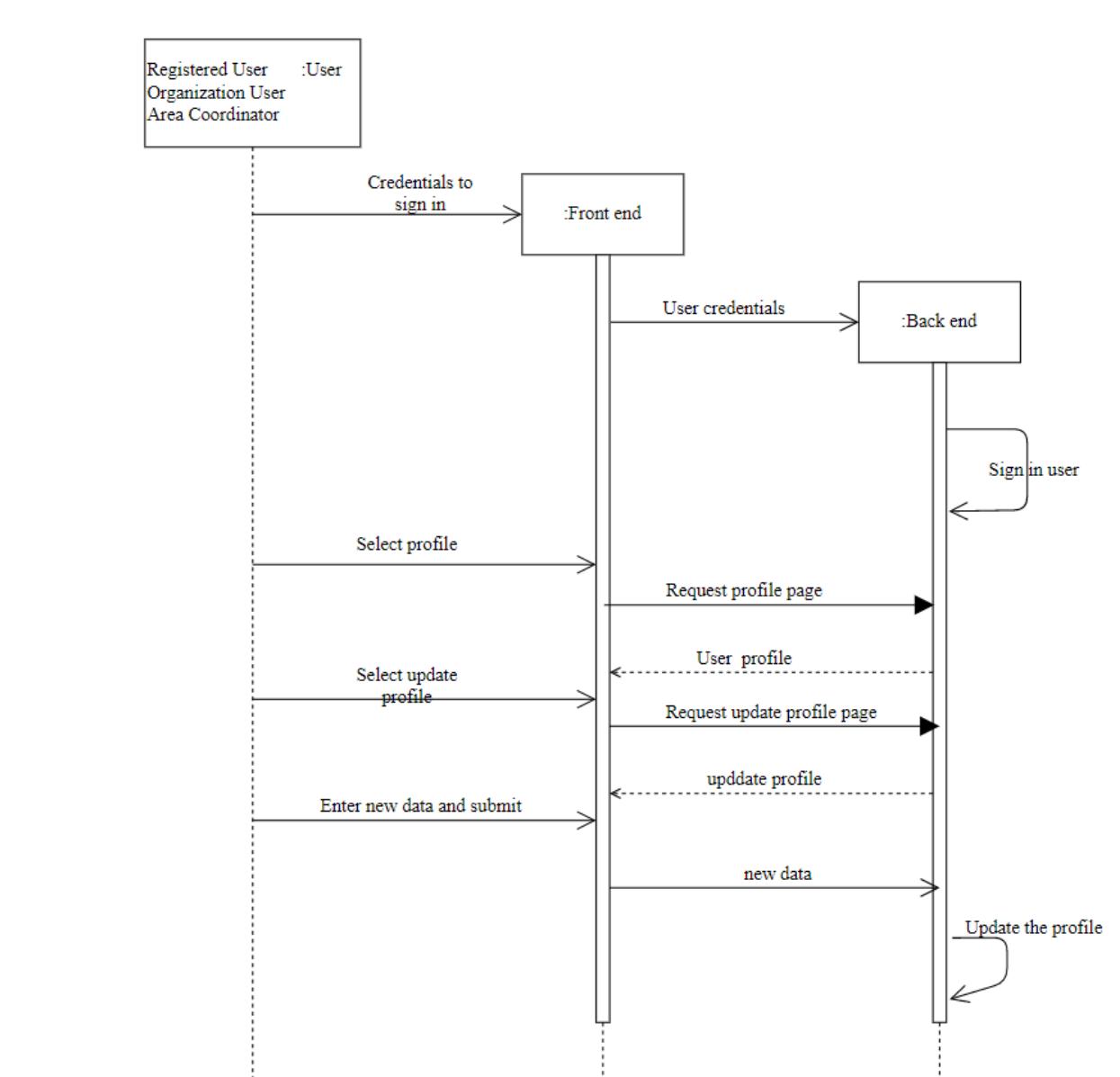
6.3.1.1. Sign in



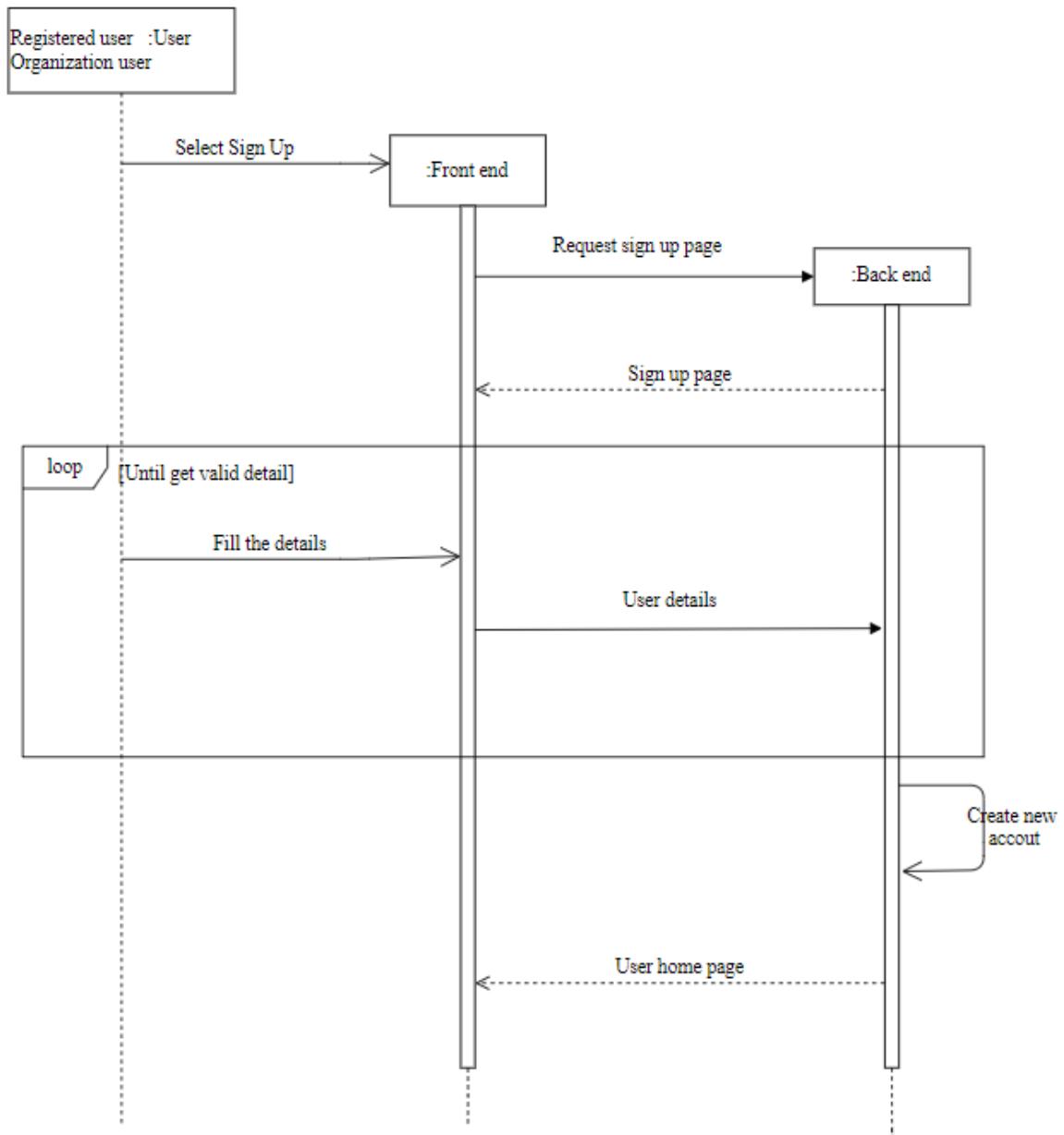
6.3.1.2. Reset password



6.3.1.3. Update user profile

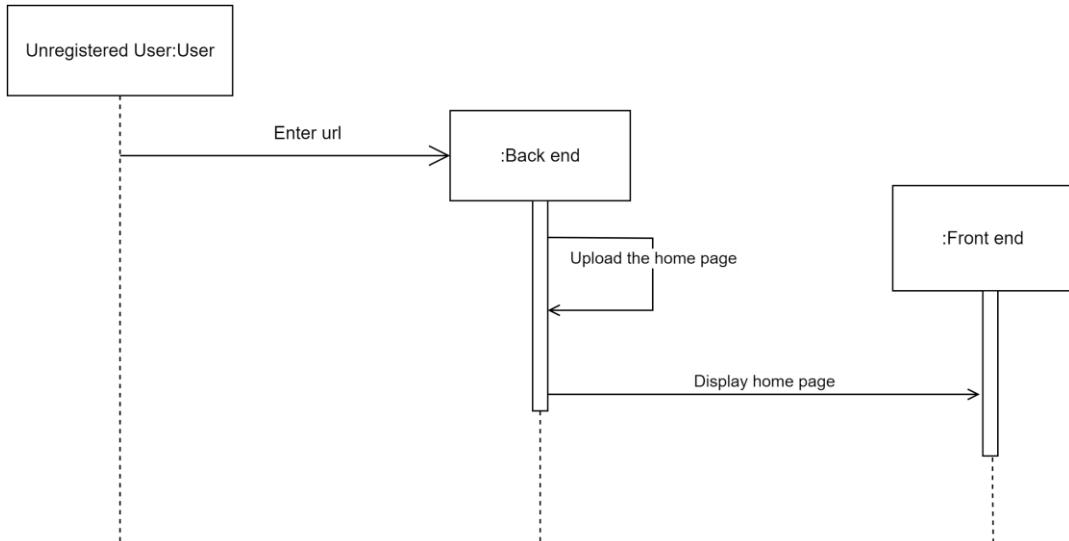


6.3.1.4. Sign up

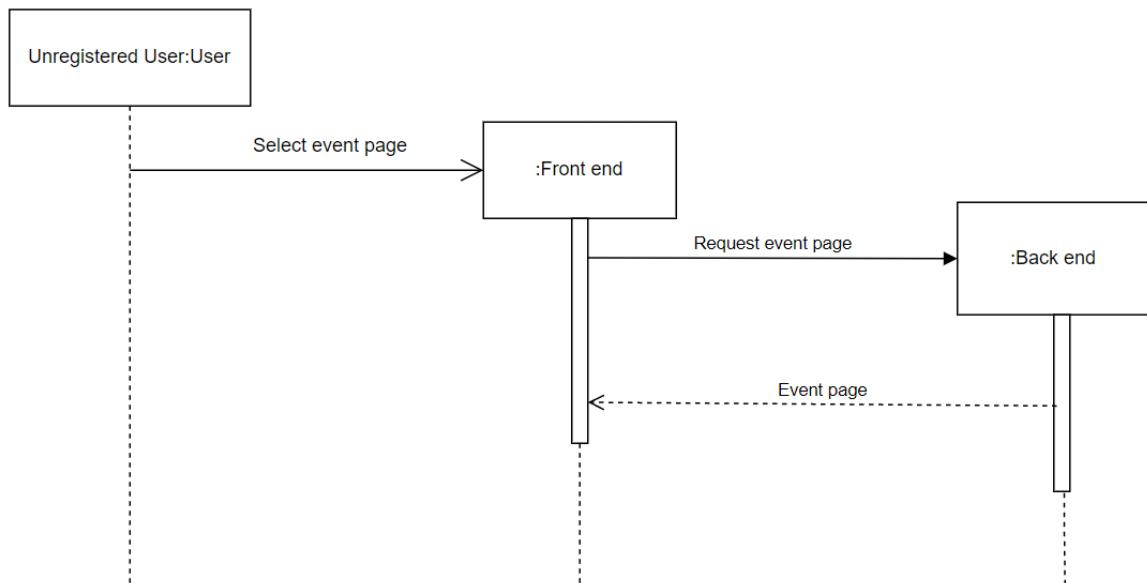


6.3.2. Guest User

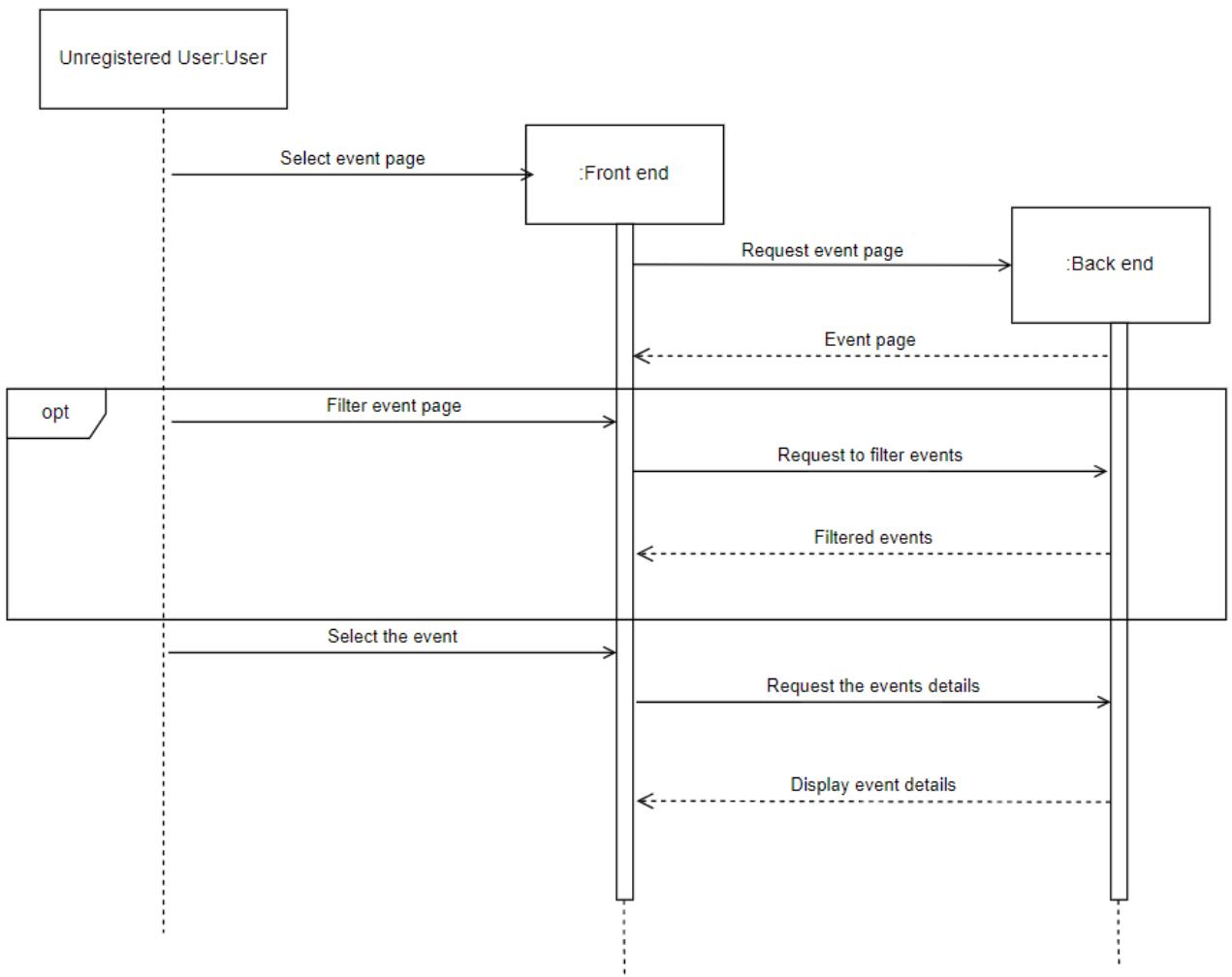
6.3.2.1. View homepage



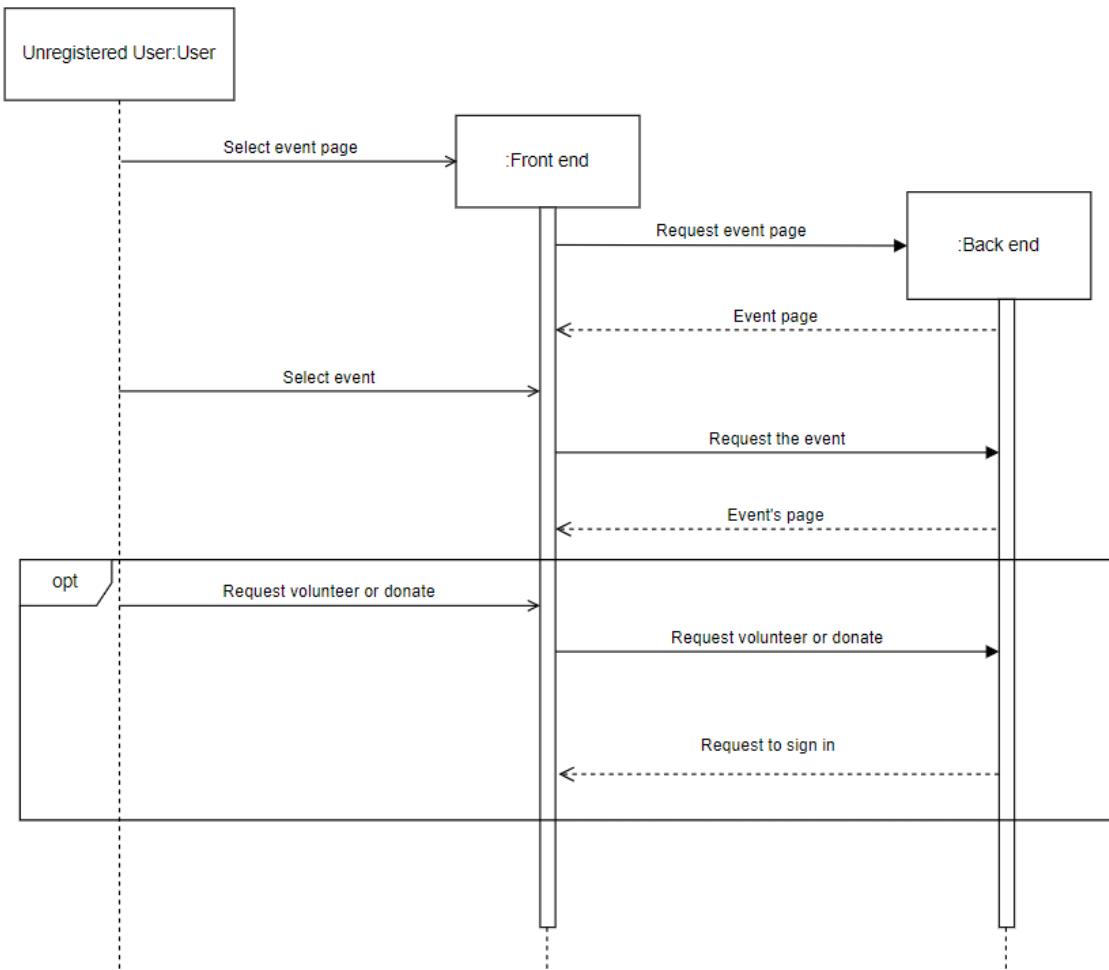
6.3.2.2. View events



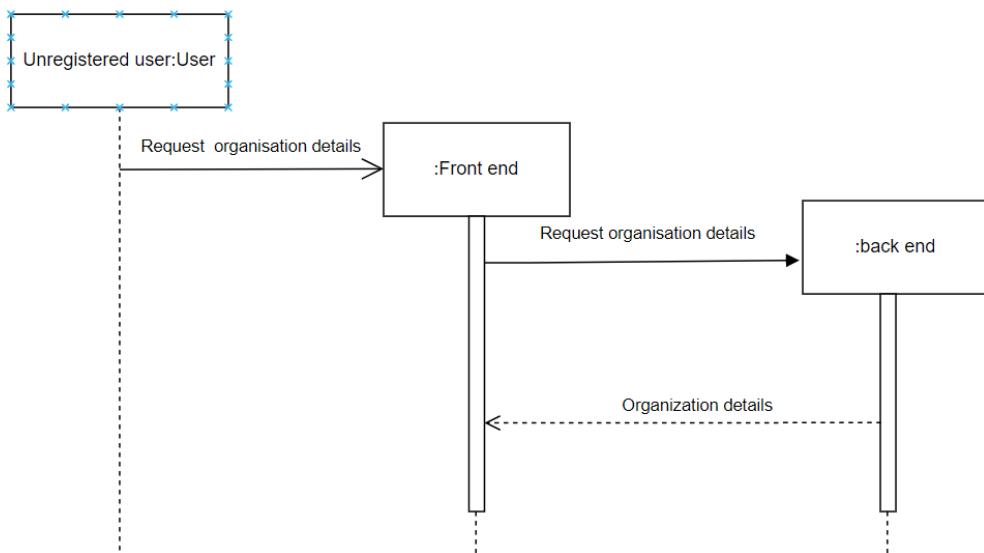
6.3.2.3. Filter and select events



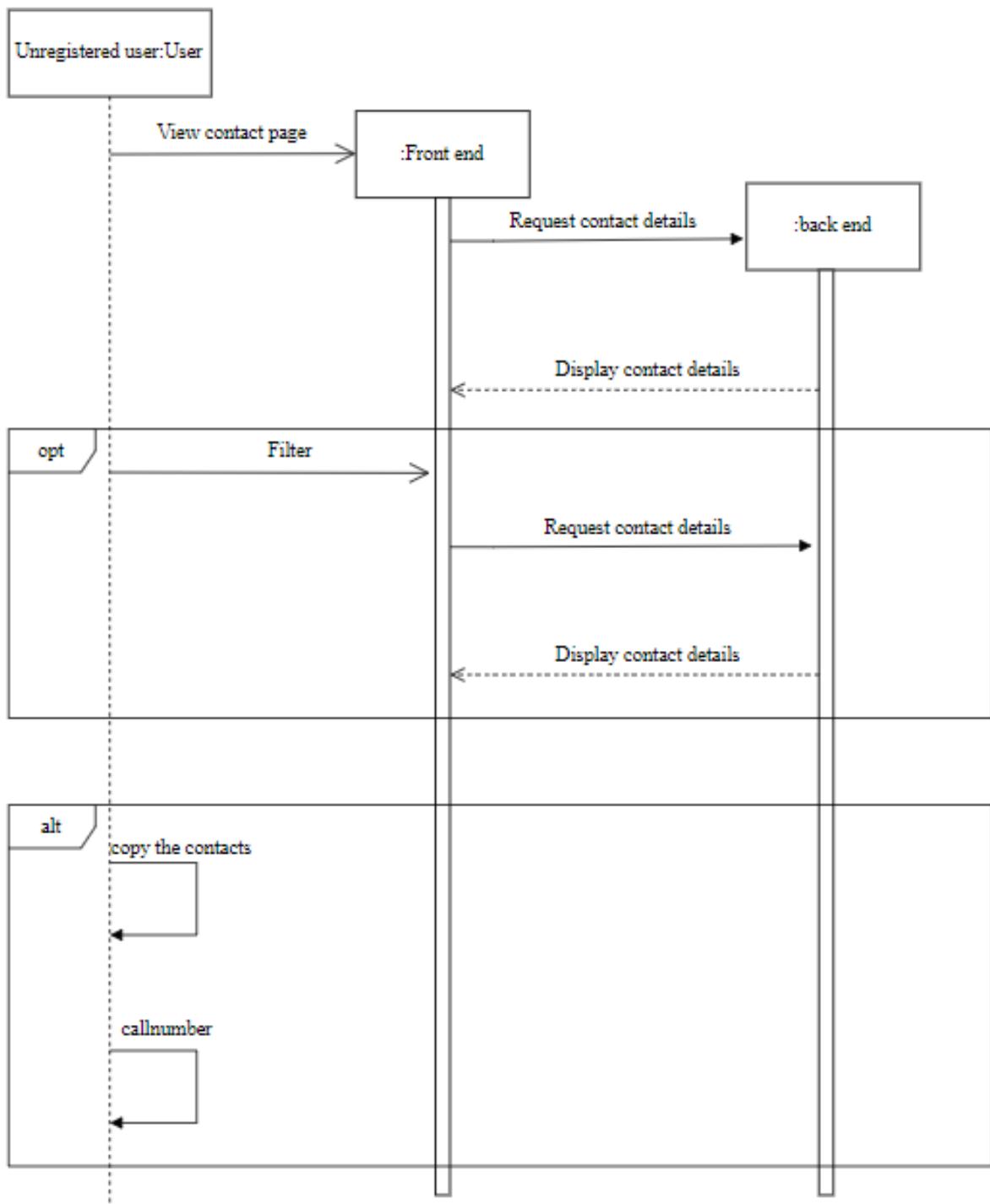
6.3.2.4. View event details



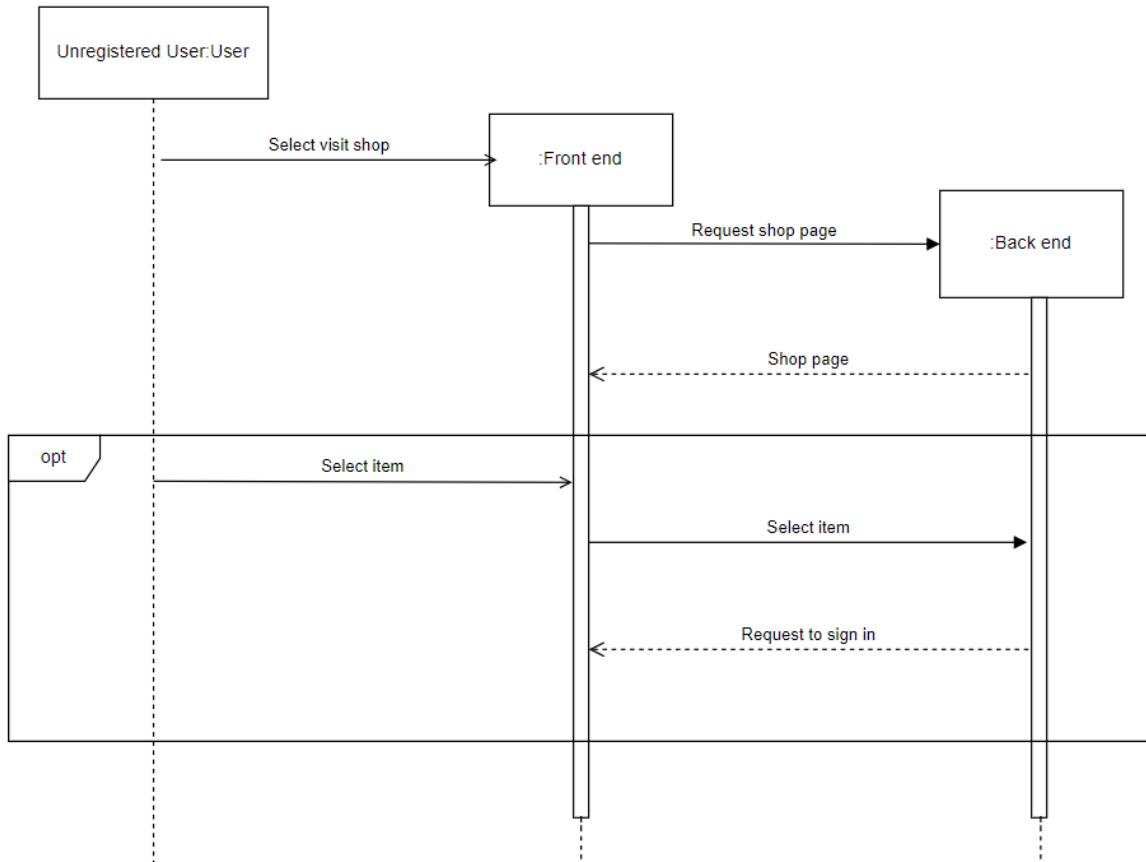
6.3.2.5. View organization details



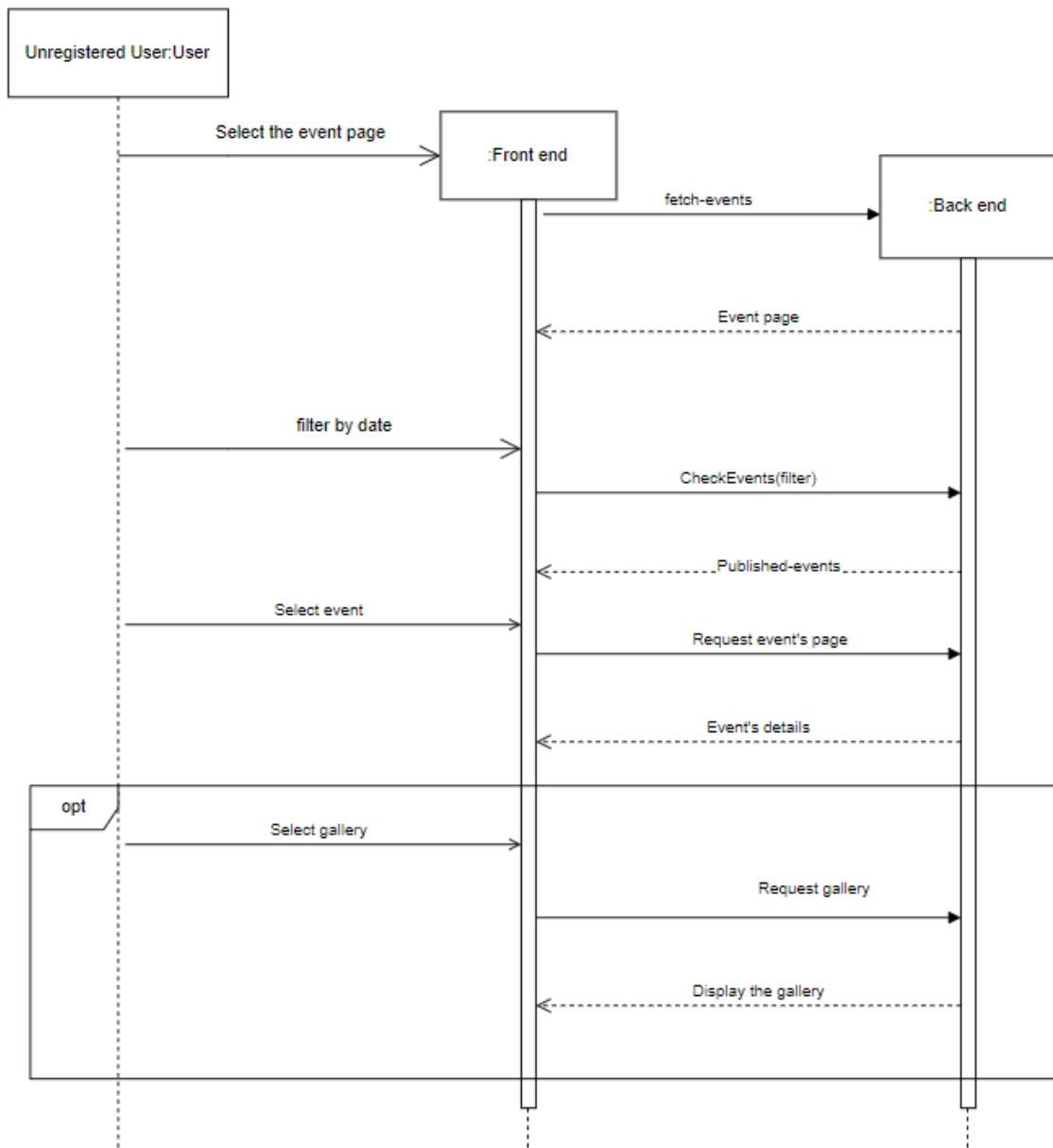
6.3.2.6. View contact details



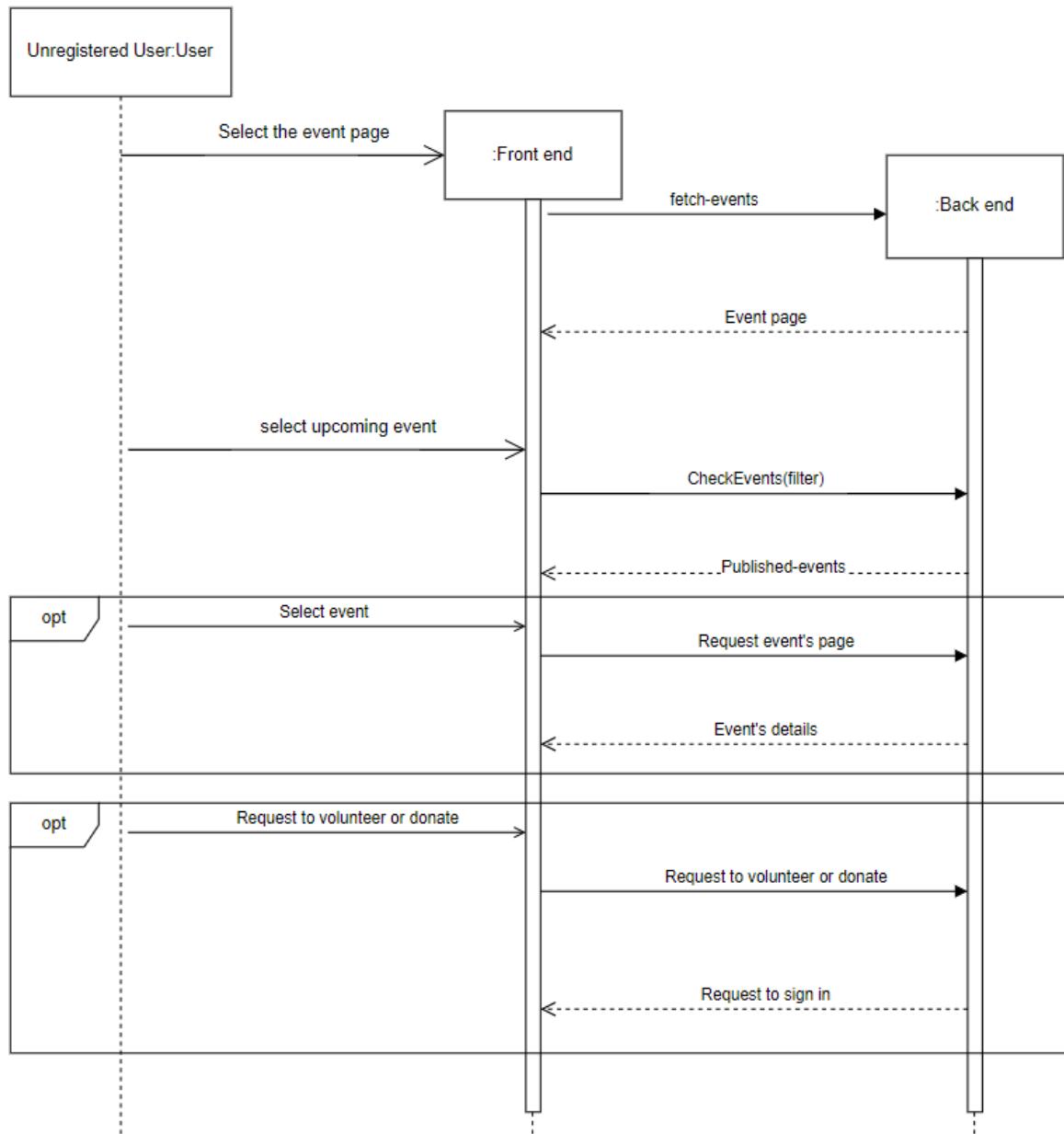
6.3.2.7. Visit the shop



6.3.2.8. View past events

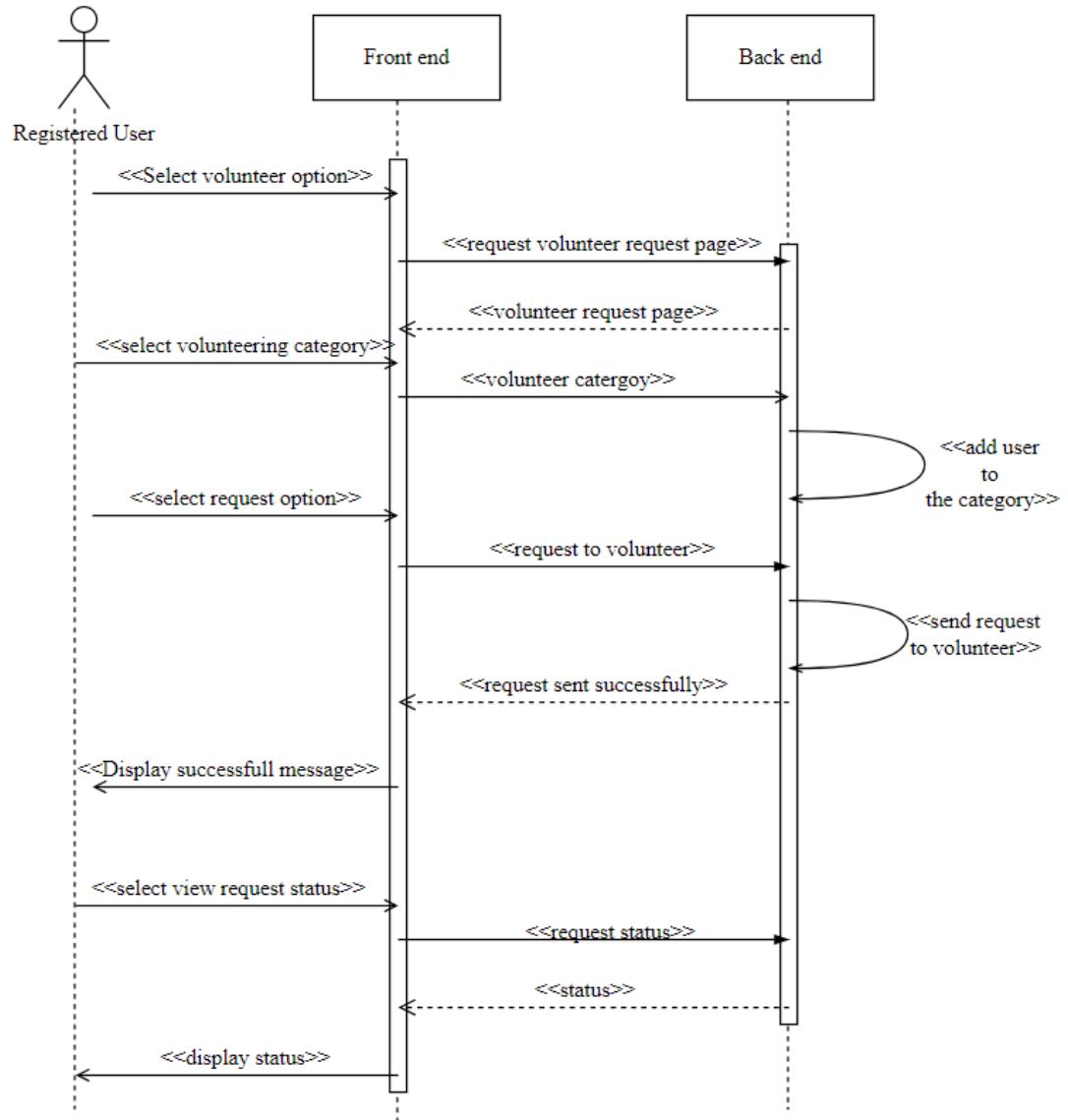


6.3.2.9. View upcoming events

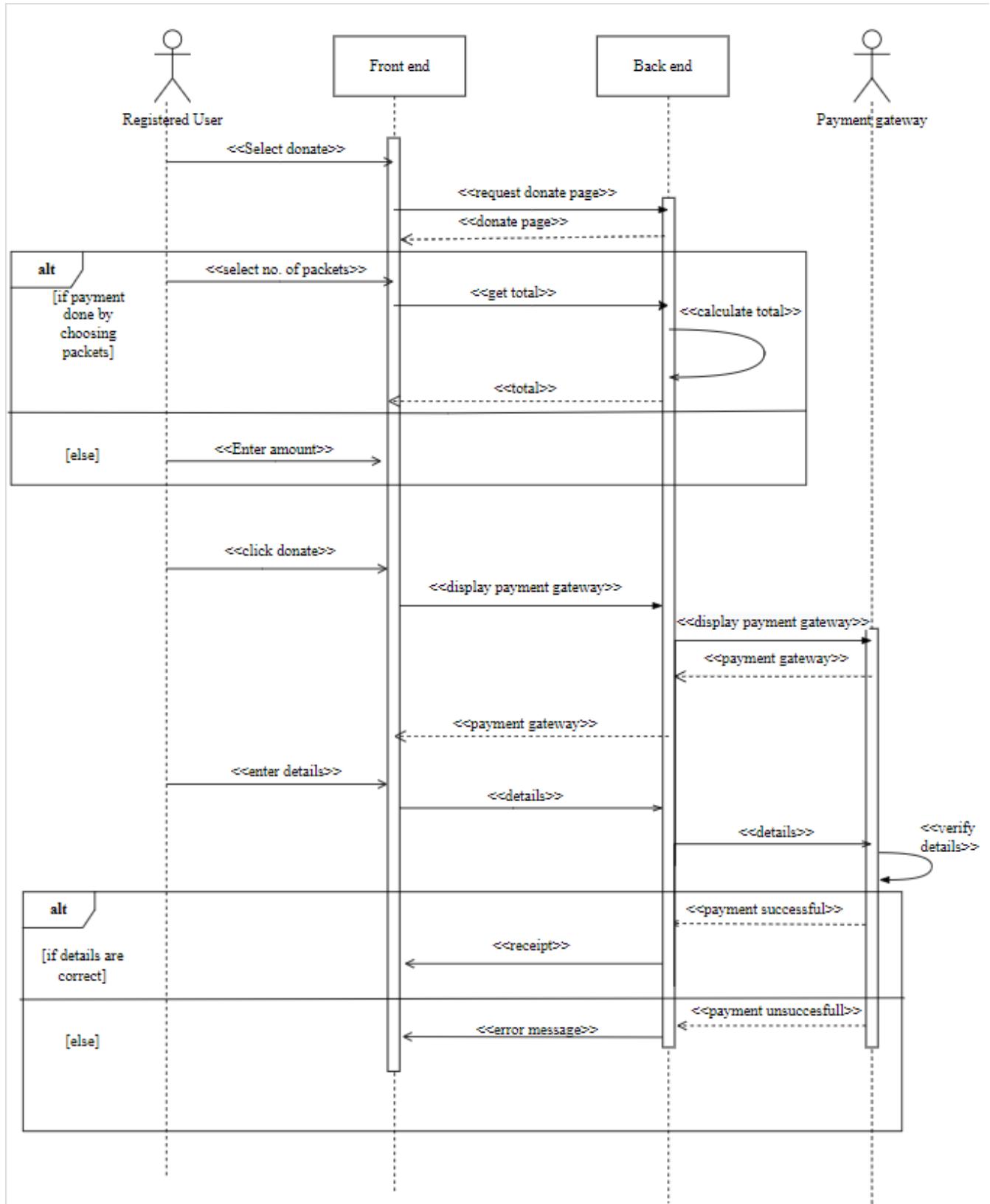


6.3.3. Registered user

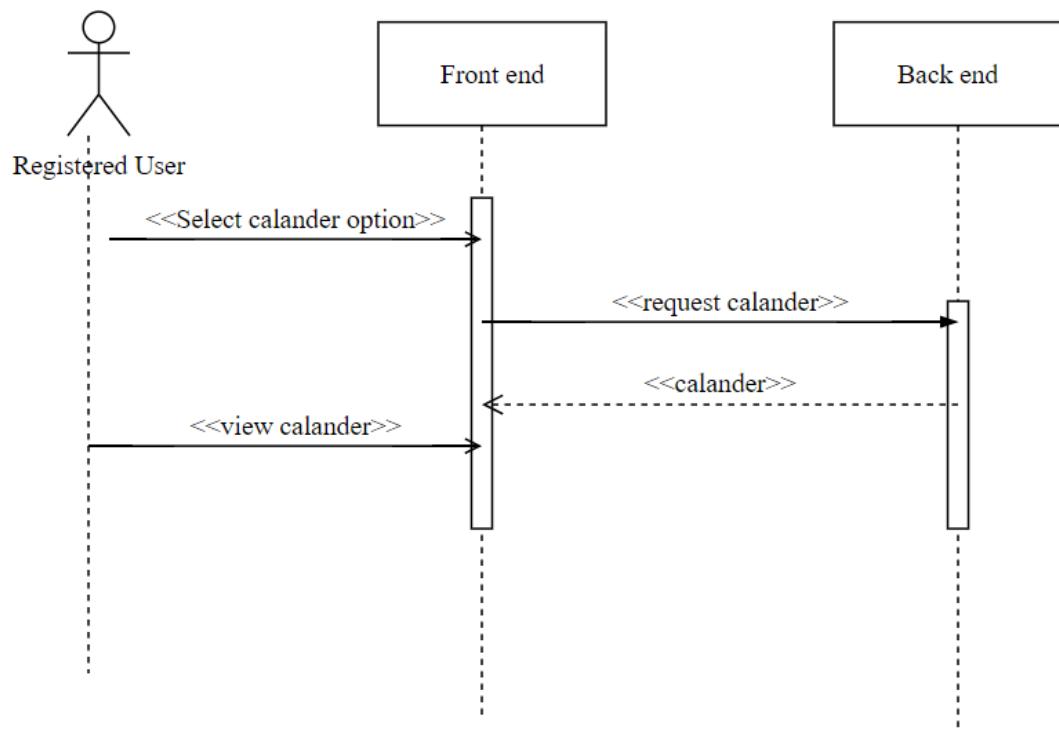
6.3.3.1. Volunteering process



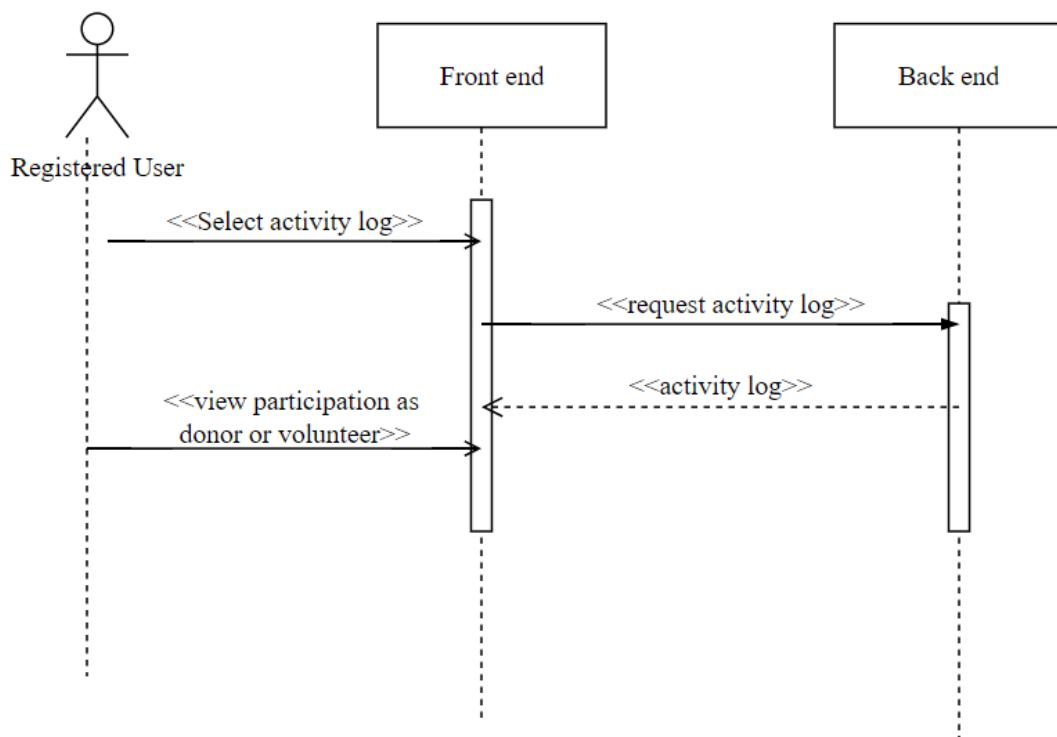
6.3.3.2. Donating process



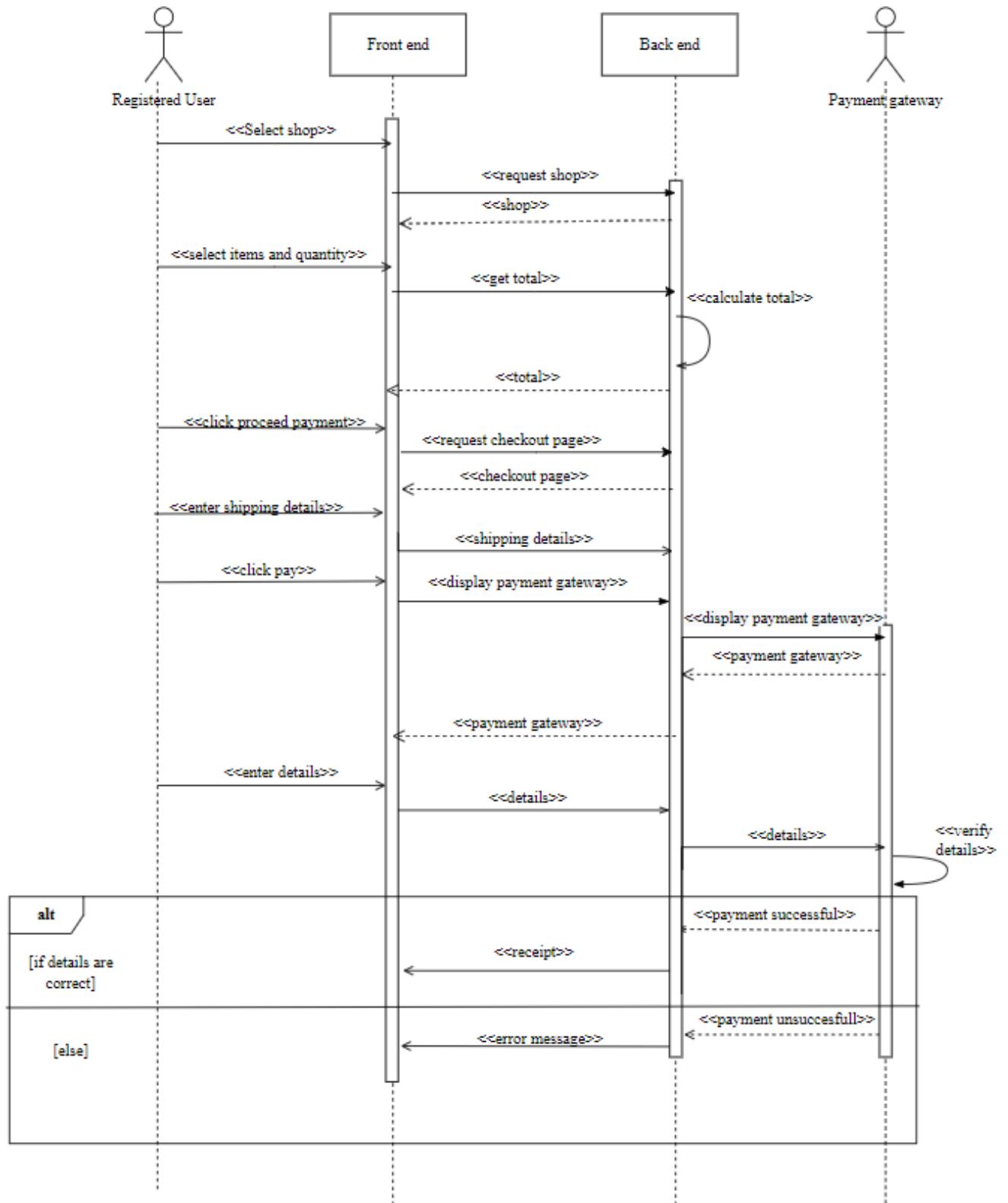
6.3.3.3. View calendar



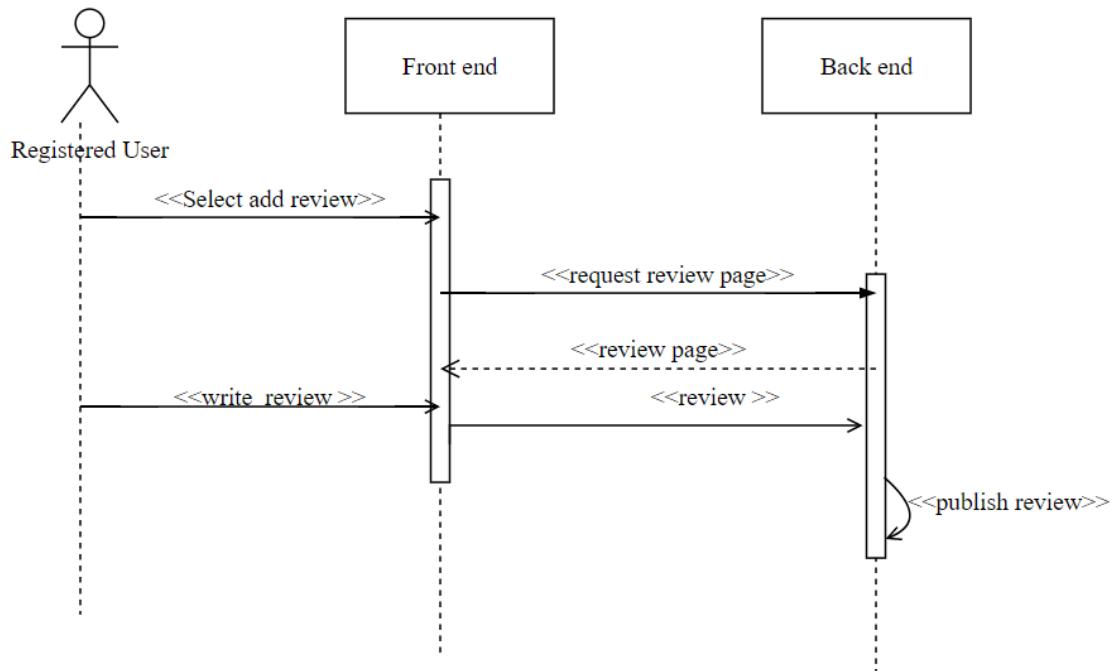
6.3.3.4. View activity log



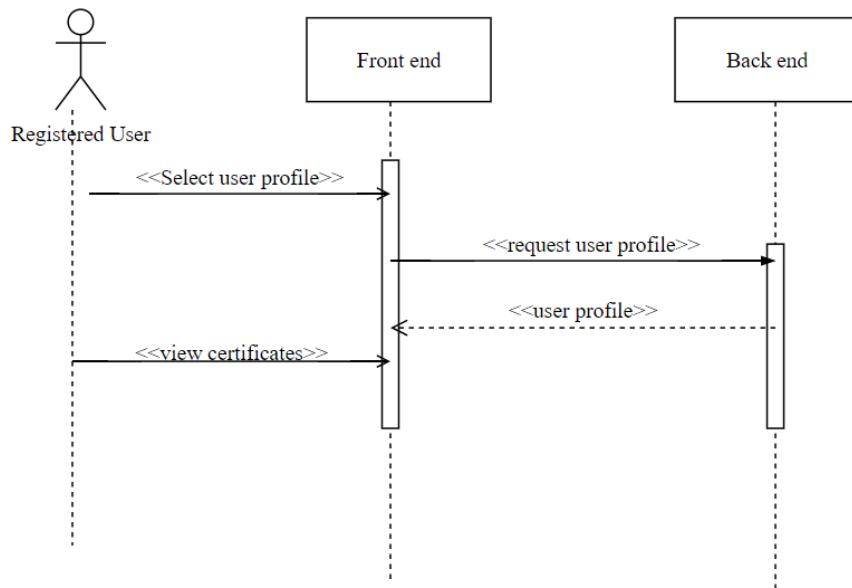
6.3.3.5. Buy merchandise



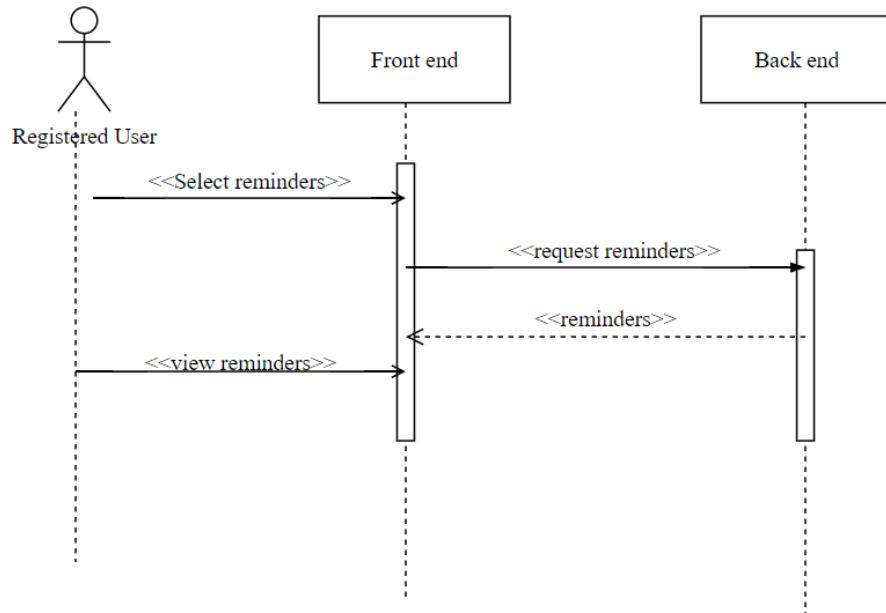
6.3.3.6. Add review



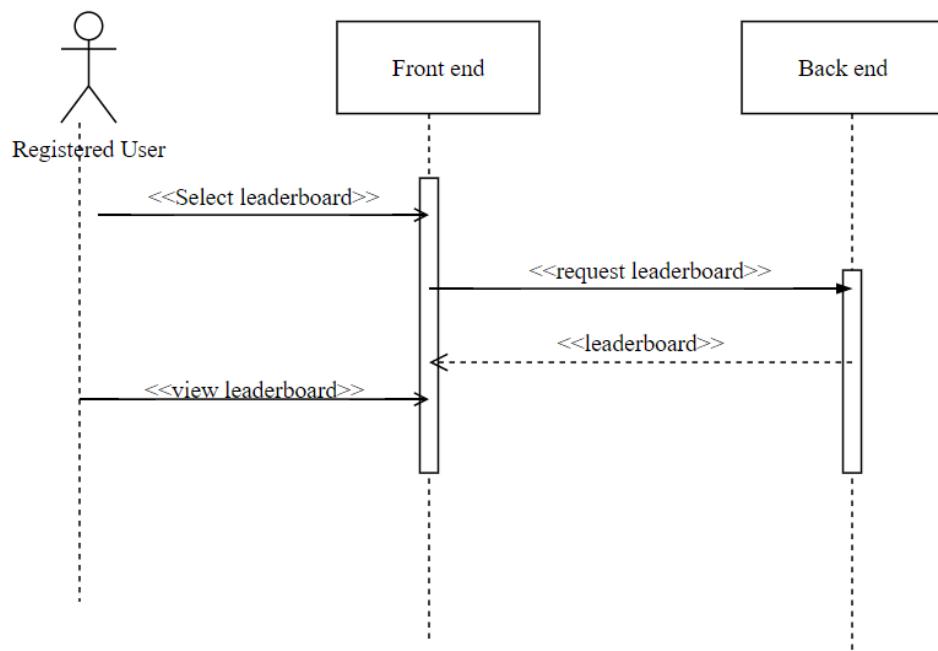
6.3.3.7. View certificates



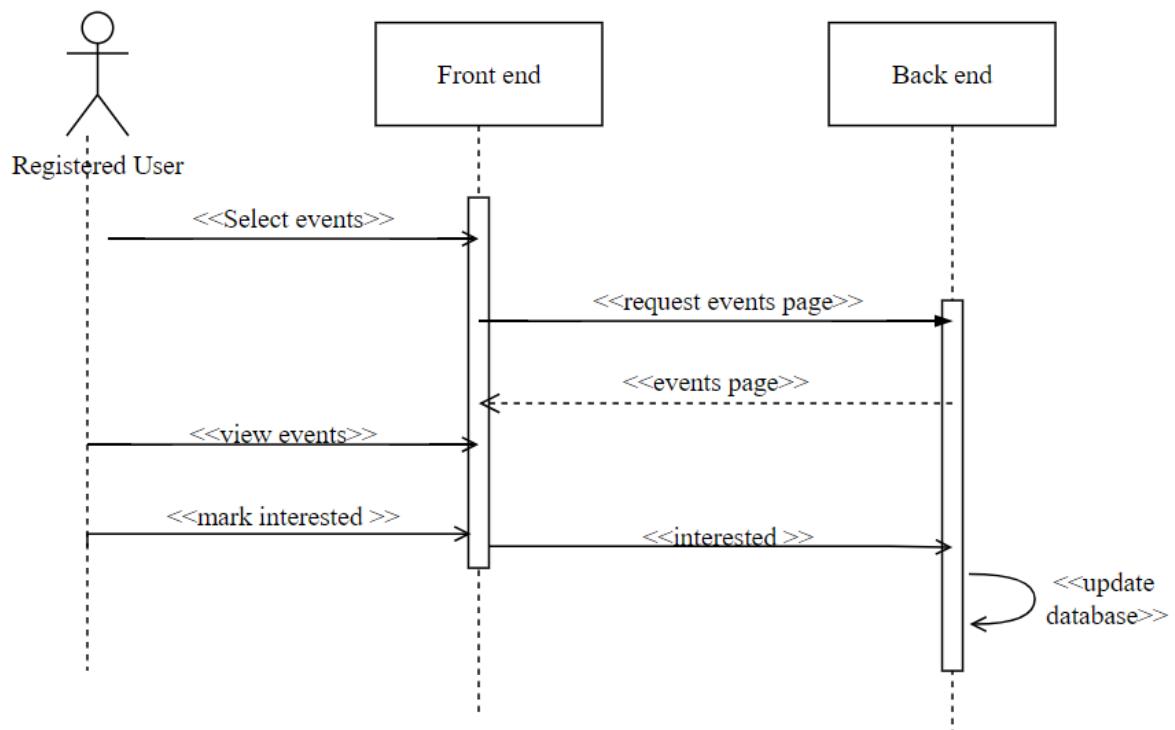
6.3.3.8. View reminders



6.3.3.9. View leaderboard

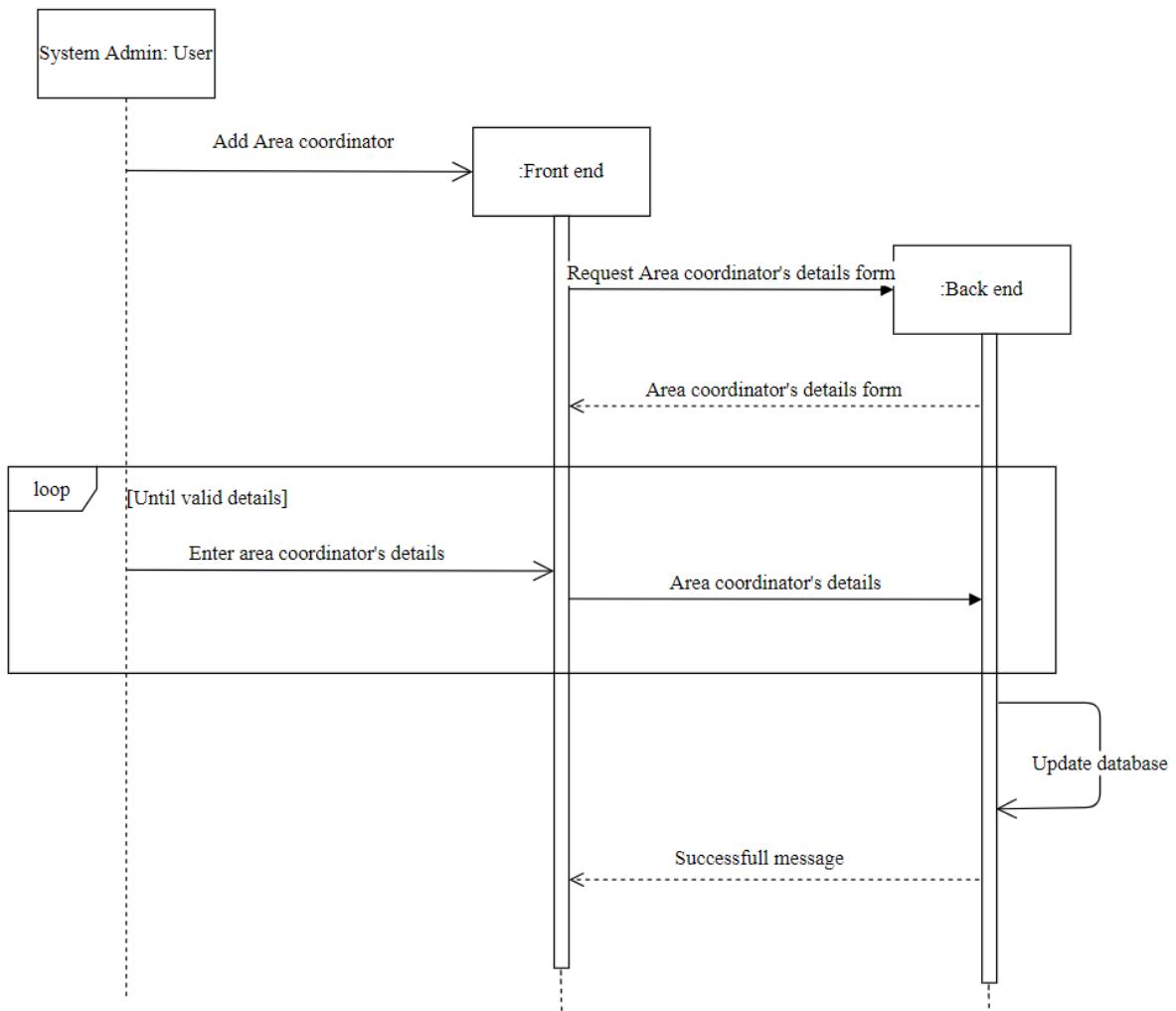


6.3.3.10. Mark interested events

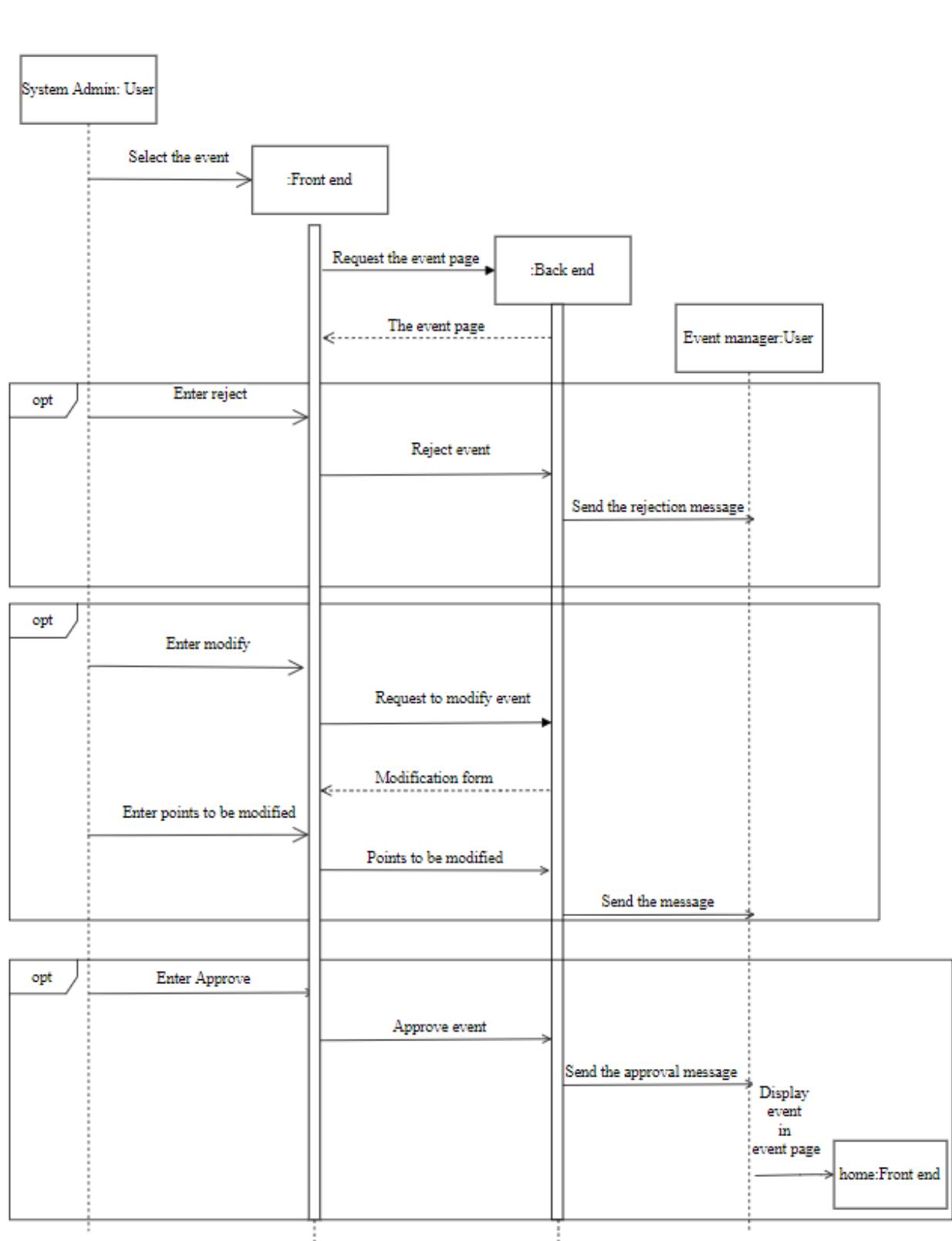


6.3.4. System admin

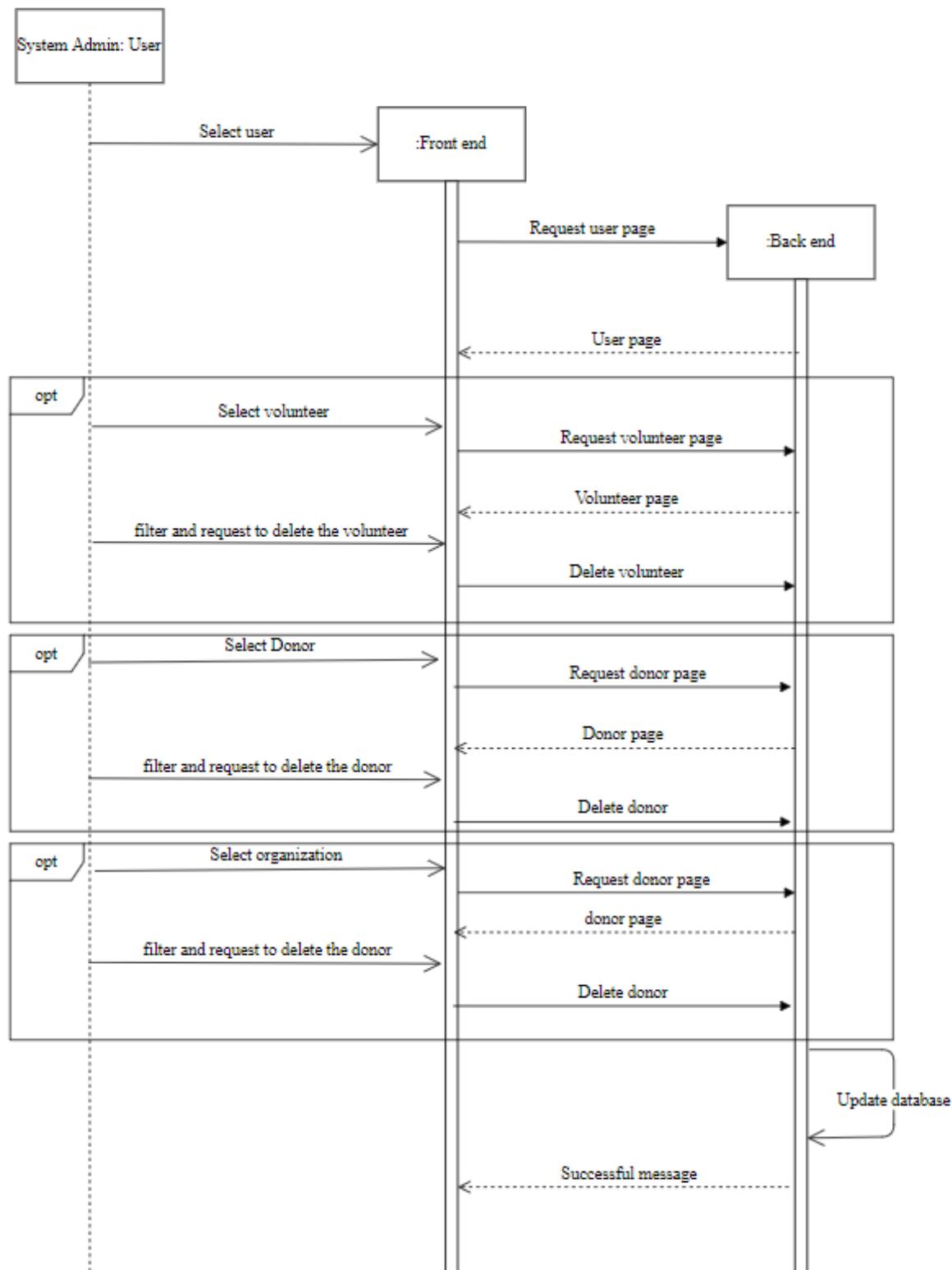
6.3.4.1. Create accounts



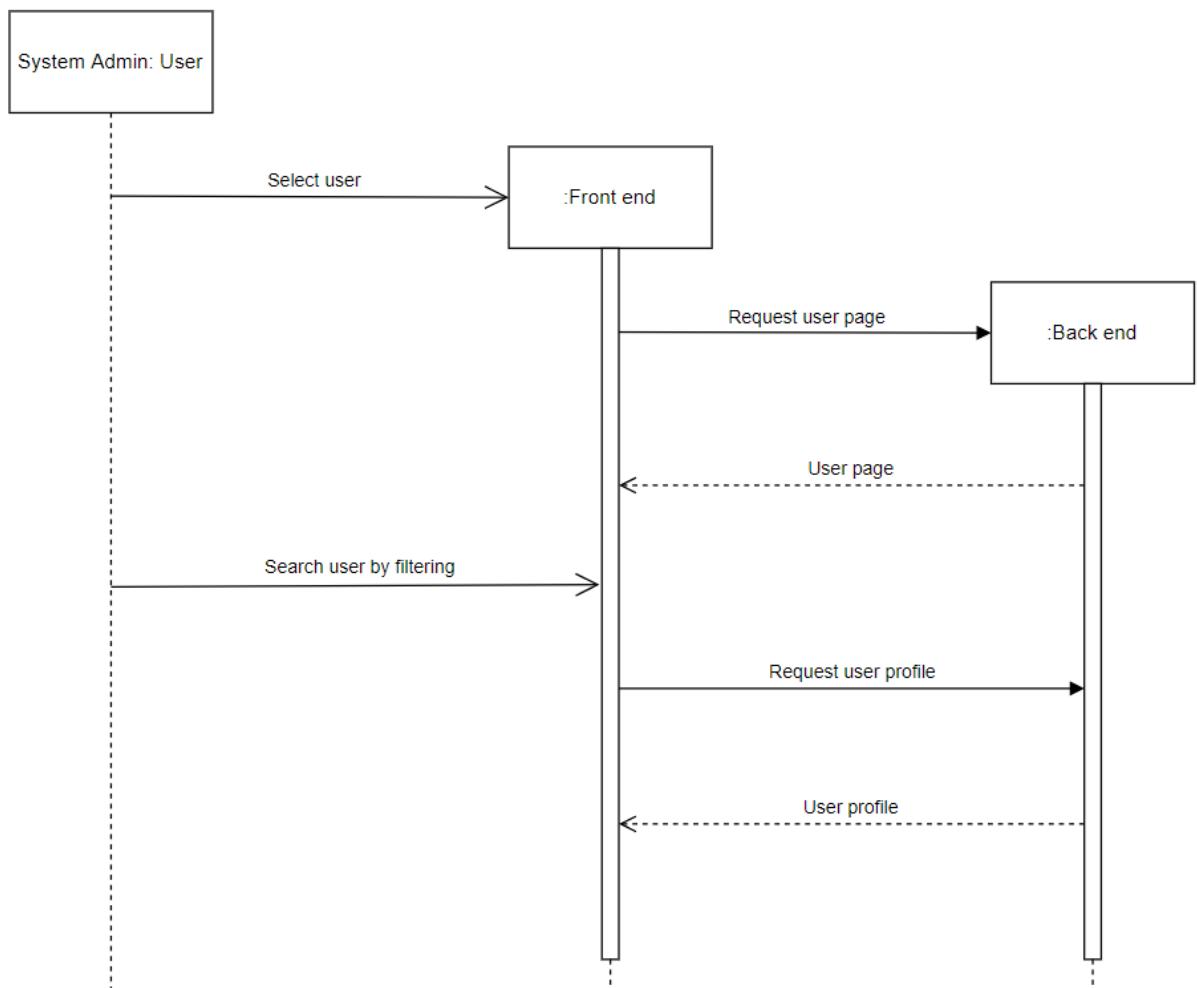
6.3.4.2. Respond to budget plan



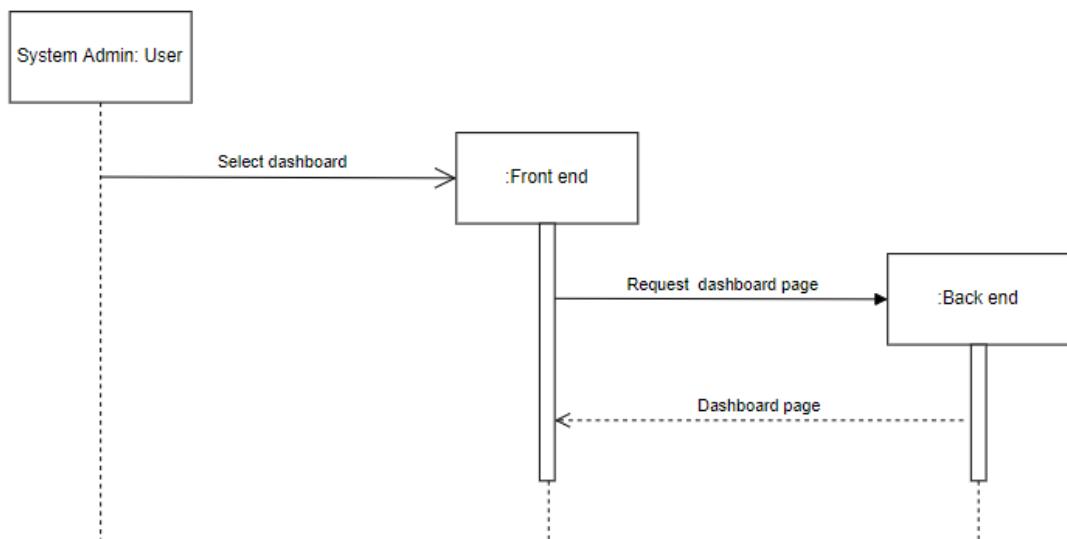
6.3.4.3. Delete user



6.3.4.4. View user profiles

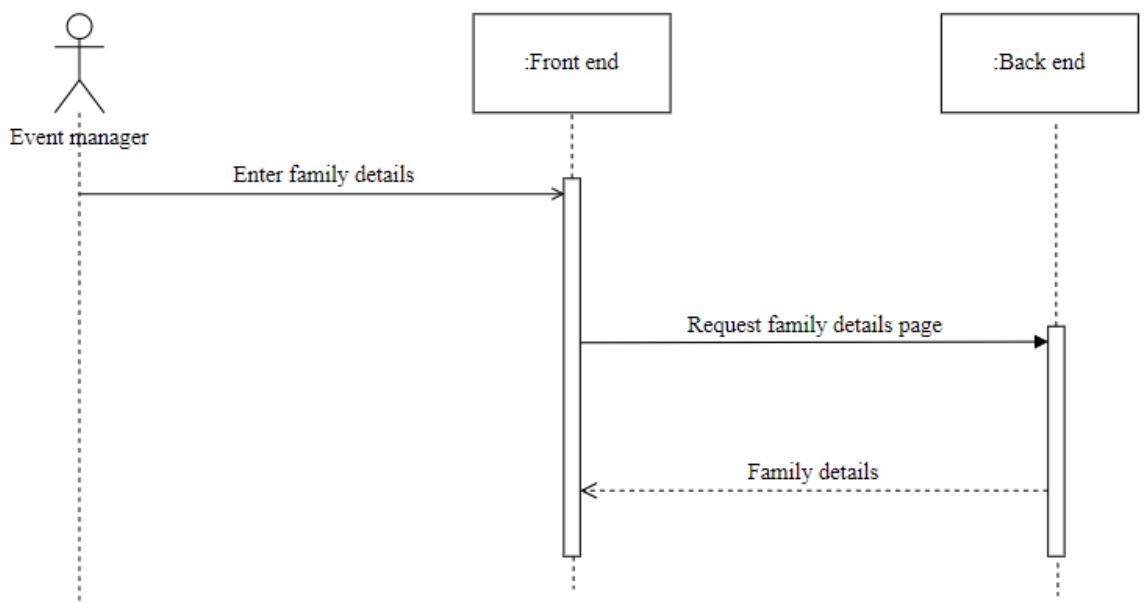


6.3.4.5. View dashboard

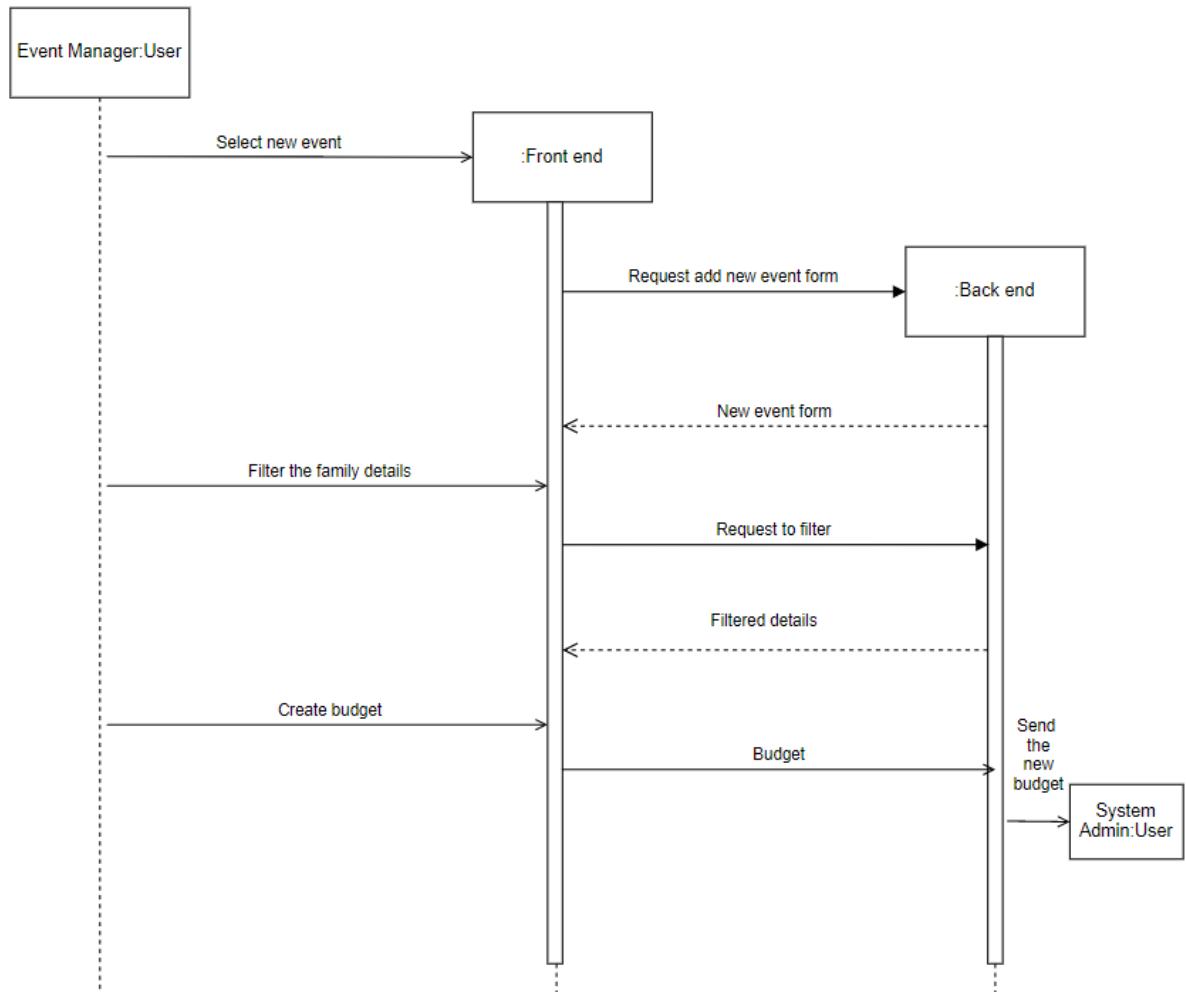


6.3.5. Event manager

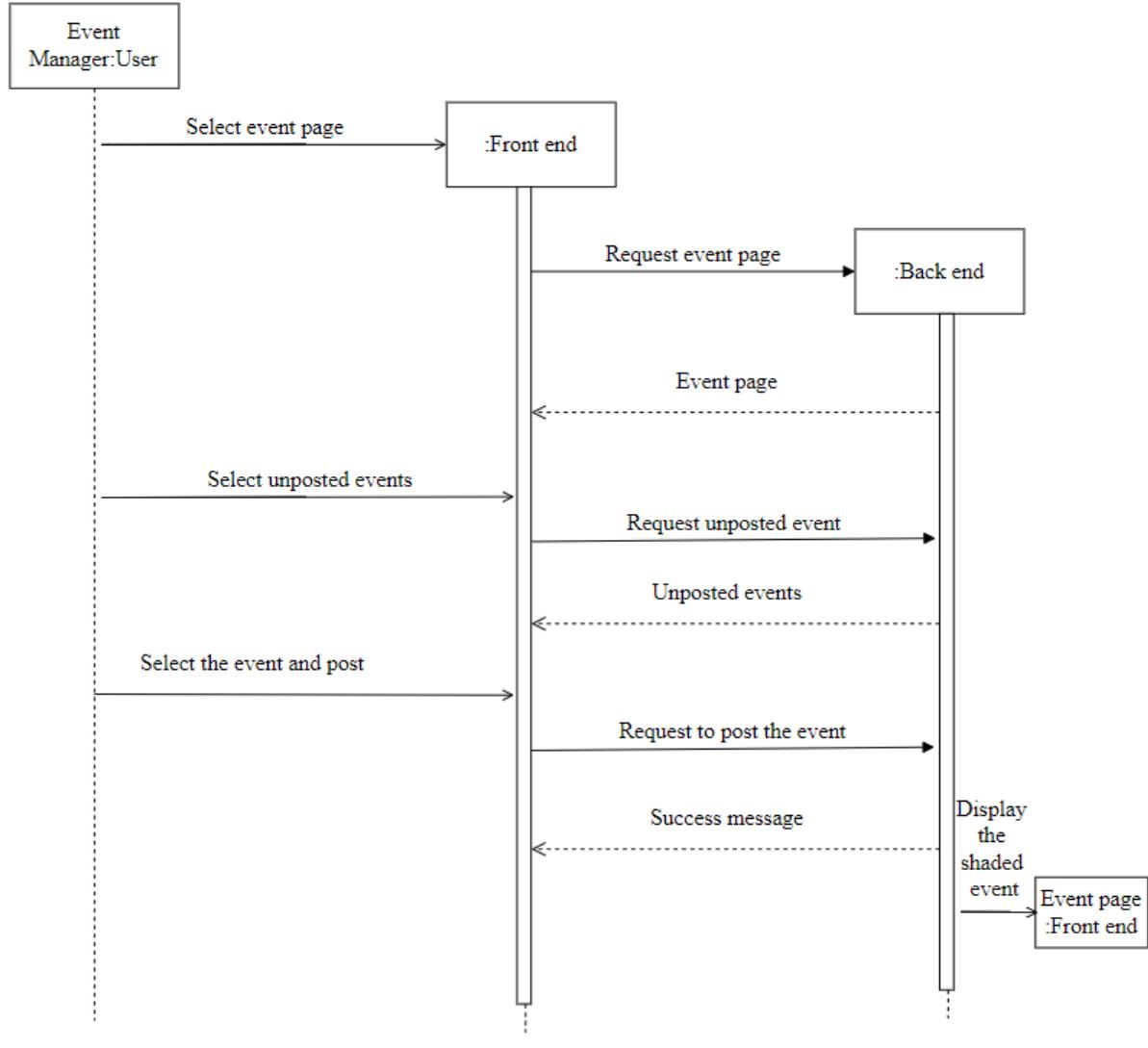
6.3.5.1. View family details



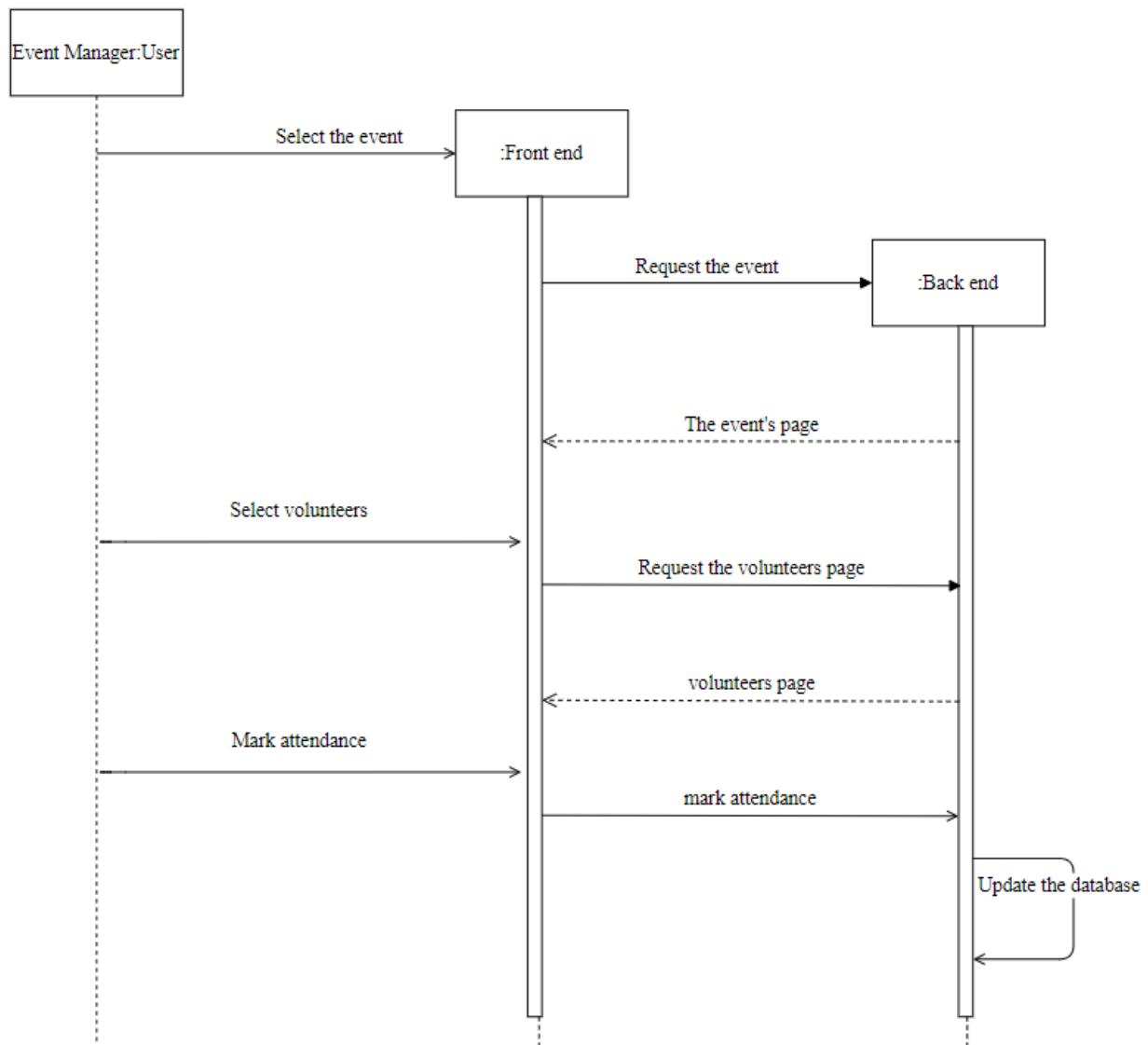
6.3.5.2. Create budget



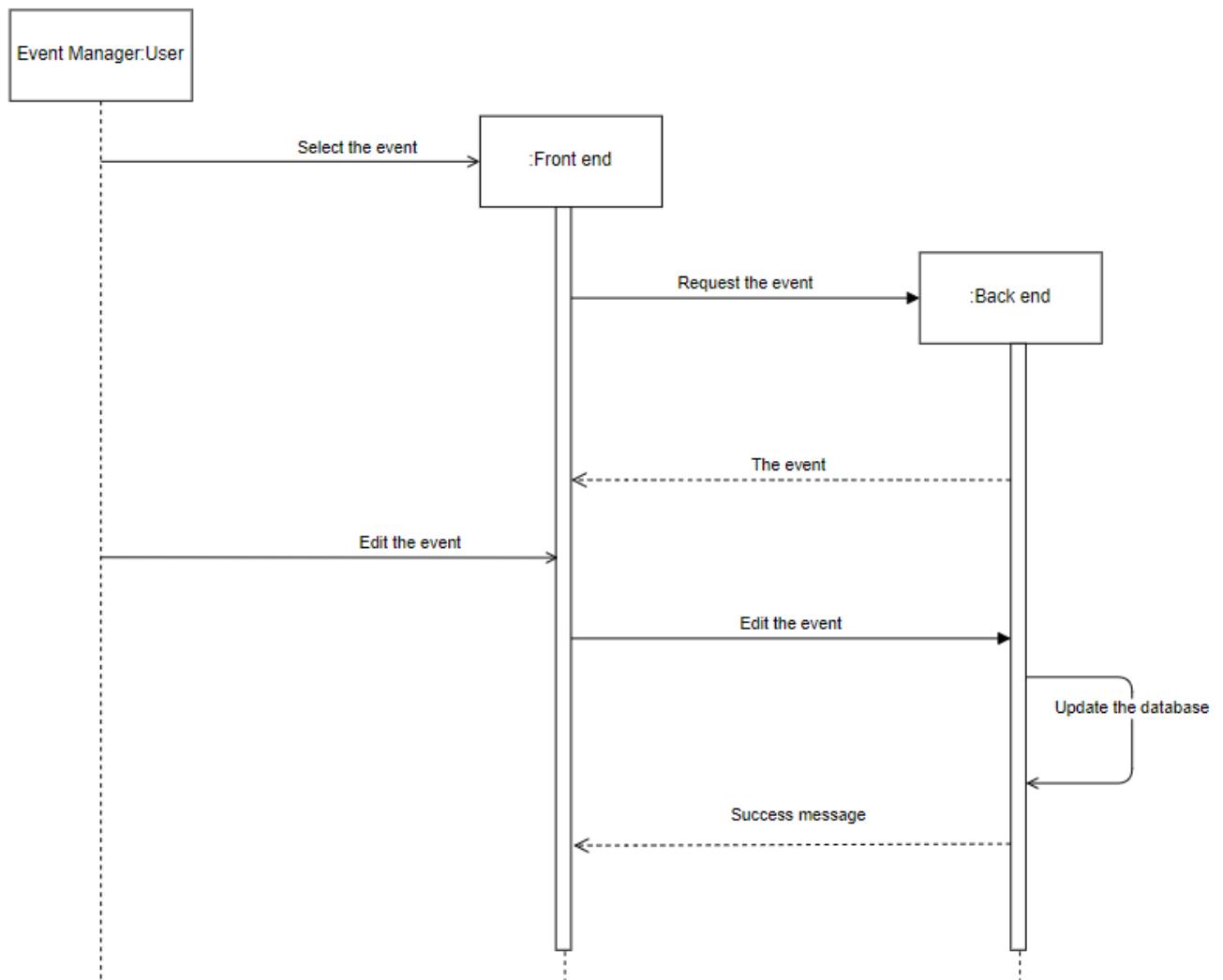
6.3.5.3. Post the event



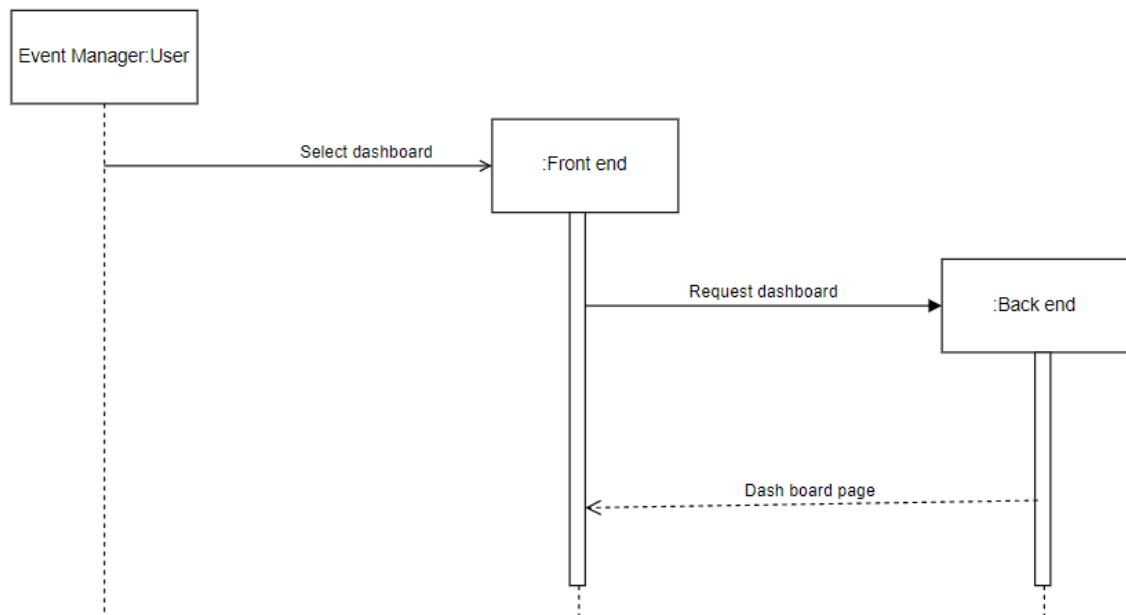
6.3.5.4. Mark the attendance



6.3.5.5. Edit event

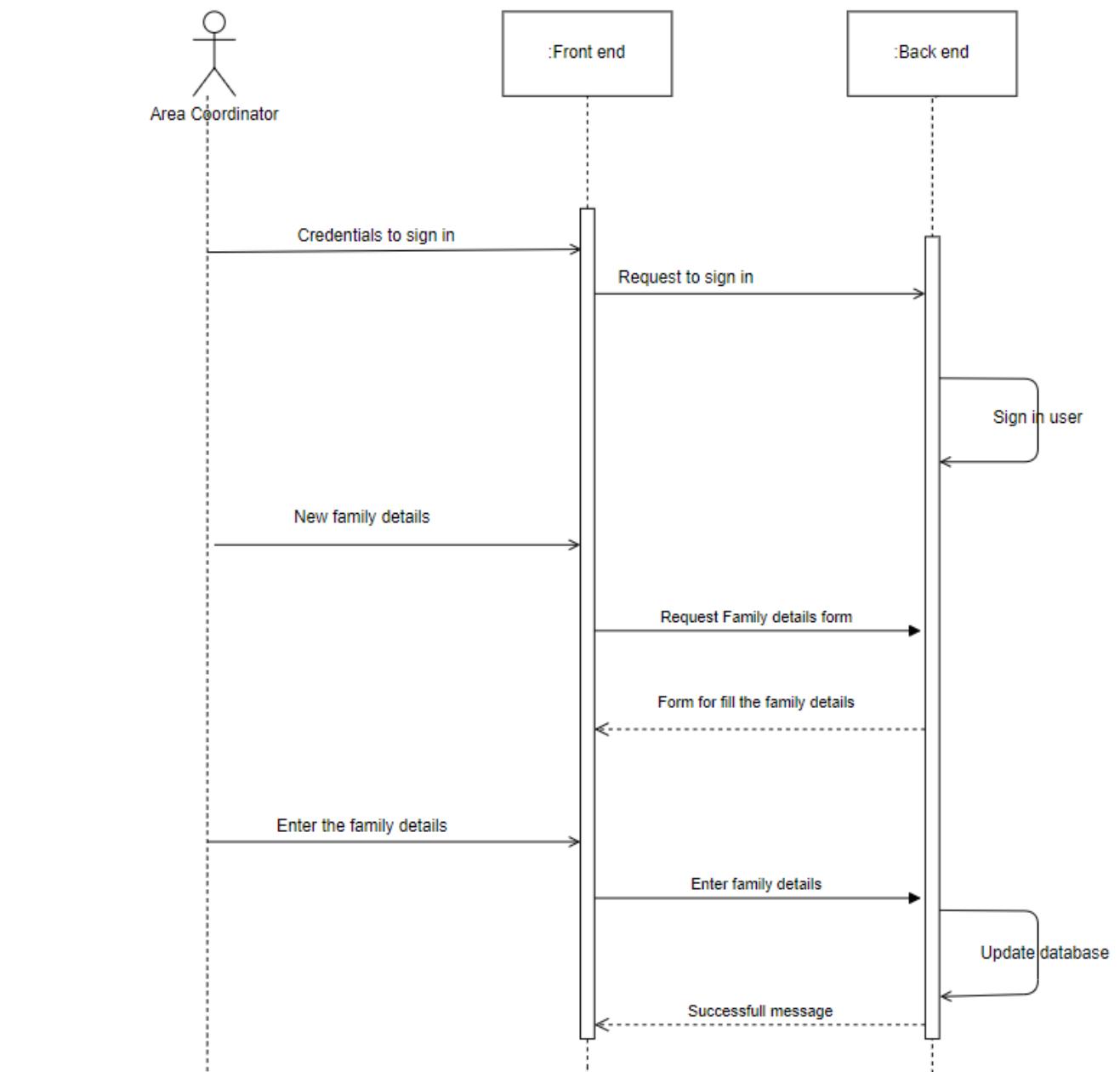


6.3.5.6. View dashboard

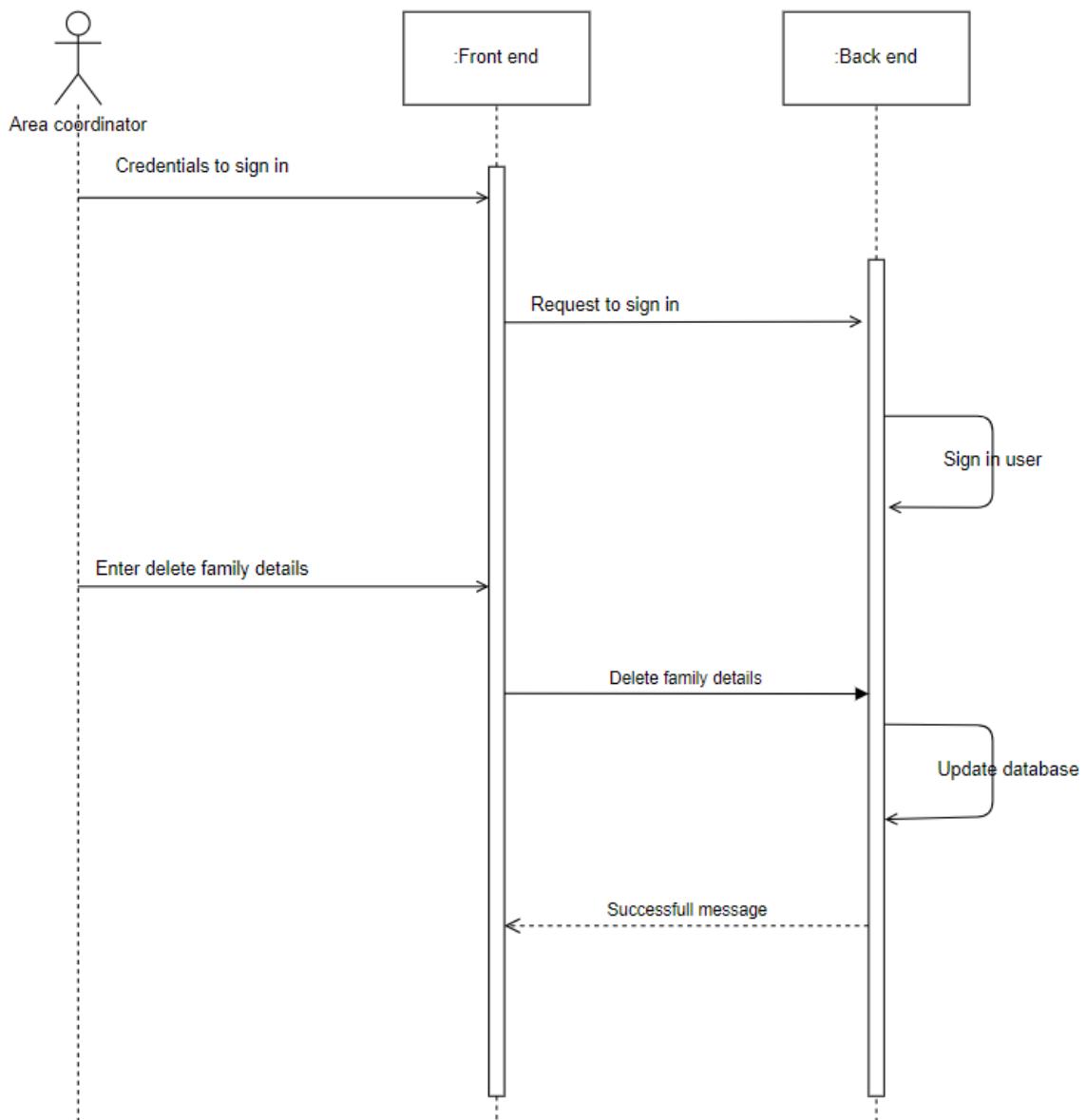


6.3.6. Area coordinator

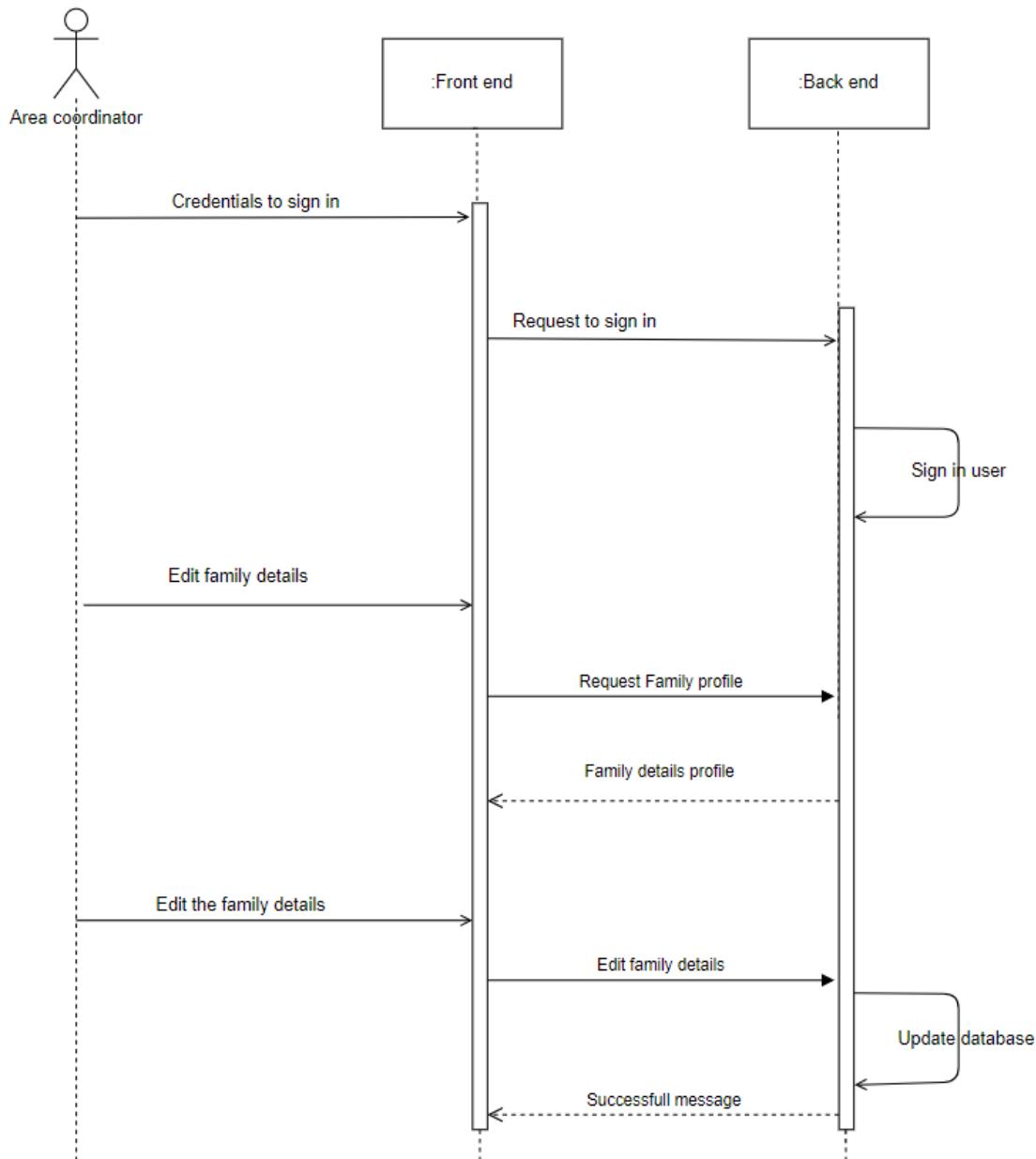
6.3.6.1. Enter family details



6.3.6.2. Remove details

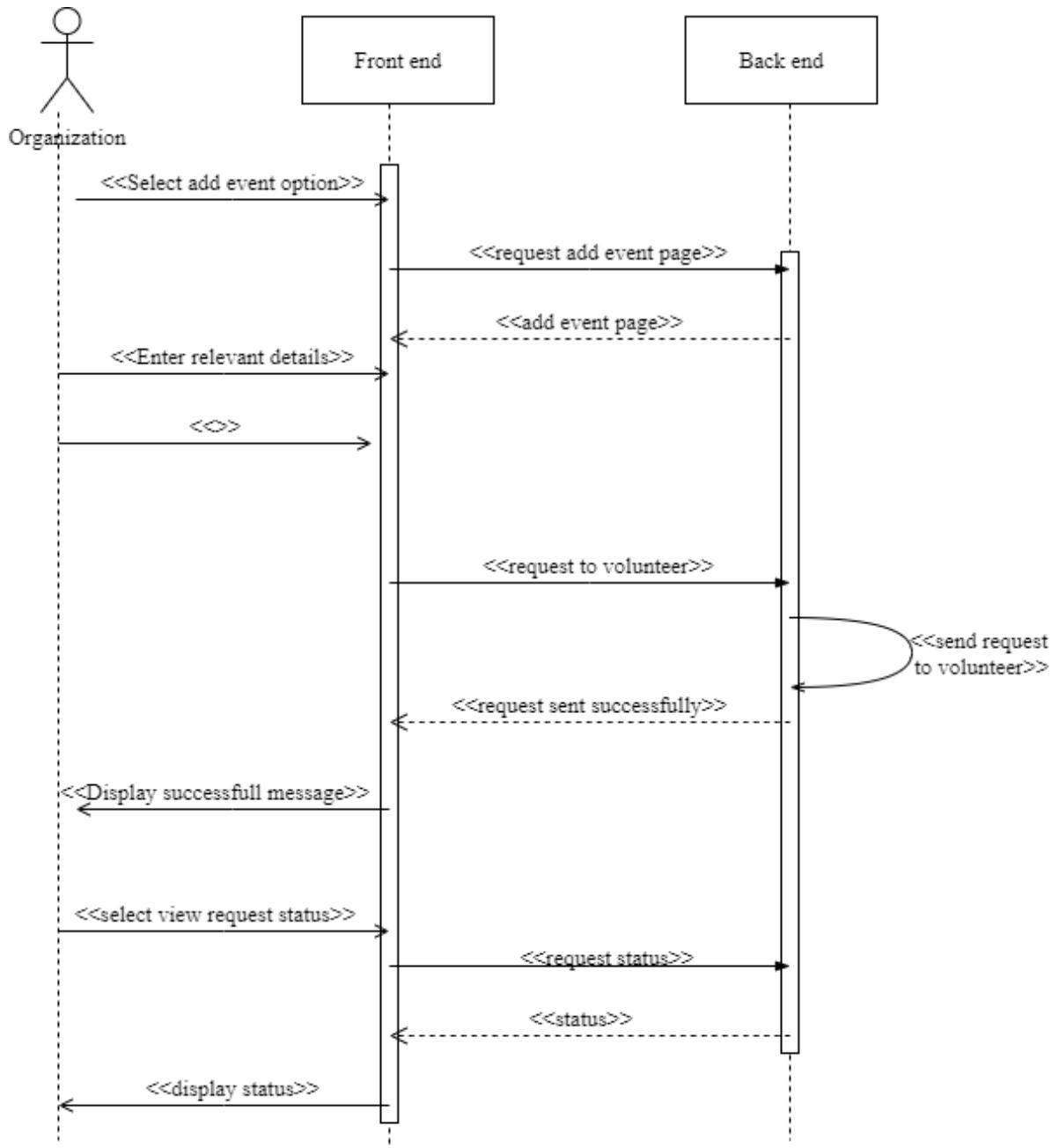


6.3.6.3. Update family details

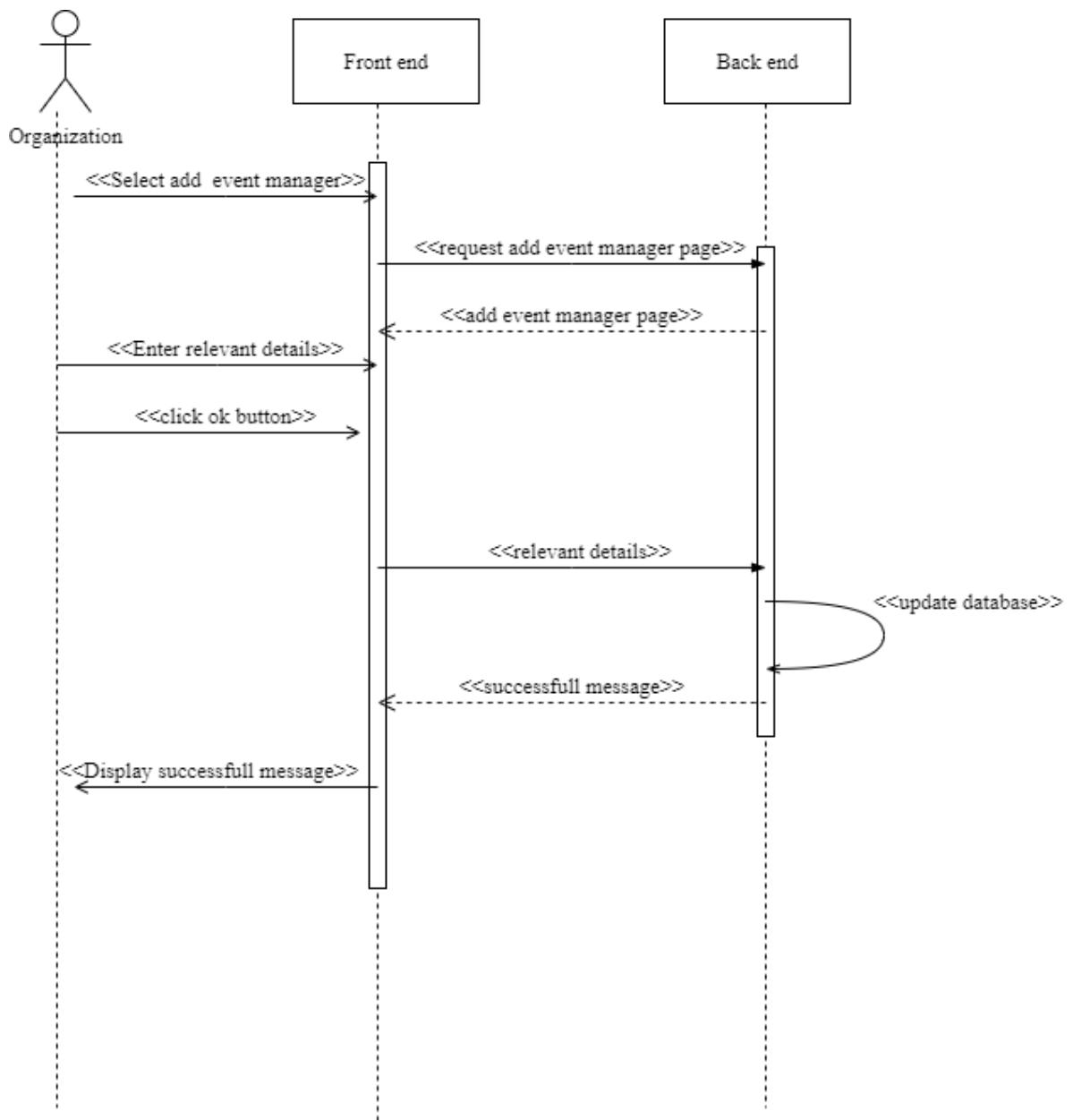


6.3.7. Organization admin

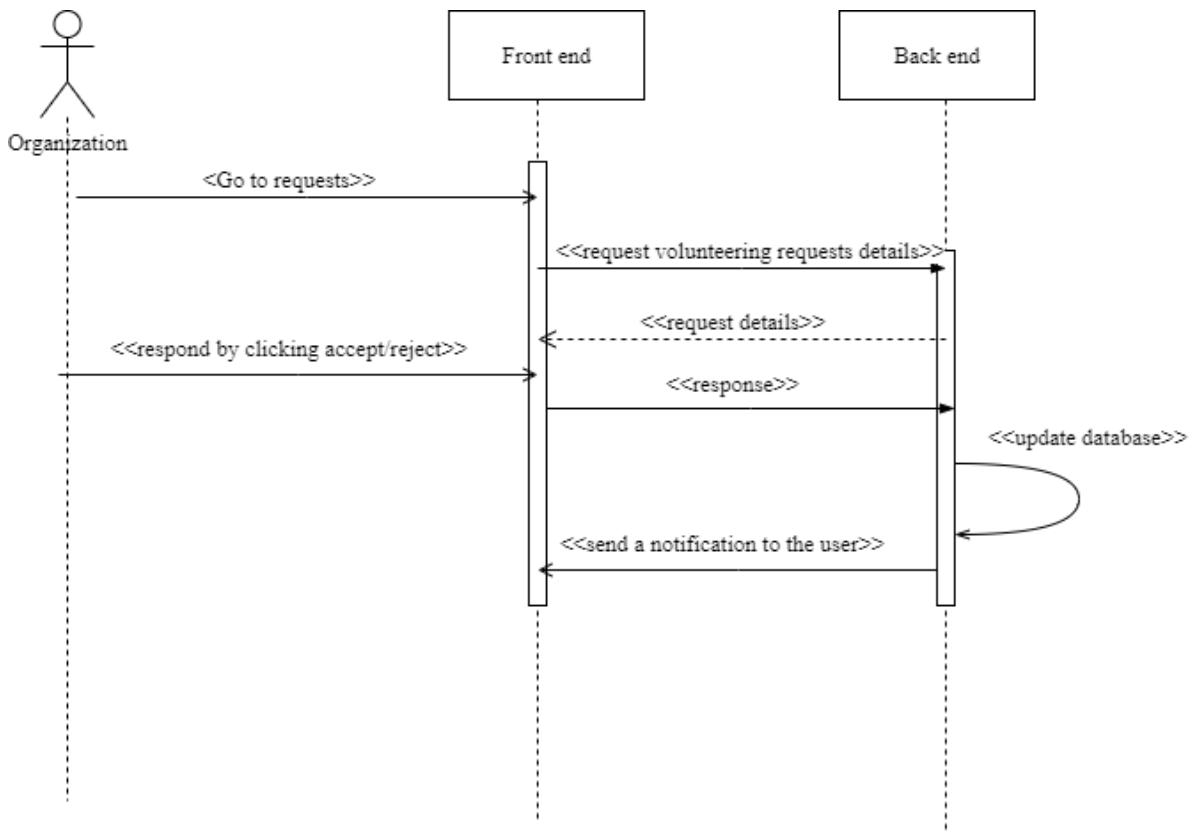
6.3.7.1. Add event



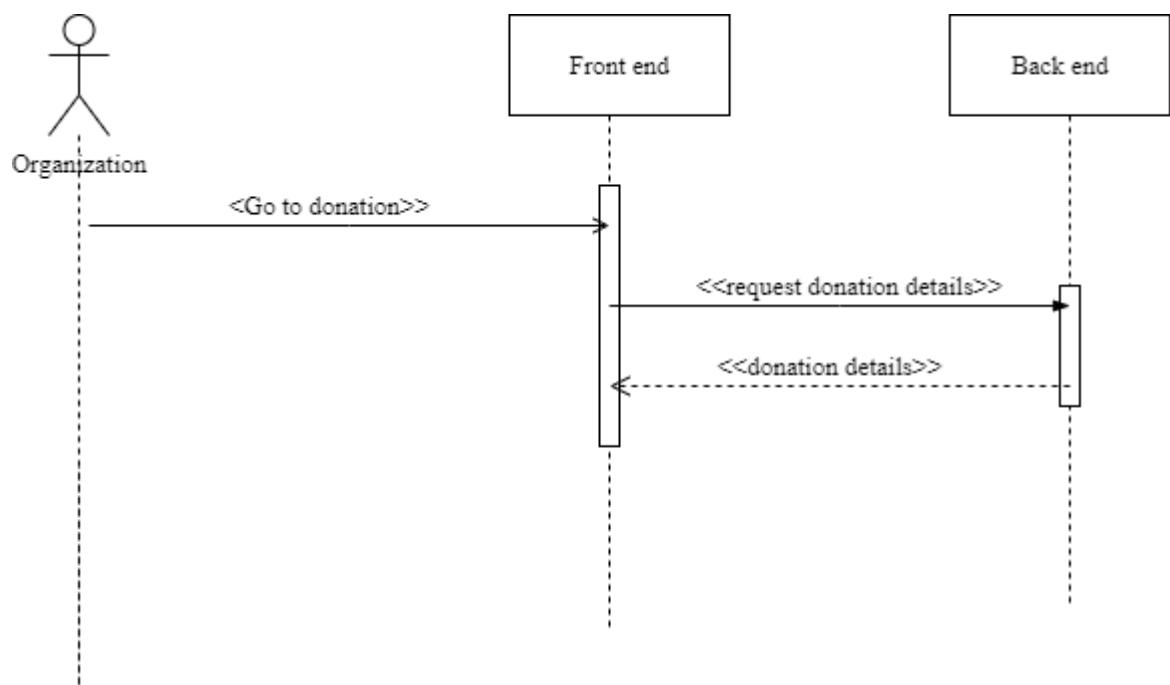
6.3.7.2. Create accounts for the event manager



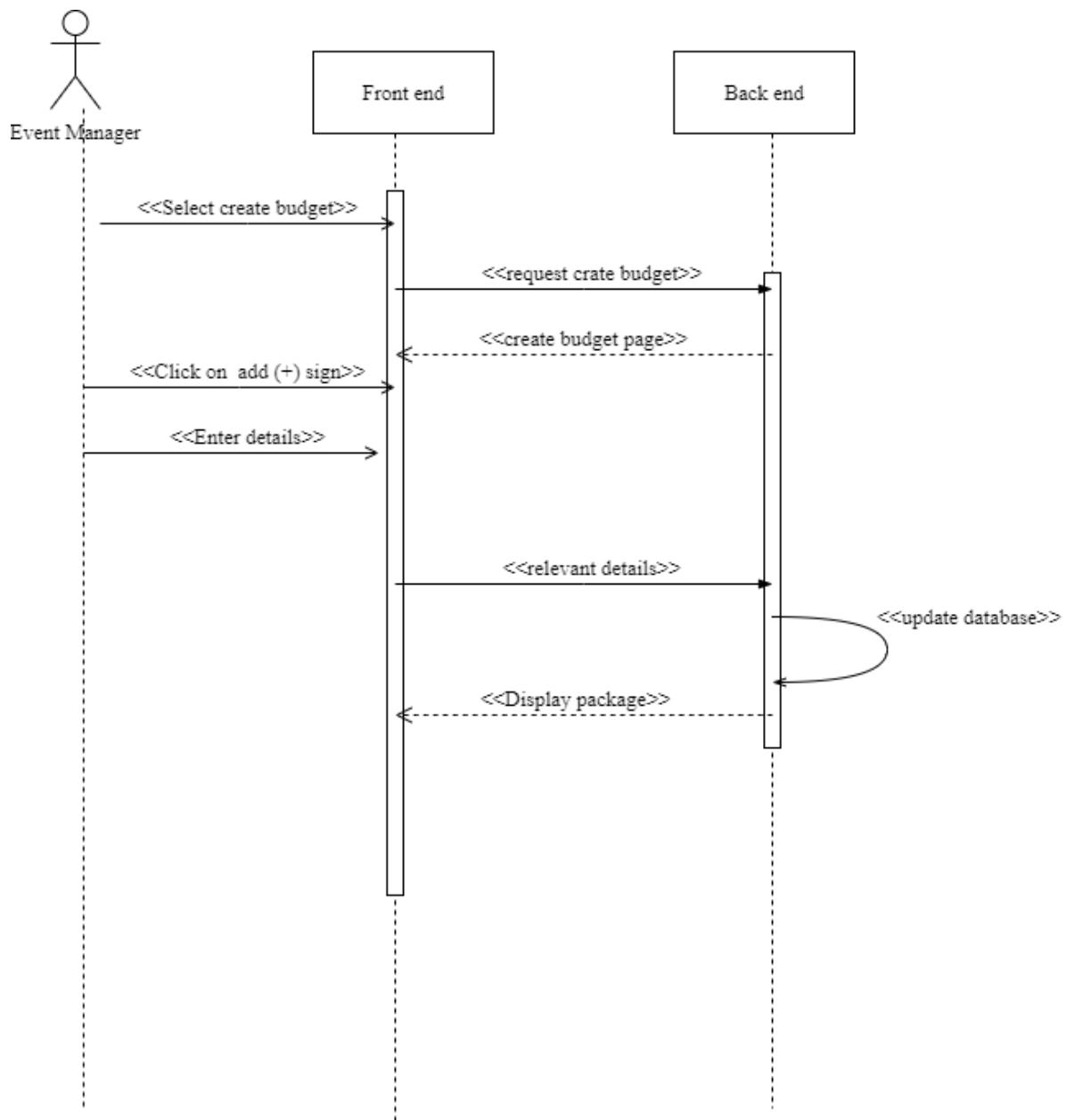
6.3.7.3. Approve/Reject volunteering request



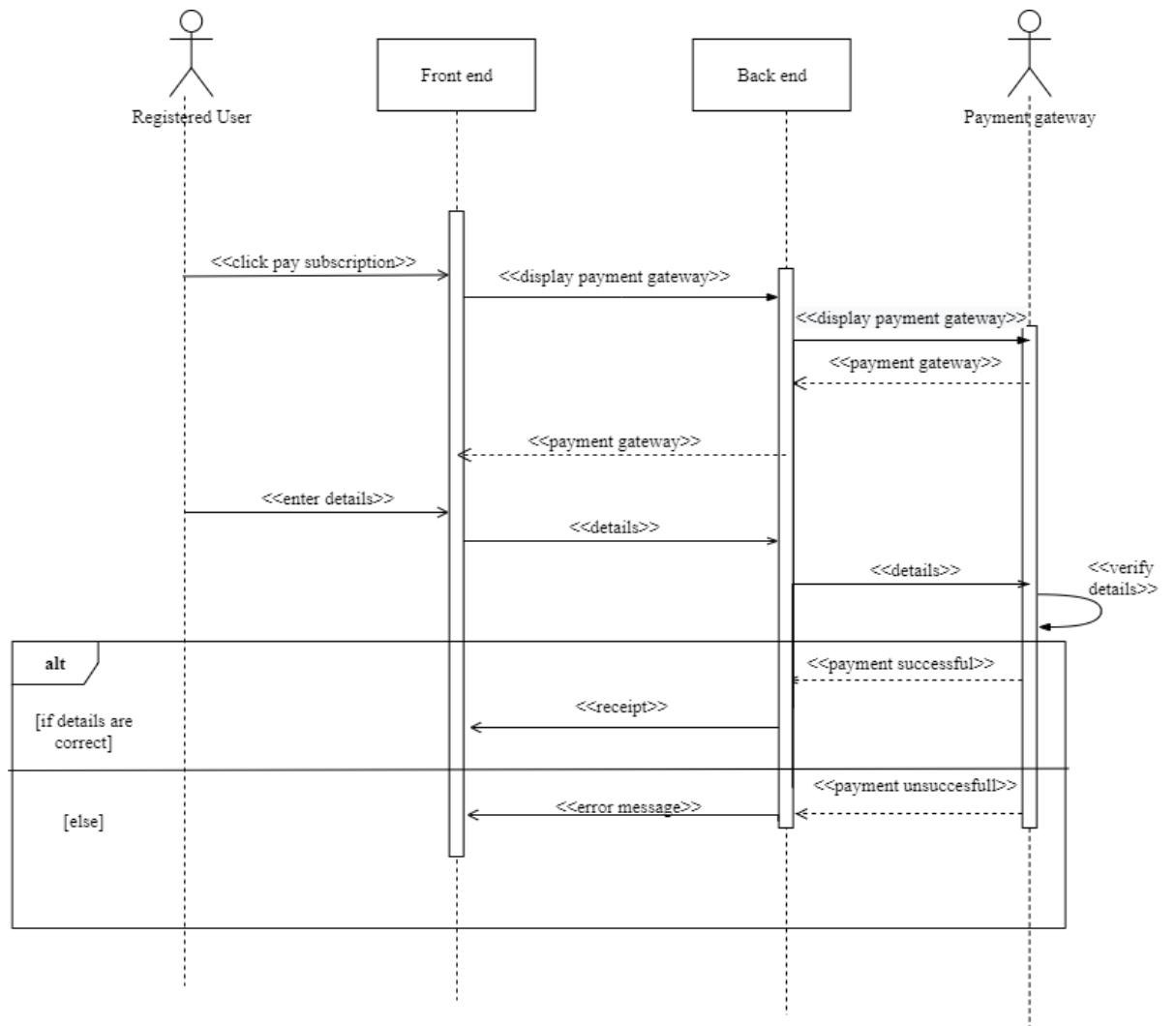
6.3.7.4. View cash donations



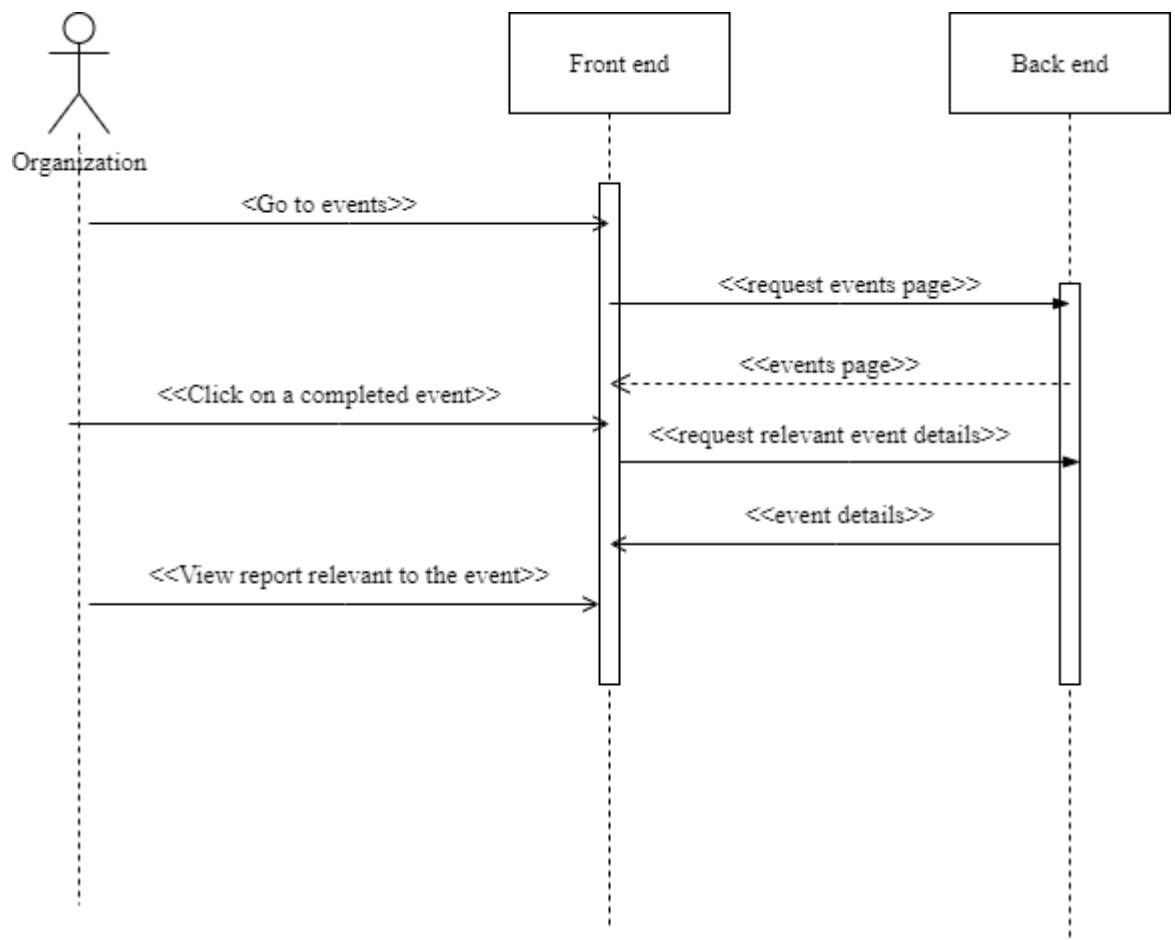
6.3.7.5. Create food packs



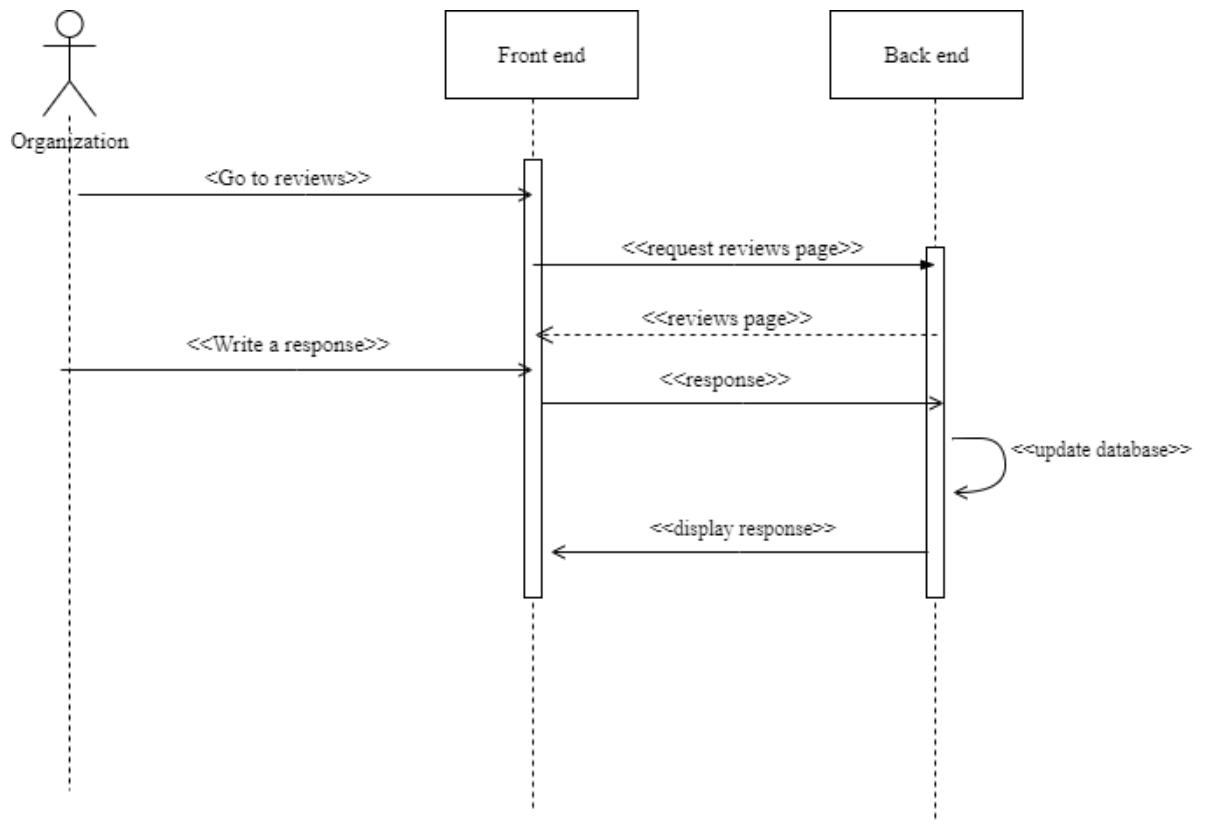
6.3.7.6. Pay subscription fee



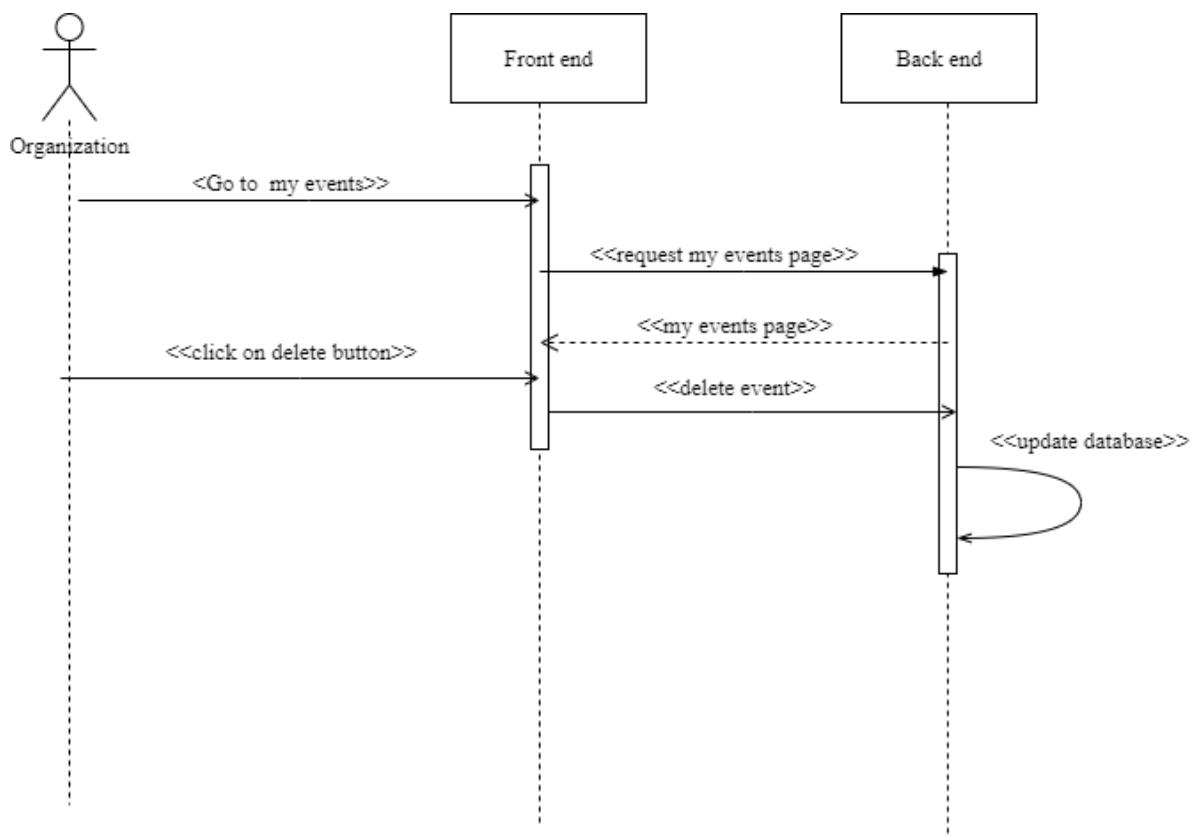
6.3.7.7. View report



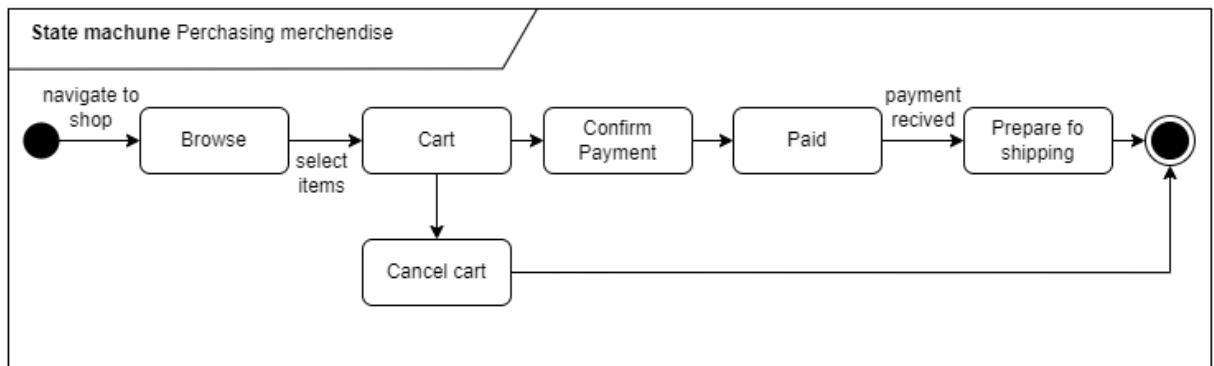
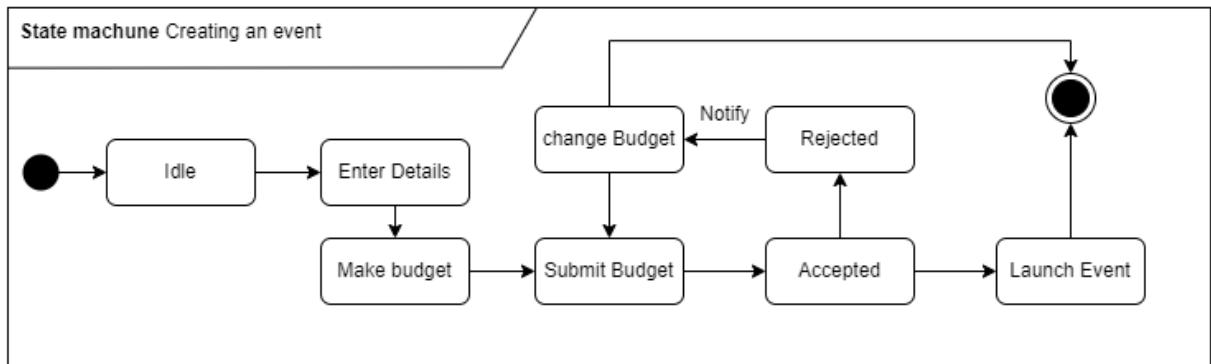
6.3.7.8. Respond to reviews and complains

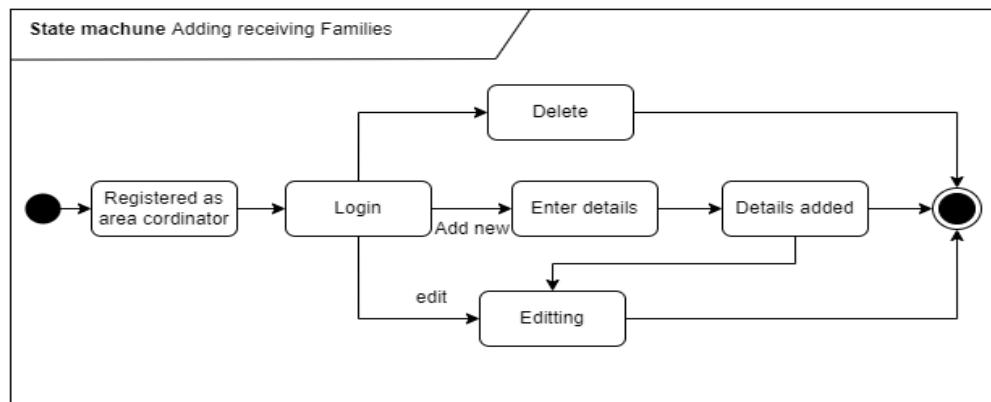
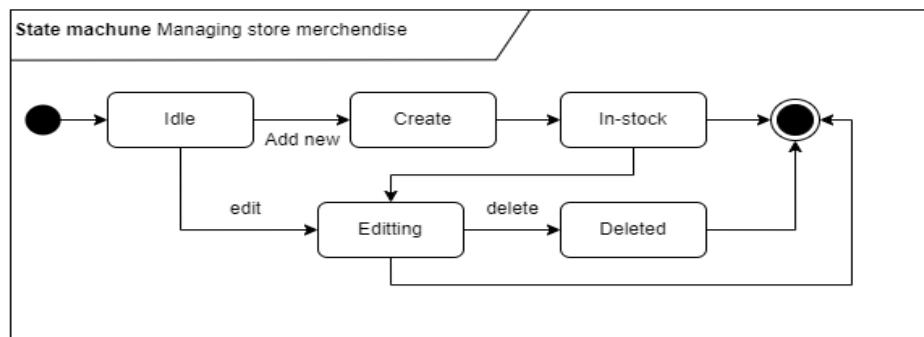
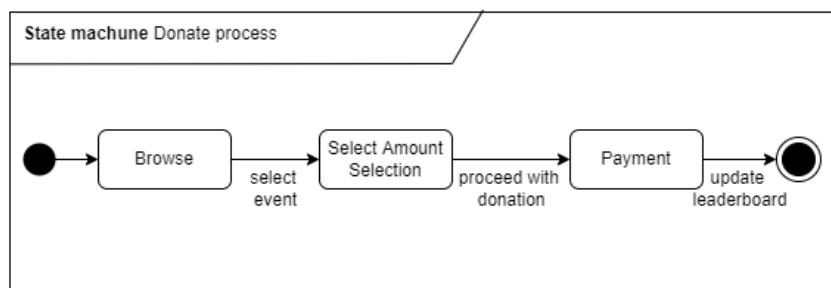
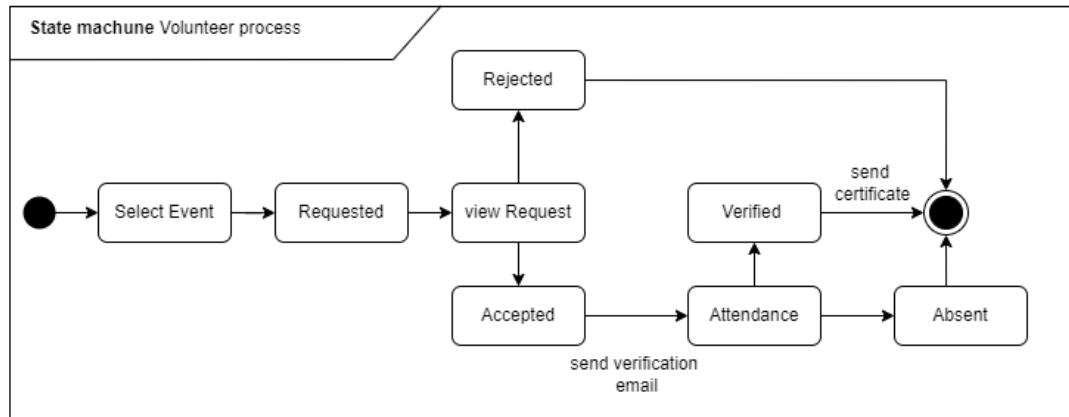


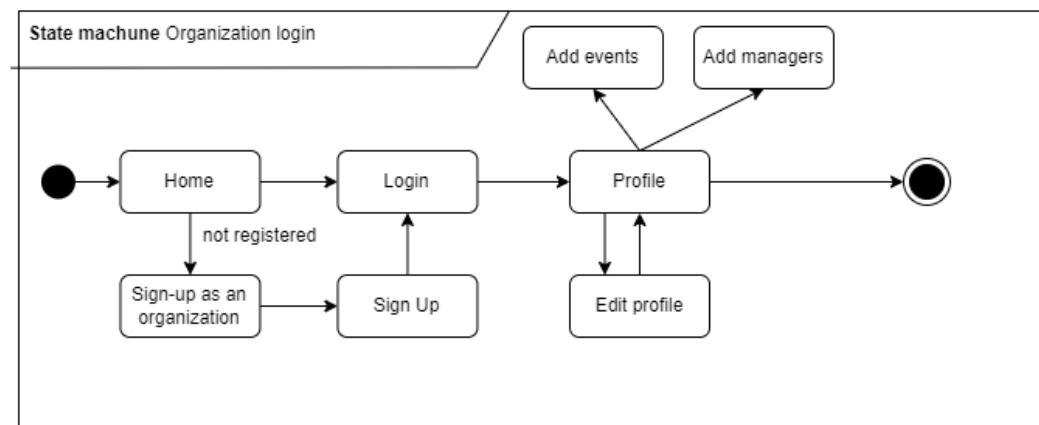
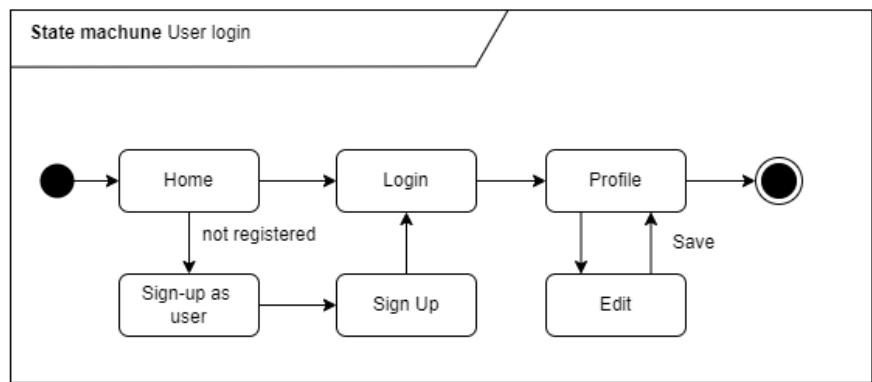
6.3.7.9. Delete event



6.4.State Transition Diagrams

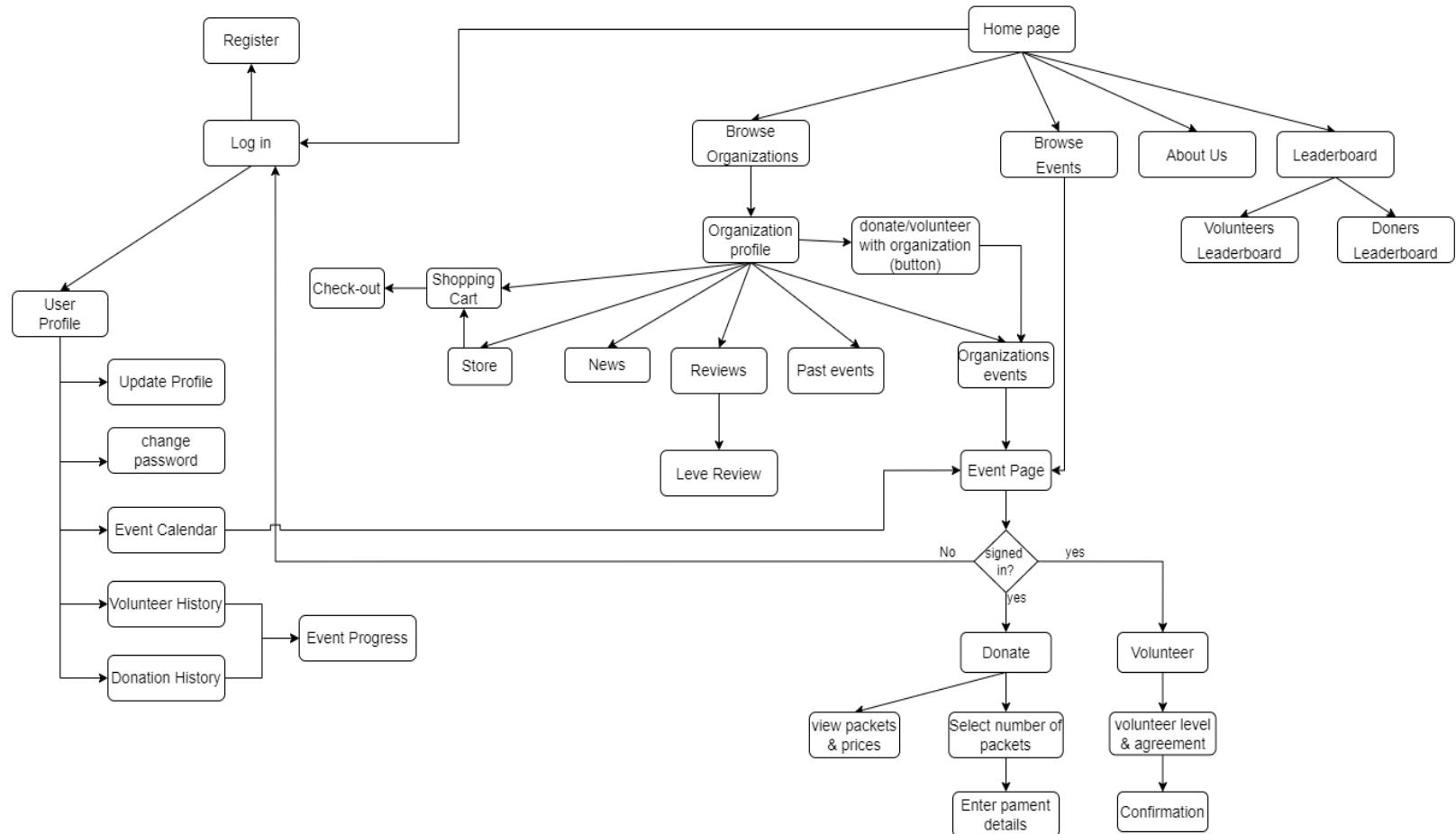




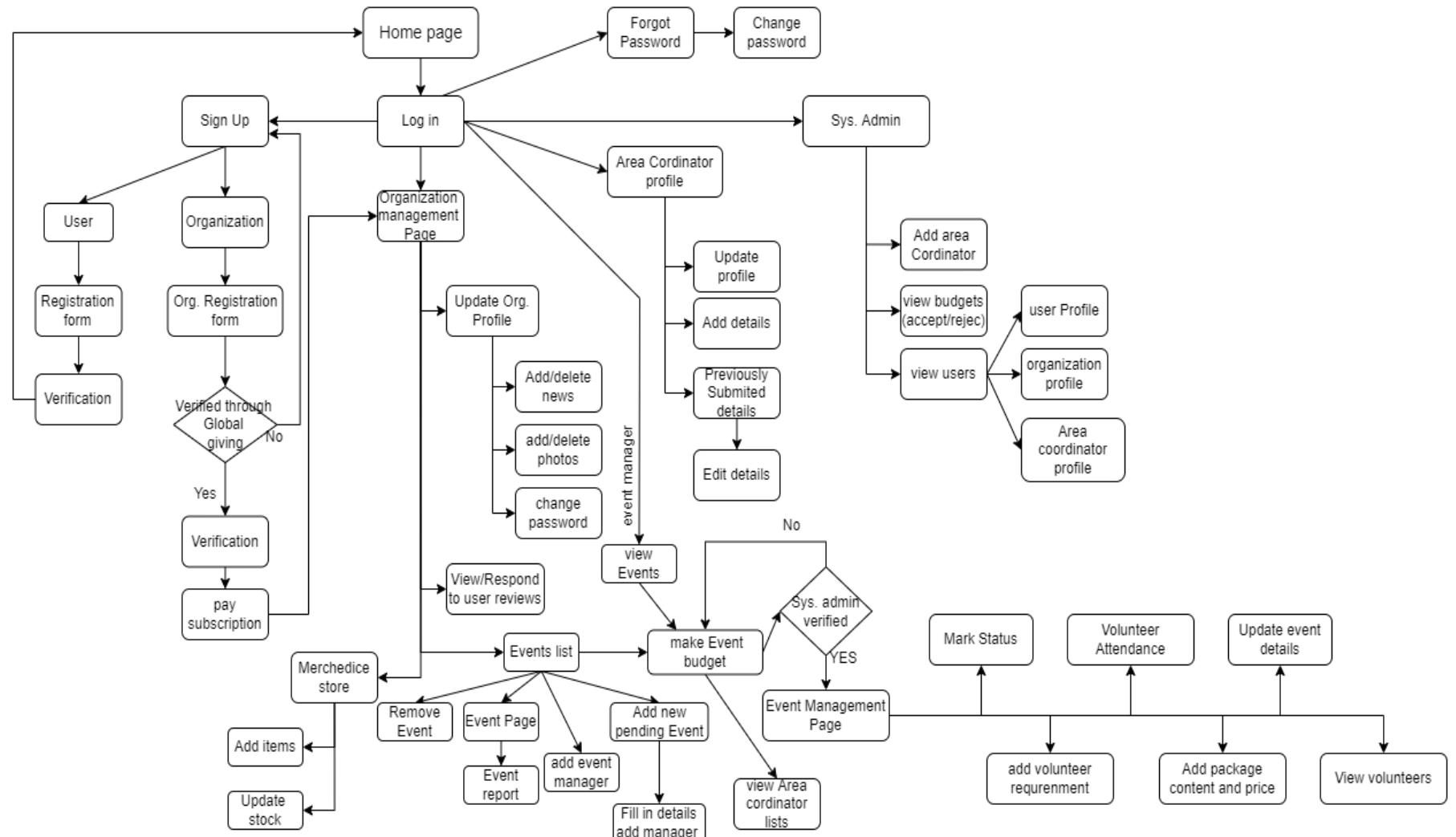


6.5. UI flows

6.5.1. Guest User



6.5.2. Organizations and Area coordinator



6.6.UI mockups

6.6.1. User Selection

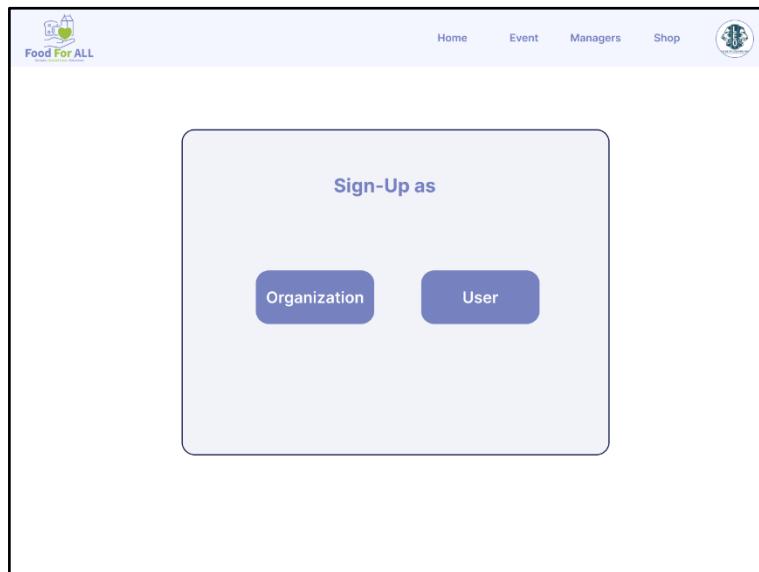


Figure 62#UImockups#User Selection#

6.6.2. Login (All users)

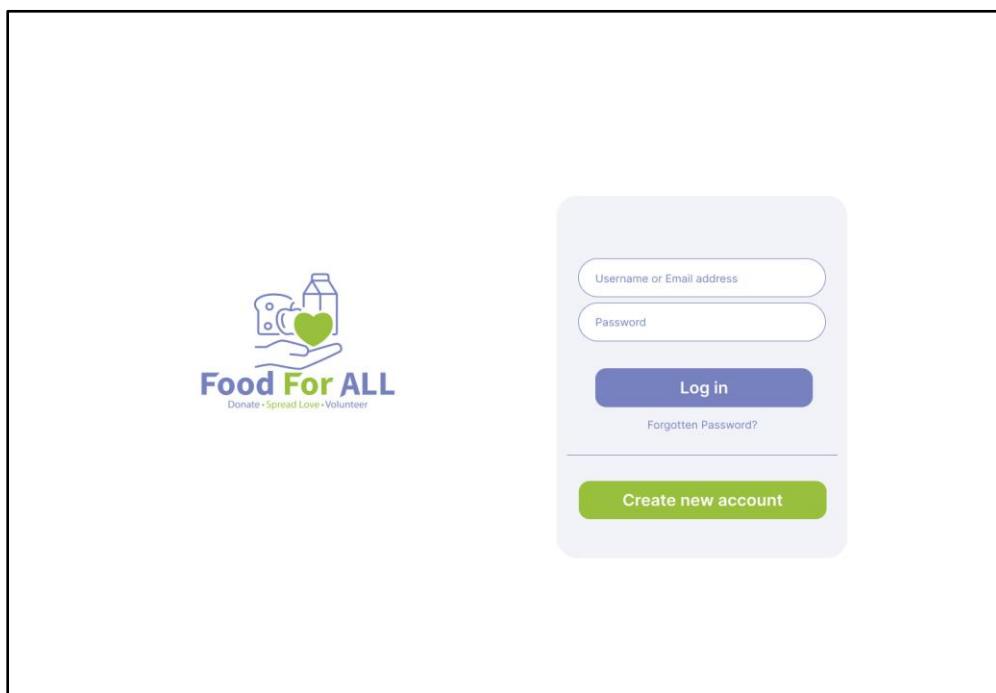


Figure 63#UImockups#Login (All users) #

6.6.3. User Registration



The registration form consists of several input fields: First name, Last name, NIC, Email address, Address, City, Postal Code, Telephone number, Password, and Re-enter password. A checkbox labeled "I agree terms and conditions" is present, followed by a large green "Register" button.

Figure 64#UImockups#User Registration#

6.6.4. User edits profile information



The profile edit page features a header with navigation links: Home, Donate/Volunteer, Organizations, Events, About us, and user-specific icons for a crown and a bell. The main area is titled "Edit your Profile". It includes a circular profile picture placeholder with "Upload new | Remove" options. The user's current profile information is displayed in two columns: First name (Sanduni), Last name (Nimsara), NIC (200006502038), Email (sandunii@gmail.com), Address (603/B, Queen street, Piliyandala), Home Town (Piliyandala), Postal code (11540), and Telephone Number (076 1576 134). At the bottom are "Change Password" and "Save Changes" buttons.

Figure 65#UImockups#User edit profile information#

6.6.5. Leaderboard

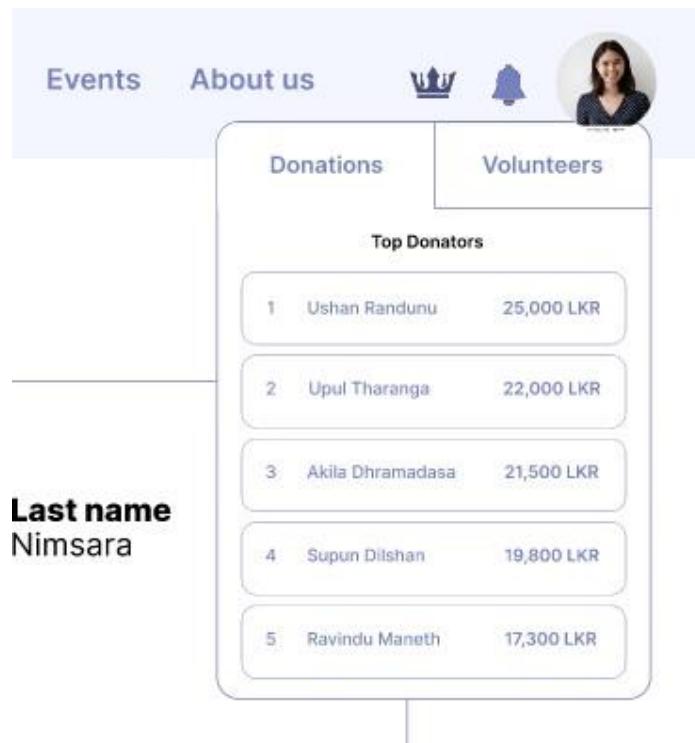


Figure 66#UImockups#Leaderboard#

6.6.6. User changes password

The figure shows a UI mockup of a password change form. At the top, there is a navigation bar with links for 'Home', 'Donate/Volunteer', 'Organizations', 'Events', 'About us', a crown icon, a bell icon, and a user profile picture. The main content area contains fields for 'New Password' and 'Re-enter New Password', both enclosed in rounded rectangles. Below these fields is a blue button labeled 'Change Password'.

Figure 67#UImockups#User changes password#

6.6.7. User profile

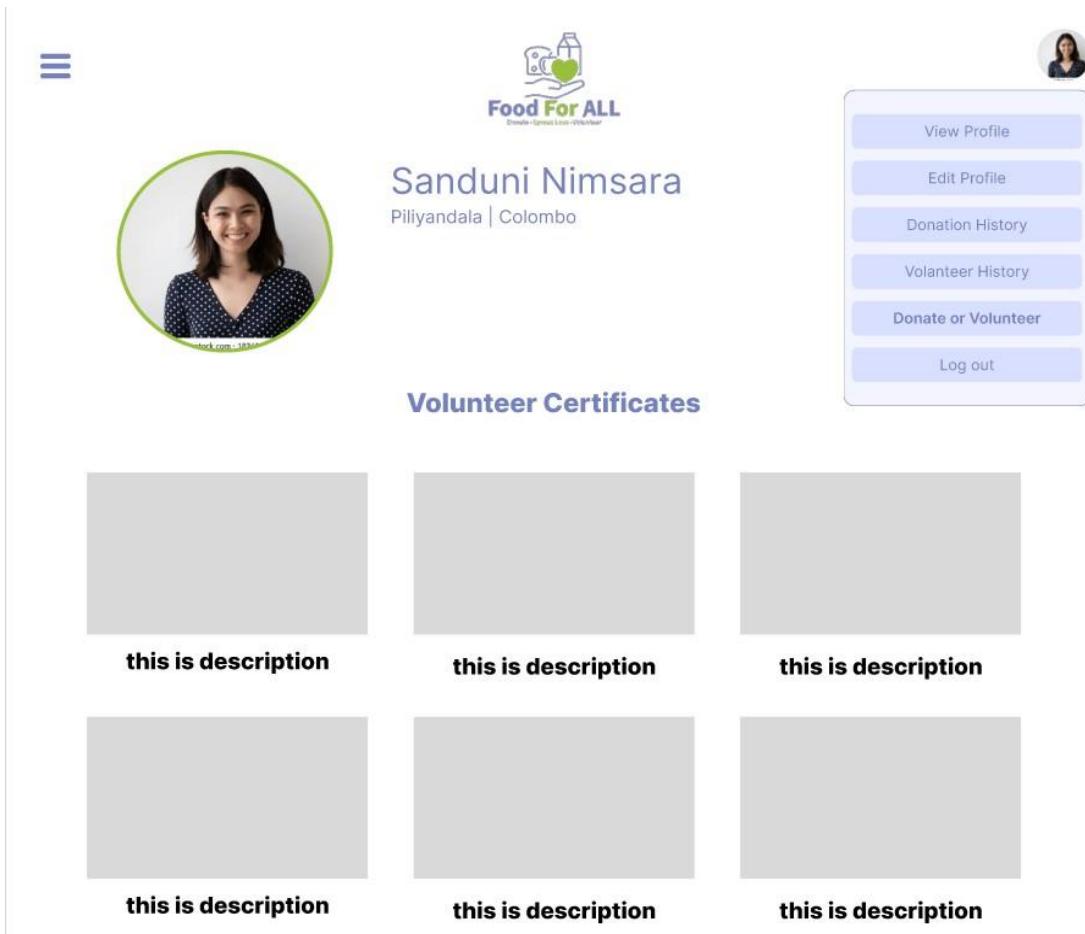


Figure 68#UImockups#User profile-part1 #

Recent Volunteering				
Event	Organization	Role	Date	
Event	Org	Role	Date	
Event	Org	Role	Date	
Event	Org	Role	Date	
Event	Org	Role	Date	
Event	Org	Role	Date	
Event	Org	Role	Date	

Recent Donations		
Date	Organization	Amount
Date	Role	

Total Donated Amount

50,000 LKR

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Figure 69#UImockups#User profile-part2 #

6.6.8. User view event page

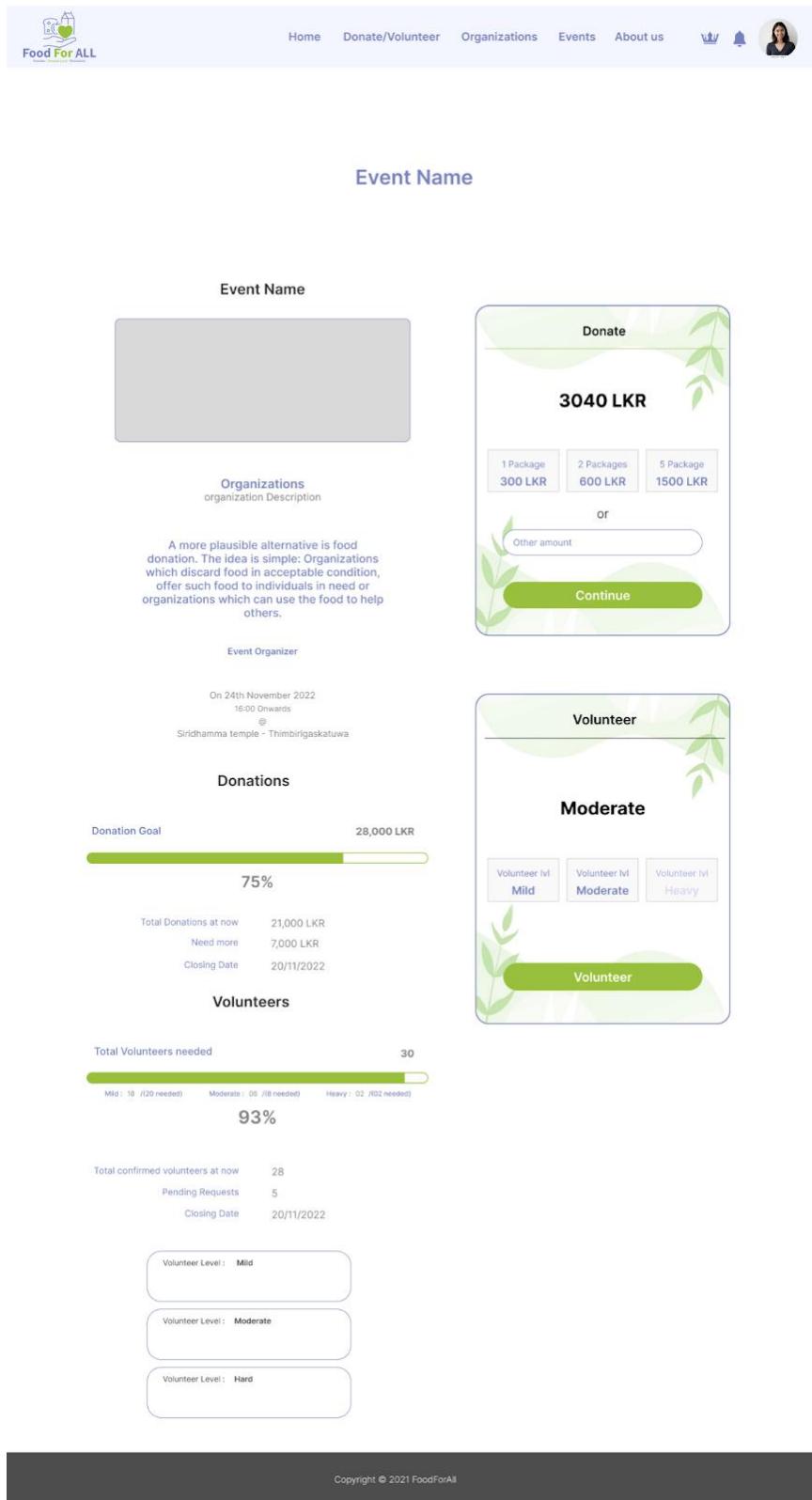


Figure 70#UImockups#User visits event page #

6.6.9. General home page

FoodForAll

Donate food to end hunger

Donate/Volunteer

Become a Donor

printing and typesetting industry. Lorem Ipsum r took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap

[Read more...](#)

Why donate food

printing and typesetting industry. Lorem Ipsum r took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap

[Read more...](#)

How donation helps

printing and typesetting industry. Lorem Ipsum r took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap

[Read more...](#)

About us

printing and typesetting industry. Lorem Ipsum r took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the lea



but also the lea

printing and typesetting industry. Lorem Ipsum r took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap

Figure 71#UImockups#General home page part1 #

Rathnapura

Five centuries, but also the leaping and typesetting industry. Lorem ipsum took a gallery of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the lea

[More details](#)

Jaffna

Five centuries, but also the leaping and typesetting industry. Lorem ipsum took a gallery of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the lea

[More details](#)

Ampara

Five centuries, but also the leaping and typesetting industry. Lorem ipsum took a gallery of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the lea

[More details](#)

Chilaw

Five centuries, but also the leaping and typesetting industry. Lorem ipsum took a gallery of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the lea

[More details](#)

NGOs work with us

Join with us!

[Sign In](#)

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Figure 72#UImockups#General home page part2 #

6.6.10. User browses organizations

The image shows a UI mockup of the 'Organizations' page from a website called 'FoodForAll'. At the top, there is a navigation bar with links for Home, Donate/Volunteer, Organizations, Events, and About us. There are also icons for user profile, notifications, and a search function. Below the navigation bar, the page title 'Organizations' is displayed. A search bar with placeholder text 'Search here' and a magnifying glass icon is present. A sorting dropdown menu labeled 'Sort by' is located above a grid of organization cards. The grid contains seven cards, each showing a logo (a gray circle), the organization name, and the number of events. The data is as follows:

Logo	Organization Name	No. of events
Gray circle	Lets Donate	20
Gray circle	Donate Sri Inaka	30
Gray circle	organization X	35
Gray circle	Lets Donate	20
Gray circle	Donate Sri Inaka	30
Gray circle	organization X	35
Gray circle	organization X	35

At the bottom of the page, there is a dark footer bar with the text 'Copyright © 2021 FoodForAll'.

Figure 73#UImockups#User browses organizations #

6.6.11. User view Organization merchandise shop



Figure 74#UImockups#User views organization merchandise shop #

6.6.12. Organization admin edits profile information

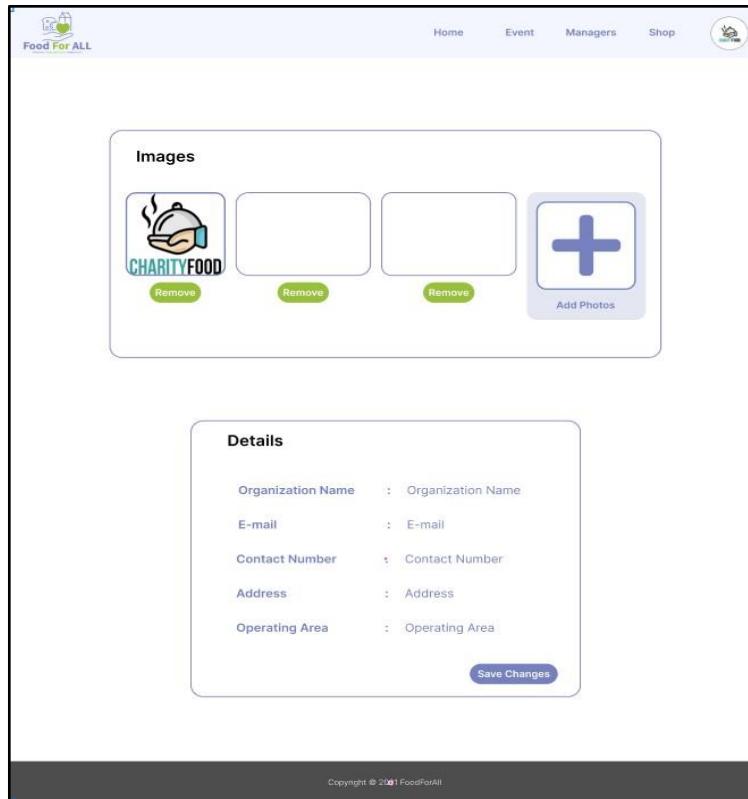


Figure 75#UImockups#Organization admin edits profile information #

6.6.13. Organization admin adds new events

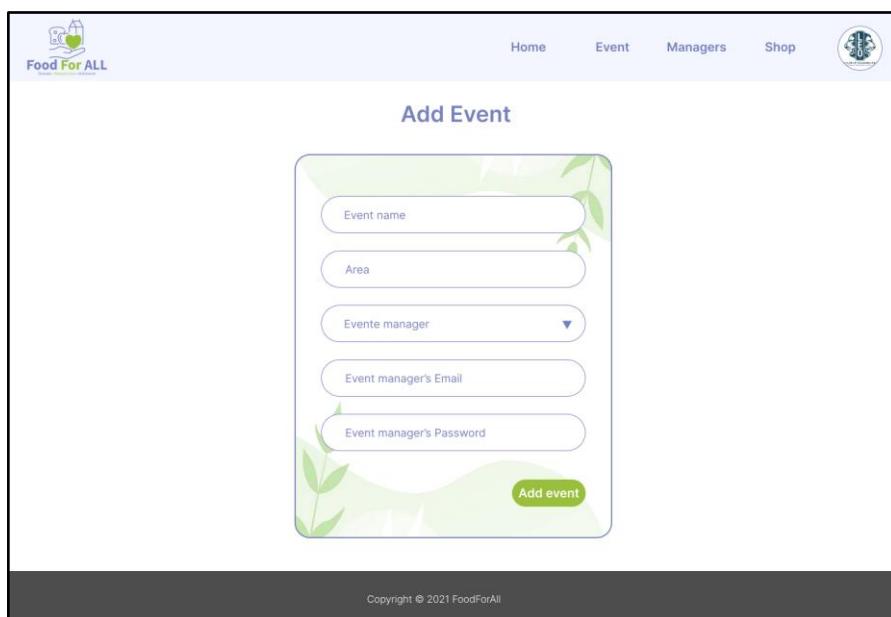


Figure 76#UImockups#Organization admin adds new events #

6.6.14. Organization merchandise store

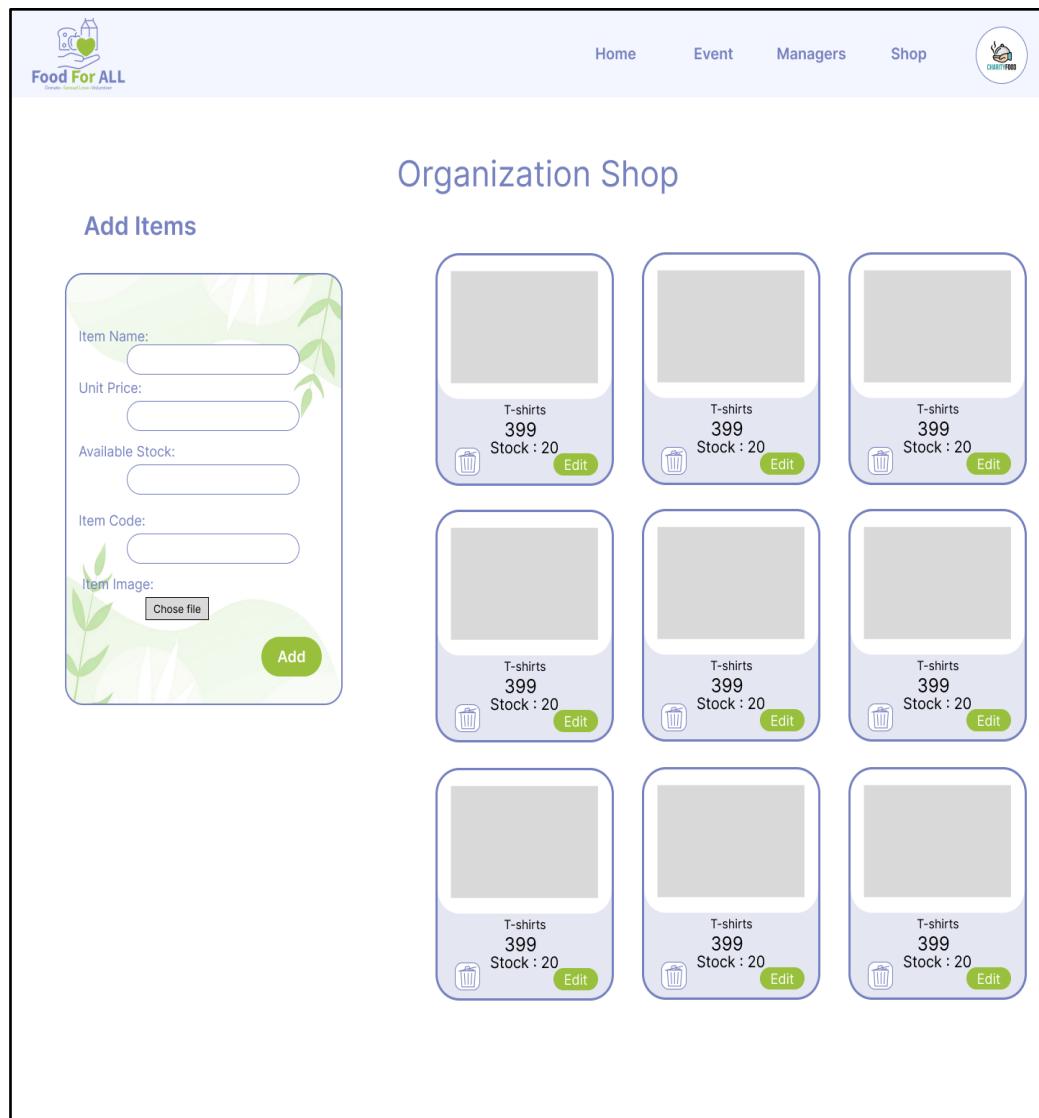


Figure 77#UImockups#Organization merchandise store #

6.6.15. Edit Store items

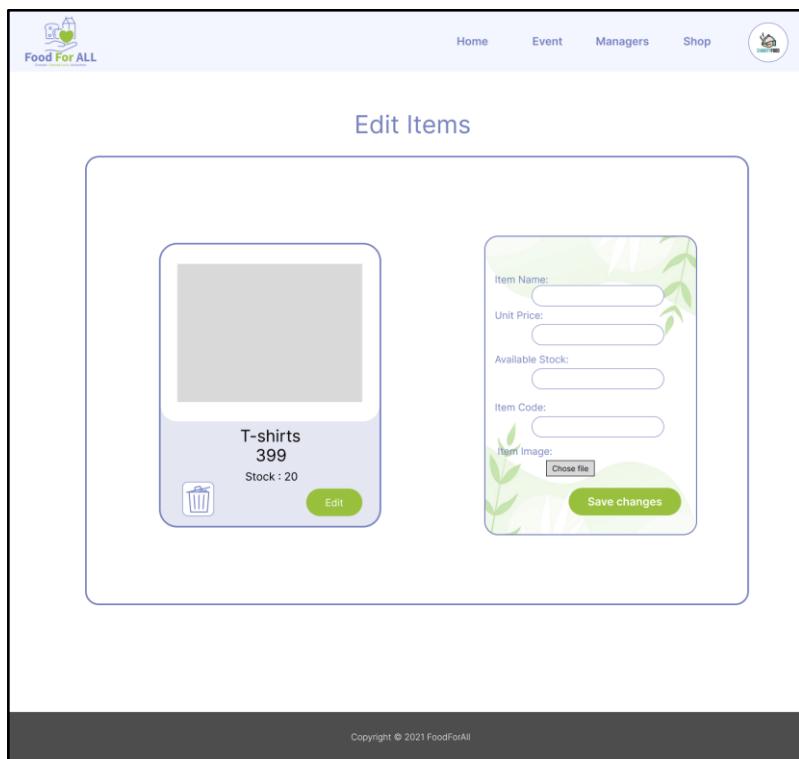


Figure 78#UImockups#Edit store items#

6.6.16. Organization Admin view and reply to reviews

Food For ALL

Home Event Managers Shop

Reviews

Sort by : newest oldest

Nilshane Silva level 2 volunteer 3 mins ago	Van Badham level 2 volunteer 30 mins ago	Sumudu Malkanthi level 2 volunteer 1 day ago
Best platform to enhance the youth skills and meet amazing individuals towards a meaningful & reliable charity		
Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>	Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>	Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>
Kaveesha Silva level 2 volunteer 1 day ago	Rupika Chandani level 2 volunteer 1 day ago	J. Satharasingha level 2 volunteer 2 days ago
Excellent collaboration		
Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>	Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>	Reply <div style="border: 1px solid #ccc; height: 40px; margin-top: 10px;"></div> <div style="background-color: green; color: white; padding: 2px 10px; border-radius: 5px; text-decoration: none;">Post</div>

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Figure 79#Ulmockups#Organization admin views and reply to reviews #

6.6.17. Organization admin adds and view Event managers

The UI mockup illustrates the 'Managers' section of the FoodForAll application. At the top, there's a navigation bar with links for Home, Event, Managers, and Shop, along with a Leo logo. The main content area has two sections: 'Add event managers' on the left and 'Event managers' on the right.

Add event managers: This section contains four input fields: Name, Email, Password, and Re-enter Password. A green 'Add' button is located at the bottom right of the form.

Event managers: This section displays a table of three existing event managers. Each row includes columns for Name, Email, NIC, Password, and edit/crop icons.

Name	Email	NIC	Password	Action
Sachin Chamikara	sachinchamikara@gmail.com	200006502038	myPassword@789	
Sachini Dhanesha	sachinidhanesha@gmail.com	200006502037	myPassword@123	
Janani Nevindya	jananinevindya@gmail.com	200007502022	myPassword@456	

At the bottom of the page, a dark footer bar contains the copyright notice: Copyright © 2021 FoodForAll.

Figure 80#UImockups#Organization admin adds and views event managers #

6.6.18. Organization Profile

The image shows a UI mockup of an organization profile page. At the top, there's a header with the logo 'Food For ALL' (a green heart with a fork and knife), followed by navigation links: Home, Event, Managers, Shop, and a user icon. Below the header, the text 'Organization Name' is displayed.

Details

Organization Name	: Organization Name
E-mail	: E-mail
Gov. Registration No.	: Gov. Registration No.
Contact Number	: Contact Number
Address	: Address
Operating Area	: Operating Area

CHARITYFOOD

News and Updates

Add News and Updates



Add

Every child has a right to a healthy meal. This Giving Tuesday Give the Gift of Fullness. From scarcity to plenty, Feed God's Hungry Children is standing in the gap. Donate Today!

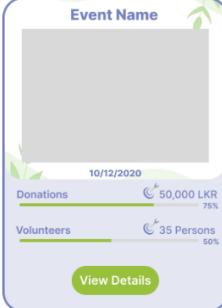


Add

No military family should have to wonder where they'll find their next meal. Every donation helps us provide more meals to more families. BBB Accredited Business. Read Blog.

Figure 81#UImockups#Organization profile part1 #

Ongoing Events



Event Name

10/12/2020

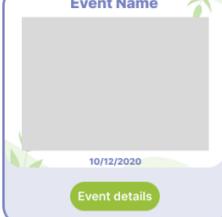
Donations  50,000 LKR 78%

Volunteers  35 Persons 50%

[View Details](#)

<
>

Completed Events



Event Name

10/12/2020

[Event details](#)

<
>

[Add Events](#)

[Event Managers](#)

[Reviews](#)

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Figure 82#UImockups#Organization profile part2 #

6.6.19. Area coordinator adds family details

The image shows a UI mockup for a web application. At the top, there is a header with the logo 'Food For ALL' and four navigation links: 'Home', 'Event', 'Managers', and 'Shop'. On the right side of the header is a user icon. Below the header, the main content area has a title 'Add Family Details' in blue. The form itself is titled 'Add Family Details' and contains several input fields. The first section has two input fields: 'Full Name' and 'Name with initials'. The second section has two input fields: 'Event manager's Email' and 'Event manager's Email'. The third section has three input fields: 'Event manager's Email', 'Event manager's Email', and 'Event manager's Email'. Below these input fields are two rows of three small circles each, likely for selecting gender or age categories. At the bottom of the form is a large blue 'Submit' button. The background of the form features a green leafy pattern.

Figure 83#UImockups#Area coordinator adds family details #

6.6.20. Area coordinator view family details

No	Family ID	Full Name	Name with initials	Contact	No. Diabetes patients	No. Cholesterol patients	Healthy Adults	Malnutrition Children	Healthy Children	Actions
29	3t2255665245v	Sachin Chamikara wanasinghe	S.C. wanasinghe	0123456789	3	3	3	3	3	
29	3t2255665245v	Sachin Chamikara wanasinghe	S.C. wanasinghe	0123456789	3	3	3	3	3	
29	3t2255665245v	Sachin Chamikara wanasinghe	S.C. wanasinghe	0123456789	3	3	3	3	3	

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Figure 84#UImockups#Area coordinator views family details #

6.6.21. Event manager views appointed events

Upcoming Events			
Event:	Api wenuwen api	Date:	30/11/2022
status: Not requested			
Go to details		Send budget	Launch Event
Event:	Api wenuwen api	Date:	30/11/2022
status: Request Pending			
Go to details		Send budget	Launch Event
Event:	Api wenuwen api	Date:	30/11/2022
status: Requested confirmed			
Go to details		Send budget	Launch Event
Event:	Api wenuwen api	Date:	30/11/2022
status: Launched			
Go to details		Send budget	Launch Event

Figure 85#UImockups#Event manager views appointed events partI #

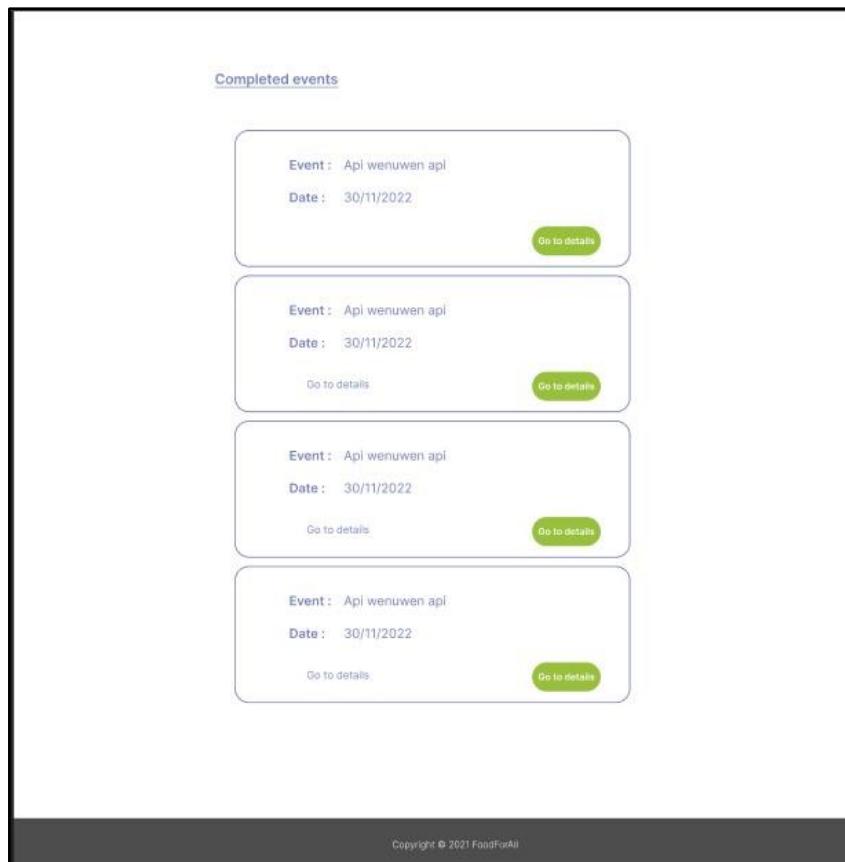


Figure 86#UImockups#Event manager views appointed events part2 #

6.6.22. Event manager gets volunteer attendance

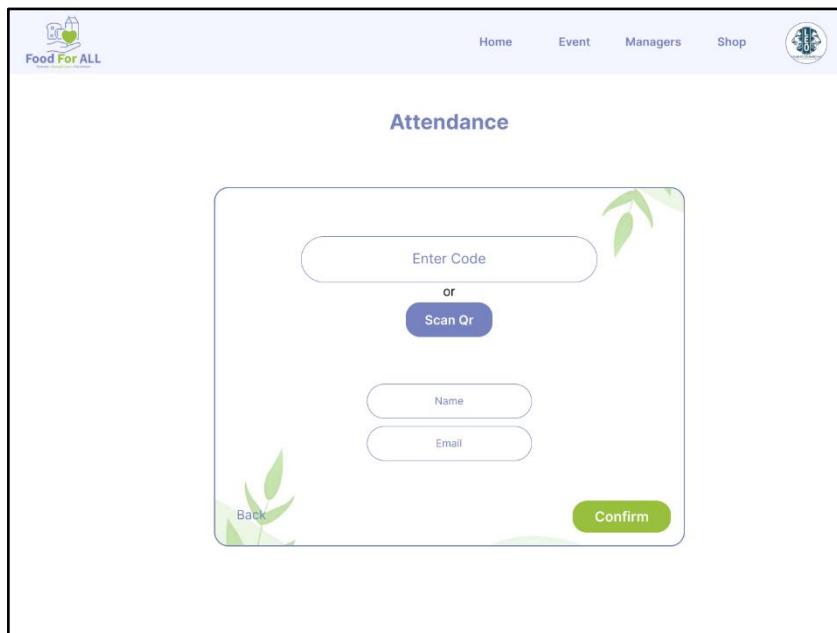


Figure 87#UImockups#Event manager gets volunteer attendance #

6.6.23. Event page (for event manager)

Food For ALL

Home Event Managers Shop

Organization Name

Event name

Event manager
Jagath Chamila

Add Description

Add Images Upload Images

Event details

District : Gampaha	<u>Edit</u>
City : Ja-Ela	
Total no of recipient :	
Date : 20/11/2022	Time : 10:00 AM

Set volunteer Level

Total Volunteers:

Mild This Is Easy volunteer level description Task 1 Task 2 Amount <input type="text"/>	Moderate This Is Matured volunteer level description Task 1 Task 2 Amount <input type="text"/>	Heavy This Is Hard volunteer level description Task 1 Task 2 Amount <input type="text"/>
--	---	---

Figure 88#UImockups#Event page part1 #

Volunteer requests



Thisara Yashmika
Mild

[Cancel request](#) [Accept Request](#)



Manoj Pavithra
Mild

[Cancel request](#) [Accept Request](#)



Yasith Vimukthi
Moderate

[Cancel request](#) [Accept Request](#)



Anuda buddila
Heavy

[Cancel request](#) [Accept Request](#)



Pasindu Nethimna
Moderate

[Cancel request](#) [Accept Request](#)

Volunteers



Udara Sankalpa
Mild



Sachini Dhanesha
Moderate



Samith Karunarathne
heavy



Pasindu Themiyia
Moderate



Malith Pramoditha
Mild



Vayani Manelka
Level 3 Volunteer



Kanchana Anuradhi
Level 3 Volunteer



Ranjana Jayani
Level 3 Volunteer



Sumudu Dilshani
Level 3 Volunteer



Ramesh Chanaka
Level 3 Volunteer



Ushan Randunu
Level 3 Volunteer



Janith Niluksha
Level 3 Volunteer

[Mark Attendance](#)

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Figure 89#UImockups#Event page part2 #

179

6.6.24. System admin adds and views area coordinators

Add area coordinators

FoodForAll

<div style="position: absolute; left: 0; top: 0;

6.6.25. System admin views users

First Name	Last Name	Registration Number	Email	NIC	Contact Number	District	City	Password	Actions
Sachin	Dilshan	RG151545t	sachindilshan@gmail.com	20006502038	076 1122458	Puttalam	Wenappuwa	Sandun789	
Saduni	Nimsara	RT151538h	sanduninimsara@gmail.com	20008502312	077 556956	Kaluthara	Kaluthara	sachin#789	
Abuda	Wanigsekara	RX454569h	anudabuddila@gmail.com	2000458636	071 552323	Gampaha	Negombo	vbdsjkvbdksj	

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Figure 91#UImockups#System admin views users#

6.6.26. System admin views and responds to the budget

Event Budget

Event Name

No of Recipients
Children : Adults : Patients : Total :

Packages

Package 1: Children	Package 1: Children	Package 1: Children
package Items	package Items	package Items
Item 1 350 LKR	Item 1 340 LKR	Item 1 890 LKR
Item 2 420 LKR	Item 2 600 LKR	Item 2 340 LKR
Item 3 1250 LKR	Item 3 1000 LKR	Item 3 1280 LKR
Item 4 620 LKR	Item 4 1700 LKR	Item 4 950 LKR
Package Price 3040 LKR	Package Price 3890 LKR	Package Price 5010 LKR
Number 10	Number 20	Number 25

Other Expenses 13,450 LKR

Total budget 233,450 LKR

[View Selected families](#) [Cancel Request](#) [Accept Request](#)

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Figure 92#UImockups#System admin views and responds to the budget#

6.6.27. System admin views events

Events

Search here 🔍

Ongoing Events

- Event Name
10/12/2020
Donations 50,000 LKR 75%
Volunteers 35 Persons 50%
[View Details](#)
- Event Name
10/12/2020
Donations 50,000 LKR 75%
Volunteers 35 Persons 80%
[View Details](#)
- Event Name
10/12/2020
Donations 50,000 LKR 75%
Volunteers 35 Persons 30%
[View Details](#)

Completed Events

- Event Name
10/12/2020
Completed
[View Details](#)
- Event Name
10/12/2020
Completed
[View Details](#)
- Event Name
10/12/2020
Completed
[View Details](#)

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Figure 93#UImockups#System admin views events #