StarContests.com

If it's not here it's not happening.

Software Design Document v1.0

Team 8

Instructor - Prof. Asim Banerjee

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REVISION HISTORY

Document	Date	Version	Created By	Reviewed By
Software Design Document	4 March, 2015	1.0	All members	Prachi, Rachit, Shivani

DOCUMENT DESCRIPTION

The purpose of this document is to formalize the design and implementation of StarContests.com website. The primary purpose of the document is to Provide the High and

Low Level Design of the website. To document different modules and components to be implemented. To document the algorithm used in building each module or group of modules and show how the various components are integrated. This would be serve as an Entry document for Coding Phase.

CONTENTS

INTRODUCTION

The software design document (SDD) is a written description of the software product, that a software designer writes in order to give a software development team an overall guidance of the architecture of the software project.

1. Purpose

The purpose of this document is to outline the technical design of a contest hosting platform 'StarContests.com' for encouraging local talents and provide an overview for its usage and management by the users. Its main purpose is to – Provide high level and low level design of our system.

Document the functionality provided by each module or group of modules and show how the various components interact in the design. This document is intended to help the coding team to build our system.

2. Scope

This document contains the low level design which shows the various modules and how they interact with each other thus enabling our system to work. The Design for various modules outlined in this document builds upon the scope defined in the Requirements phase. This document will serve as a link between design team and coding team and will be frequently referred by coding team to build our system.

3. Definitions, Acronyms and Abbreviations

- PHP – Hypertext Processor scripting language
- MySQL – Relational database management system (RDBMS)

4. Tools used in creating this document

- draw.io
- Microsoft Word

DESIGN OVERVIEW

1. Approach

This document is created when the team moves from the problem domain to the solution domain, from designing to coding domain. This document describes the functions of various modules and how the various modules interact with each other. A design methodology is a systematic approach to creating a design by applying a particular set of techniques and following a particular set of guidelines. This document also shows ER Diagram, Data Dictionary, Data Model diagram, Data flow diagram, Sequence Diagram, Architectural Design flow, Use case diagram and the Activity Diagram.

2.Guiding Principles

Guiding principles provide a foundation upon which to develop the target architecture for our system. These in turn drive design principles that can be used to validate the design. Following are some of the guiding principles that will be followed.

- ➢ Scalable

Scalability is the ability of the platform to scale both up and down to support varying numbers of users. The application should be able to scale horizontally (by adding more servers) or vertically (by increasing hardware capacity or software efficiency).

- ➢ Flexible

Flexibility is the ability of the application to adapt and evolve to accommodate new requirements without affecting the existing operations. This relies on a modular architecture which isolates one layer from other. Coupling among various modules addressing different functionality must be as low as possible and cohesion among the group of modules to provide functionality must be as high as possible.

- ➢ Maintainable

Modules shall be designed with the view for future optimizations and for adding extra functionalities.

- ➢ Portable

Modules designed should be portable or platform independent.

- ➢ Security and Access Privileges

Modules shall make sure that the correct interface and functionalities are available according to the user type that is using it and the system is secure.

3. Developing environment

We are developing a website in HTML, PHP, CSS and JavaScript. We will use simple text editor Sublime-2 Text Editor to write the code. To run Apache servers and MySQL databases, we will use the software- XAMPP. We will also use Bootstrap js libraries.We have decided to follow procedural programming to implement.

4. Programming paradigm

We would be following procedural programming to implement the project as we are developing a web application which would require a systematic flow of all the features .We would be following different routines, subroutines which would execute all the features required in our website. **Procedural programming** is a programming paradigm, derived from structured programming is based upon the concept of the procedure call. Procedures, also known as routines, subroutines, methods, or functions, simply contain a series of computational steps to be carried out.

5.Reference Documents

- Prof. Asim Banerjee, IT-314 Software Engineering, Lecture Slides, Winter 2015, DA-IICT.
- SRS, team 8 SEN project
- Requirements traceability matrix, team 8 SEN project

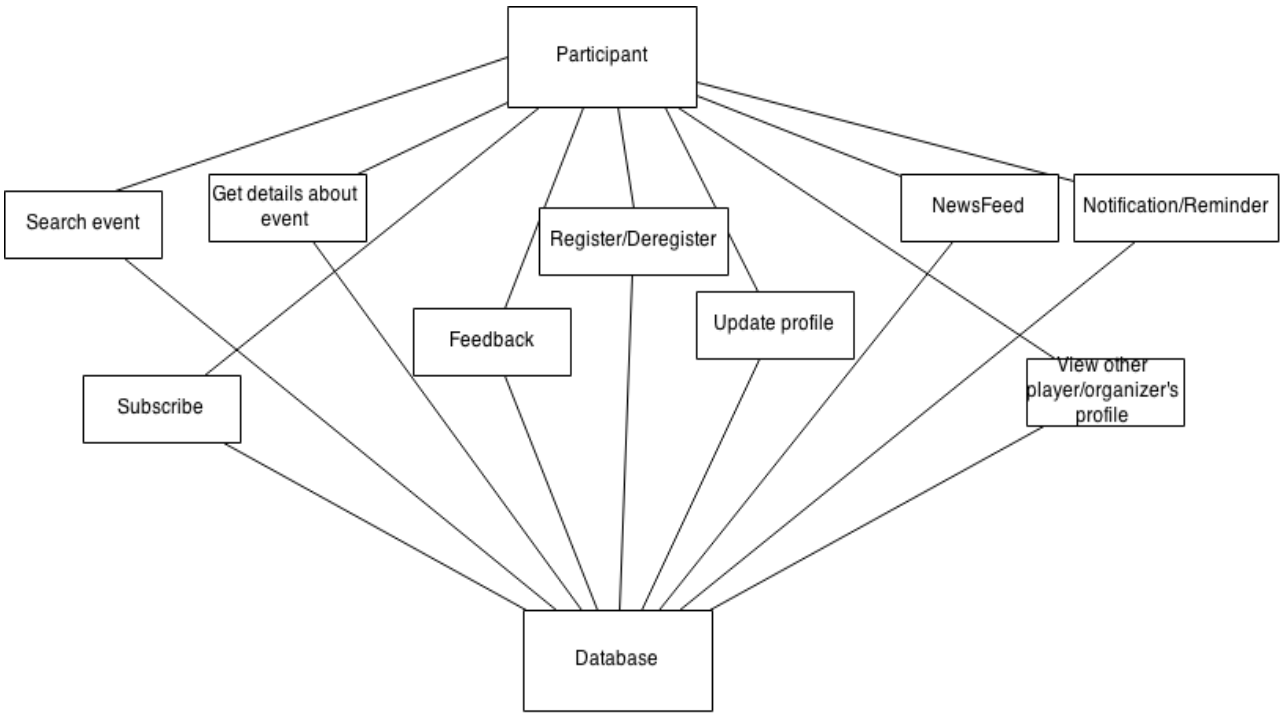
HIGH LEVEL DESIGN

We are following **two tier architecture** model for our software development as our aim is to create a web application which the client will access on a browser and the server will have all the database and the processes. A two-tier architecture is a software architecture in which a presentation layer or interface runs on a client, and a data layer or data structure gets stored on a server. Separating these two components into different locations represents a two-tier architecture.

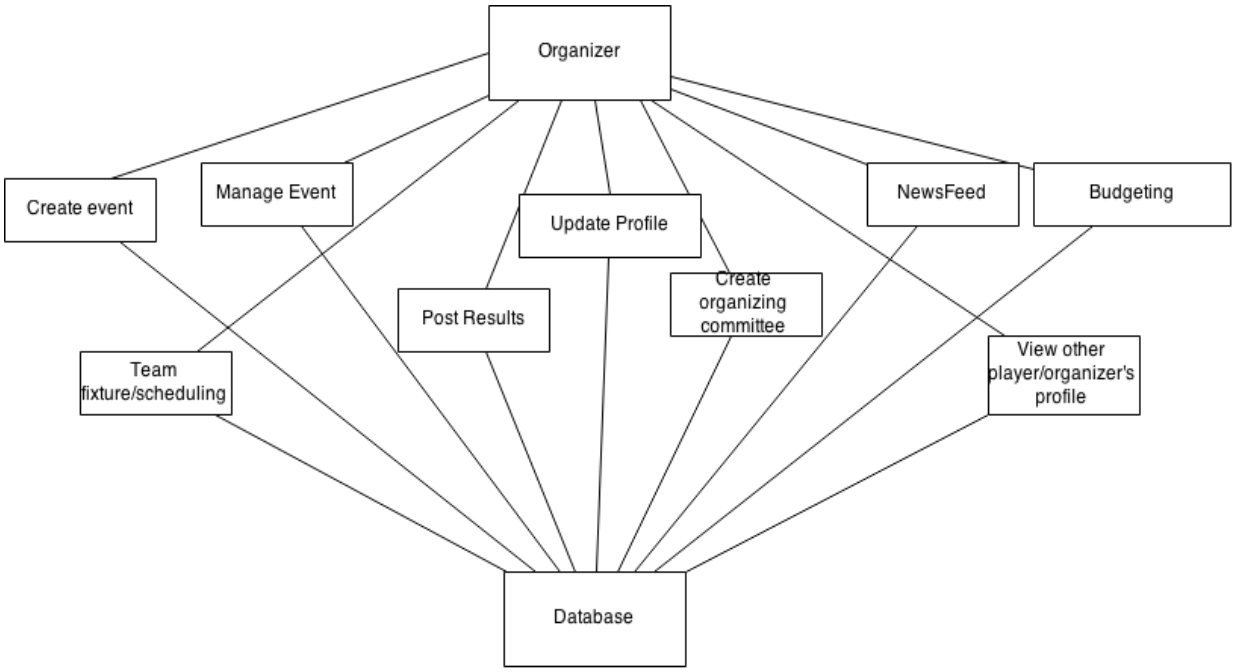
1. Architectural Design Diagram

The Architectural Design Diagrams are explained from the viewpoints of the types of users using the system namely, **Guests**, **Participants**, **Organizers, and Sub organizers.**

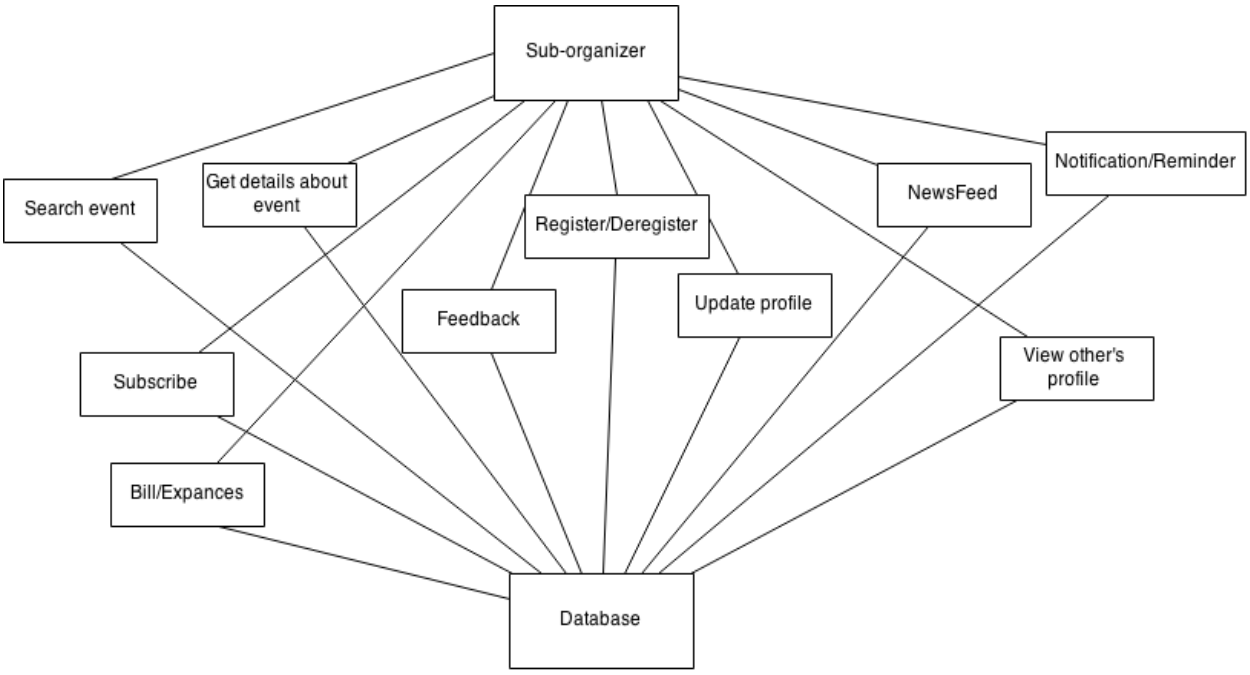
➢ Participant View



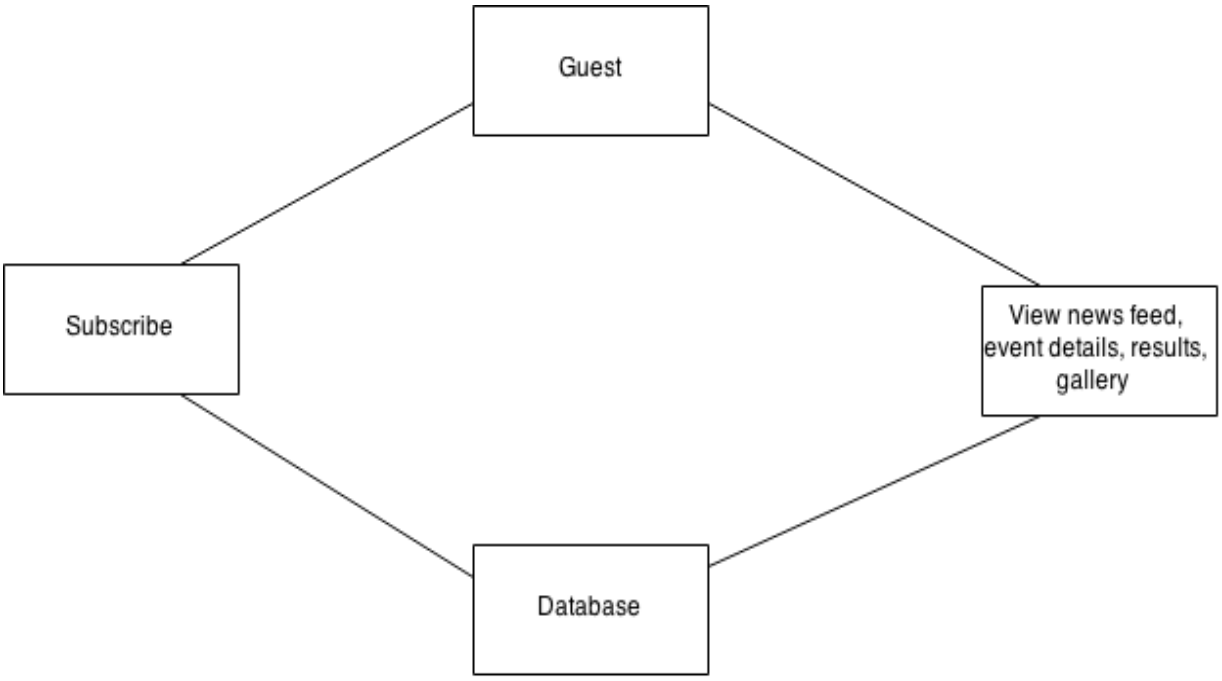
➢ Organizer View



➢ Sub organizer View


Sub-organizer
Search event
Get details about event
Register/Deregister
NewsFeed
Notification/Reminder
Feedback
Update profile
Subscribe
View other's profile
Bill/Expances
Database

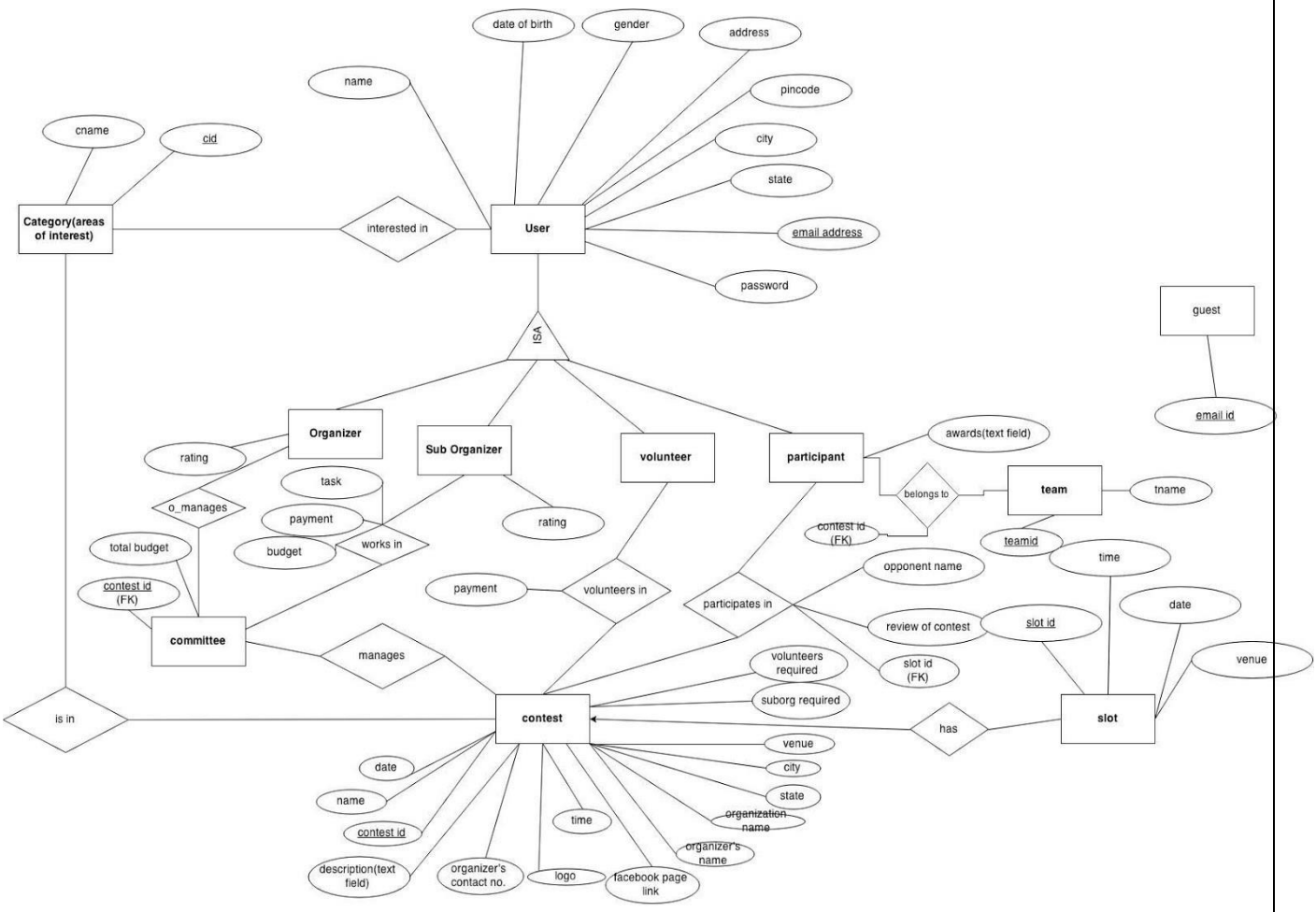
➢ Guest View



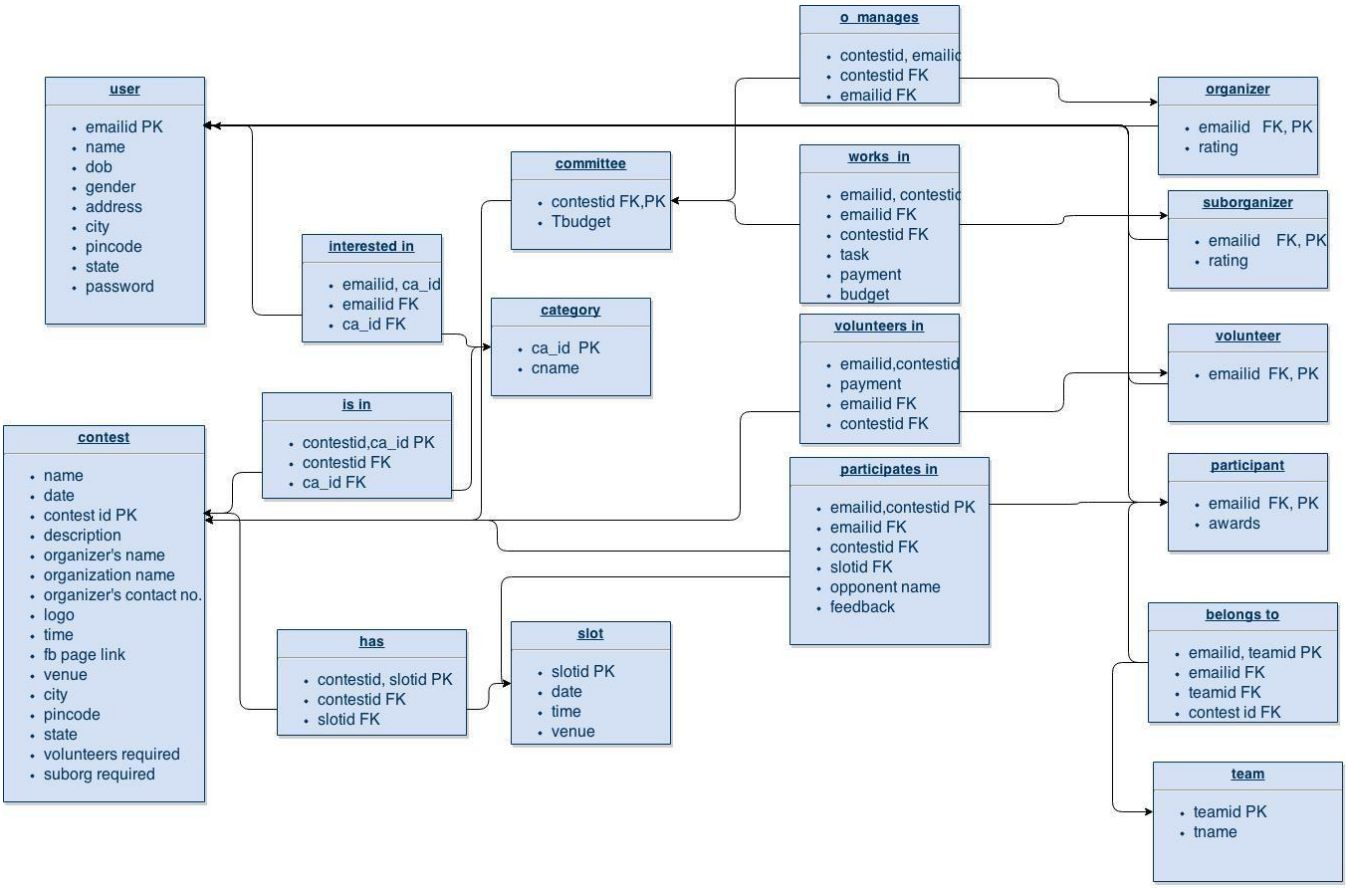
DATABASE DESIGN

1. Entity relation diagram(ERD)

Entity Relationship Diagram i.e. the ERD describes the database implementation in an abstract way, which is really for the end user or client to understand the working of the system without actually getting into technicalities of the databases.


date of birth
gender
address
name
pincode
cname
cid
city
state
Category(areas of interest)
interested in
User
email address
password
guest
ISA
email id
Organizer
Sub Organizer
volunteer
participant
awards(text field)
rating
task
belongs to
team
tname
o_manages
payment
rating
contest id (FK)
teamid
total budget
budget
works in
time
opponent name
contest id (FK)
payment
volunteers in
participates in
committee
review of contest
slot id
date
manages
volunteers required
slot id (FK)
venue
is in
contest
suborg required
has
slot
venue
city
date
state
name
organization name
time
contest id
organizer's name
description(text field)
organizer's contact no.
logo
facebook page link

2. Relational Model



3. Data dictionary

1. User

	key constraints	null constraints	domain constraints	referential constraints
emailid	PK	not null	string	
name		not null	string	
dob		not null	date	

address		not null	string	
gender		not null	char	
city		not null	string	
pincode		not null	int	
state		not null	string	
password		not null	string(hashed)	

2. Organizer

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid	PK,FK	not null	string	references ‘user’
rating			int	

3. Sub-organizer

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid	PK,FK	not null	string	references ‘user’
rating			int	

4. Participant

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid	PK,FK	not null	string	references ‘user’
awards			string	

5. Volunteer

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid	PK,FK	not null	string	references ‘user’

6. Guest

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid	PK	not null	string(check for validation)	

7. Contest

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
cid	PK	not null	int	

name		not null	string	
date(from)		not null	date	
date(to)		not null	date	
description		not null	string	
organizer's name		not null	string	
organization name		not null	string	
organizer's contact no.		not null	int	
time		not null	time	
logo		not null	jpg	
venue(address)		not null	string	
city		not null	string	
state		not null	string	
pincode		not null	int	

volunteers required		not null	int	
suborg required		not null	int	

8. Category

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
ca_id	PK	not null	int	
c_name		not null	string	

9.Committee

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
contest id	PK, FK	not null	int	references ‘contest’
total budget		not null	int	

10. Slot

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
slotid	PK	not null	int	
time		not null	time	

date		not null	date	

11. participates_in

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid, contestid	PK	not null	string, int	emailid- participant,contestid- contest
slotid	FK	not null	int	references ‘slot’
opponent name(if sports)			string	
feedback			string	

12. volunteers_in

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid, contestid	PK	not null	string,int	emailid- volunteer, contestid- contest
payment			int	

13. contest_has_slots

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
contestid, slotid	PK	not null	int,int	contestid- contest, slotid-slot

14.is_in

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
contestid, ca_id	PK	not null	int,int	contest, category

15.interested_in

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid, ca_id	PK	not null	string,int	user, category

16.o_manages

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid, contestid	PK	not null	string,int	organizer, committee

17. works_in

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid,contestid	PK	not null	string,int	suborg, committee
task			string	
payment			int	
budget			int	

18. team

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
team id	PK	not null	int	
tname			string	

19. belongs to

	key constraints	**null constraints**	**domain constraints**	**referential constraints**
emailid,teamid	PK	not null	string,int	participants, team
contestid	FK	not null	int	references contest

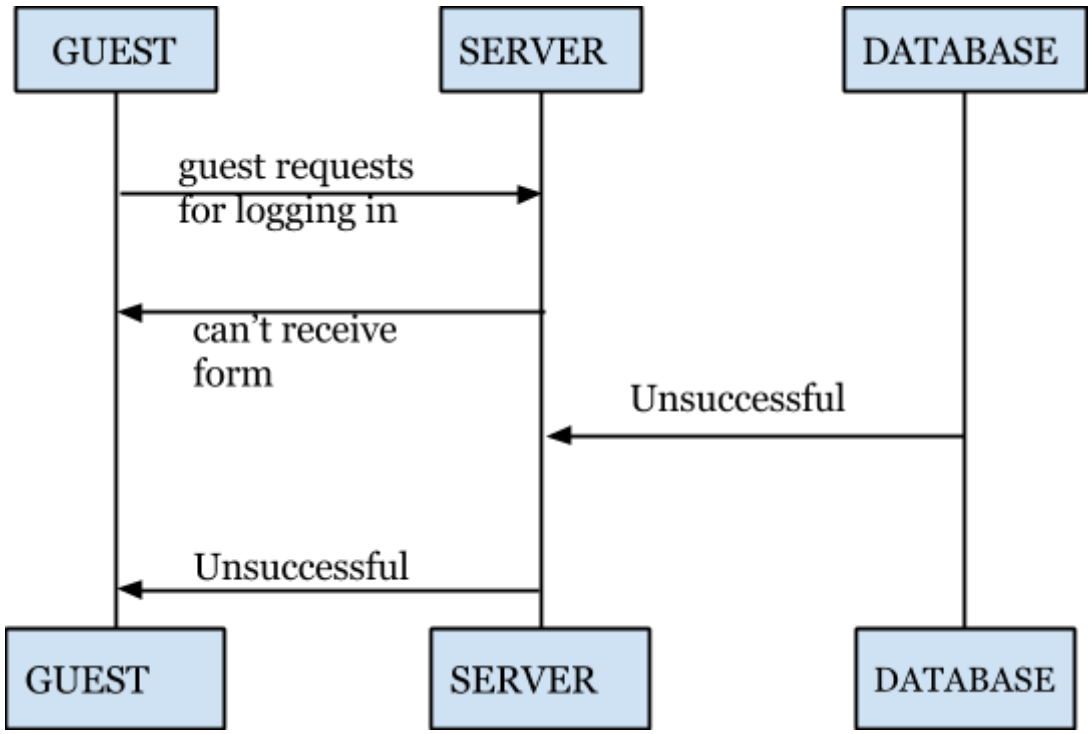
4. Sequence Diagrams

These are interaction diagrams that show how processes operate with one another and in what order. It shows object interactions on a timeline.

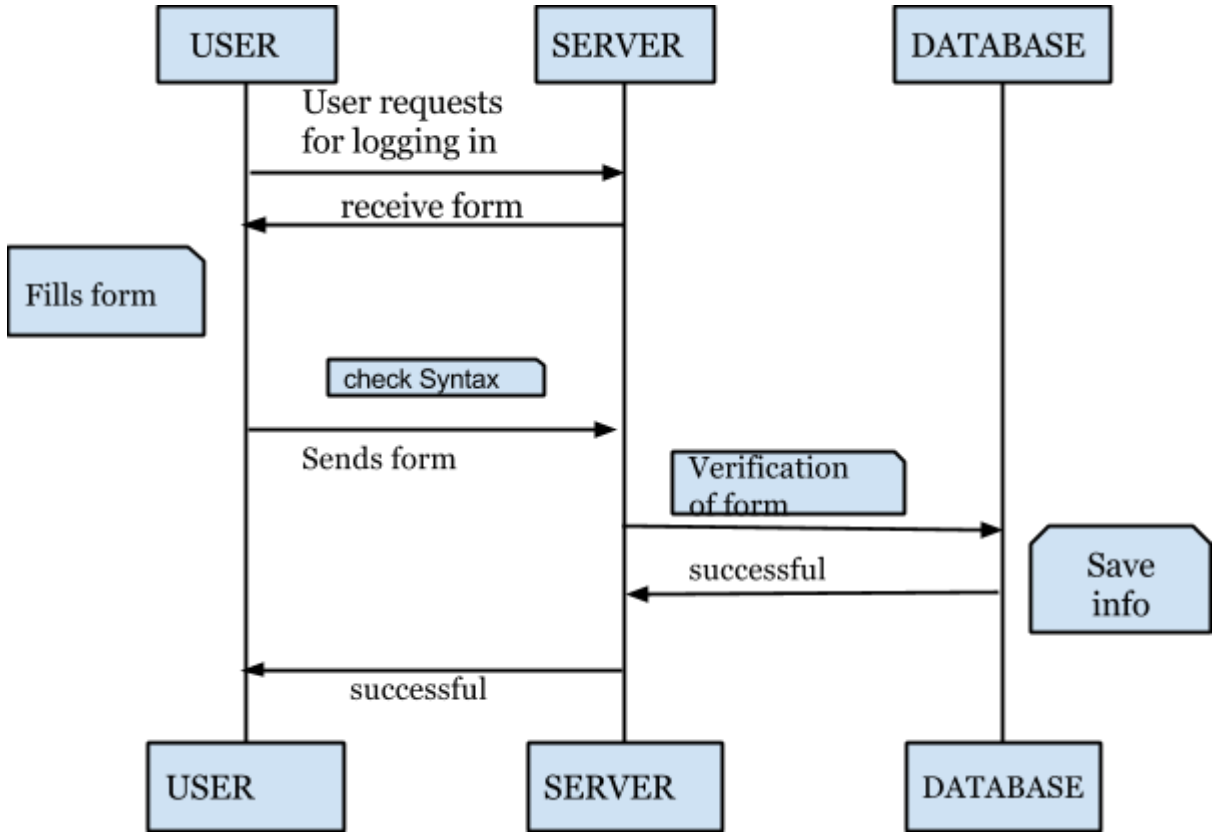
In software engineering, sequence diagrams are diagrams which show for particular use cases, a sequence of events which external actors(who perform roles) will generate in accordance with the project. In our scenario, there are various use cases as can be deduced from the traceability matrix and at the maximum, six entities who are entitled to either successfully or unsuccessfully perform that use case. After a thorough study and elimination of all the redundant use cases, we came up with 8 different sequence diagrams which follow in the next section.

S.D 1:

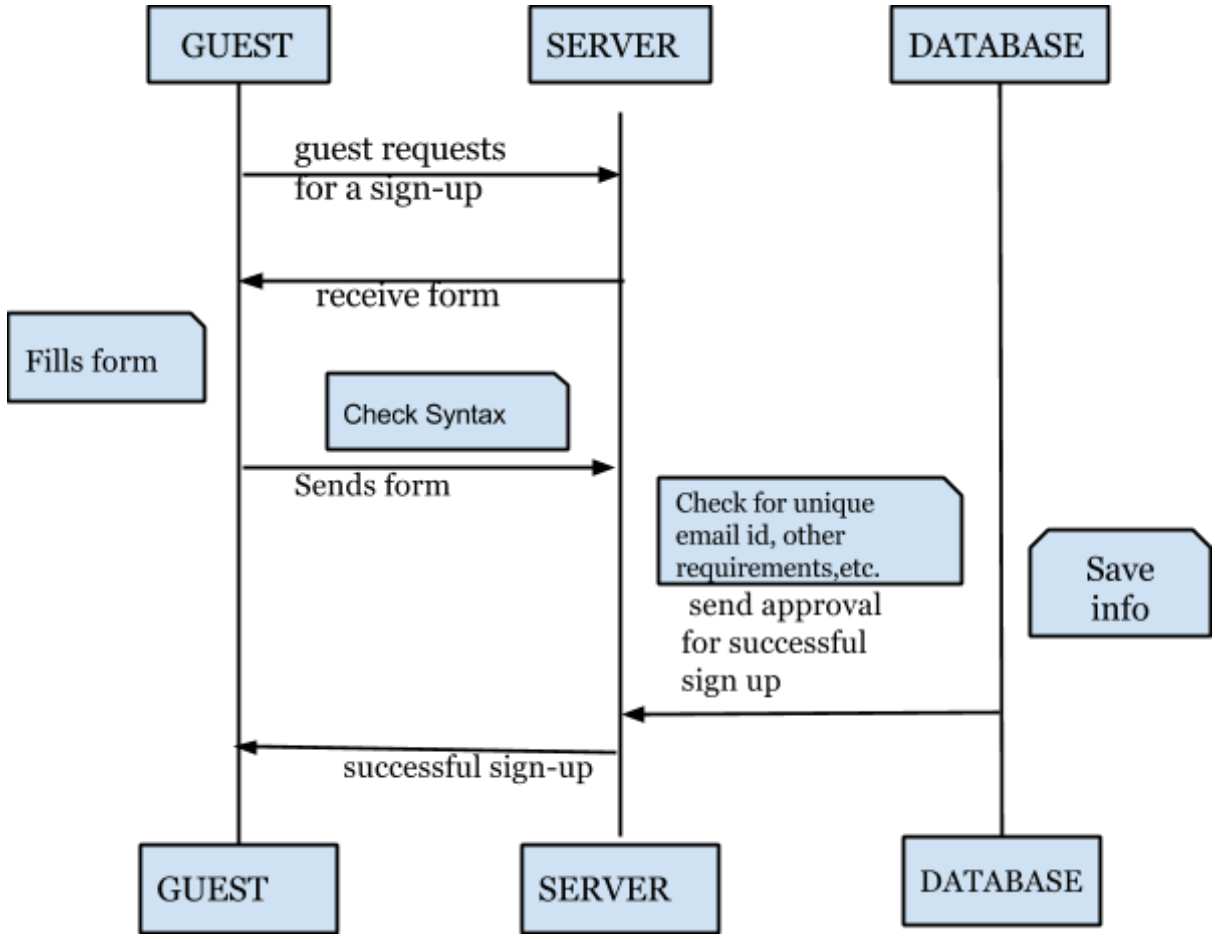
LOG-IN (For a guest) : A guest can't log in to the website unless he/she has an account created. So this is how the sequence diagram will follow.



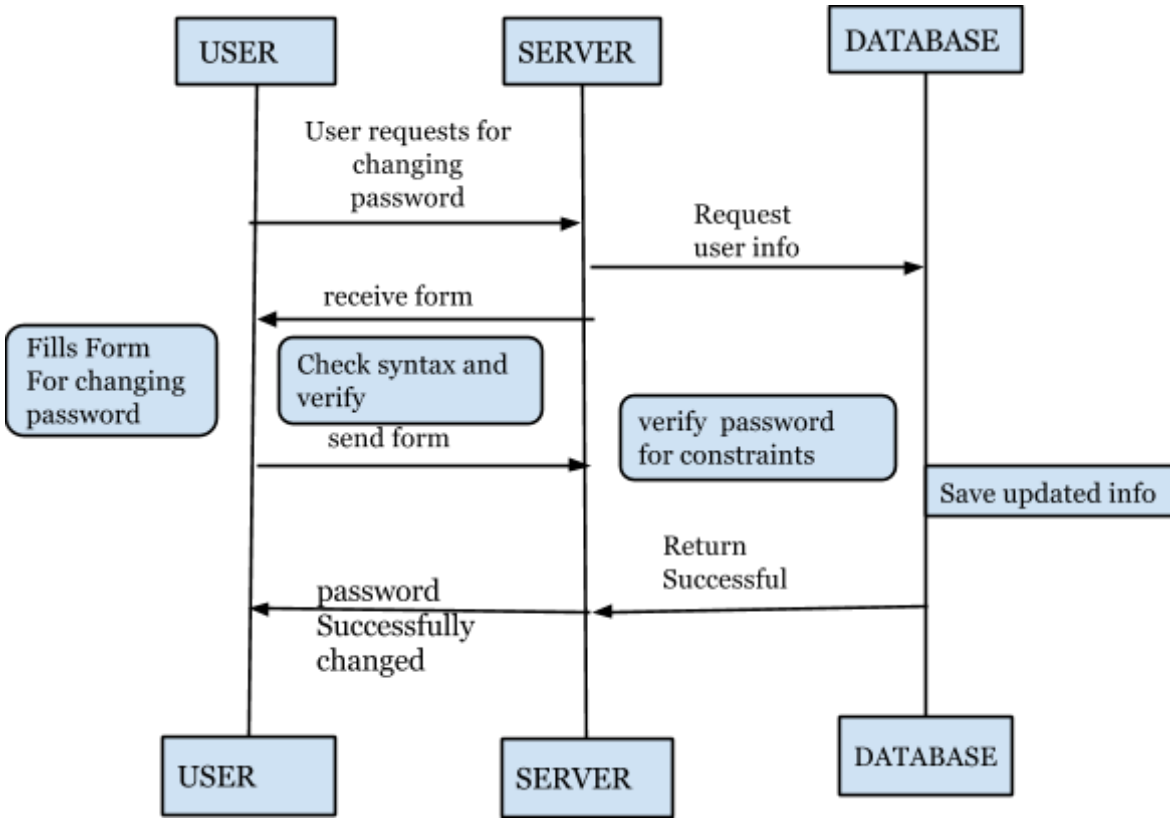
S.D 2: LOG-IN (For other entities/users, namely a participant or an organizer or a sub-organizer or a volunteer or an admin) those who have an account already.



S.D 3: If a guest needs to sign up, the following sequence diagram shall follow:

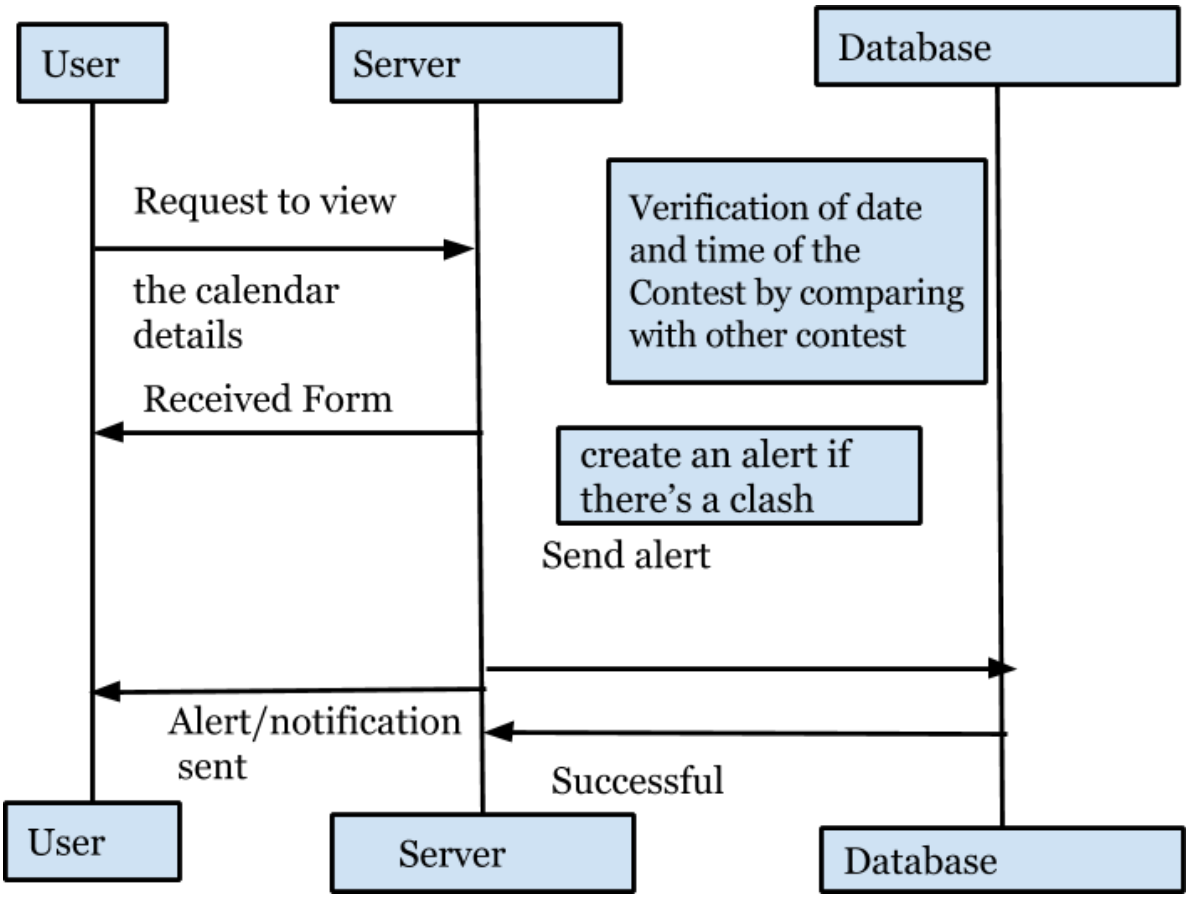


S.D 4: If a user wishes to change password,



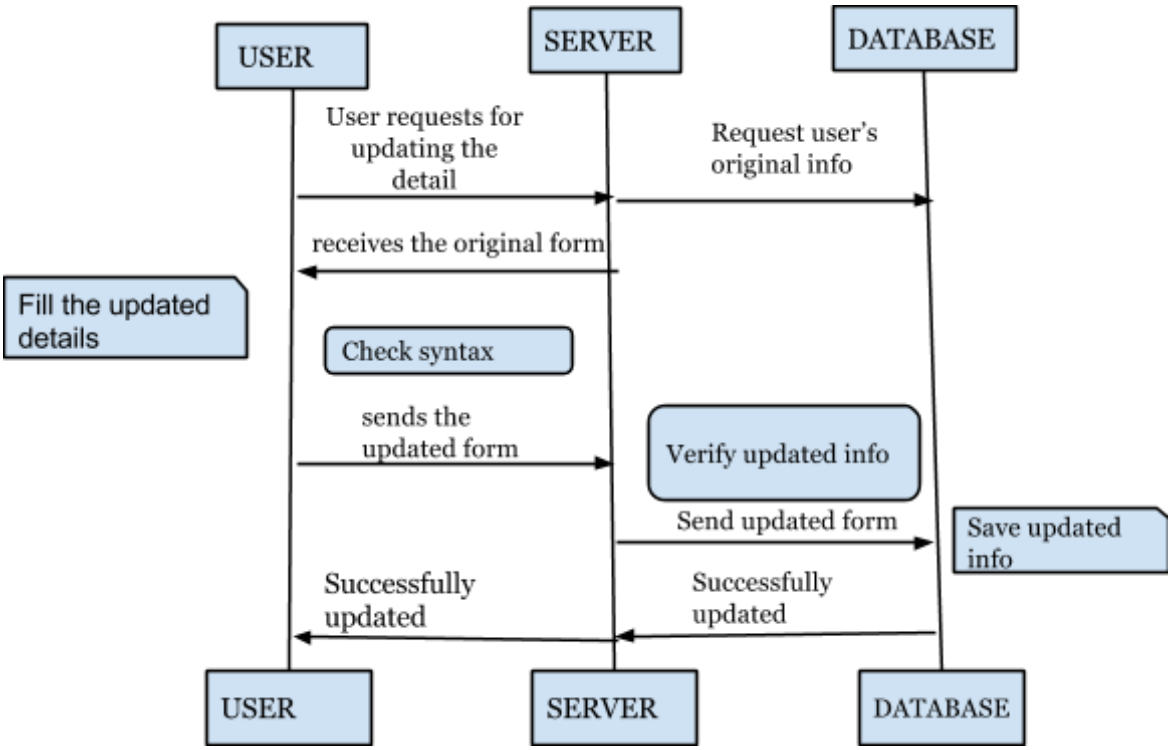
NOTE : If a user wishes to view the budget, then that particular user entity must either be an organizer or a sub-organizer. Any other entity won't even have this functionality to view the budget. So there's no need to draw a sequence diagram for that exclusively.

S.D 5: If a user wishes to view the calendar of events


User
Server
Database
Request to view
the calendar details
Verification of date and time of the Contest by comparing with other contest
Received Form
create an alert if there's a clash
Send alert
Alert/notification sent
Successful
User
Server
Database

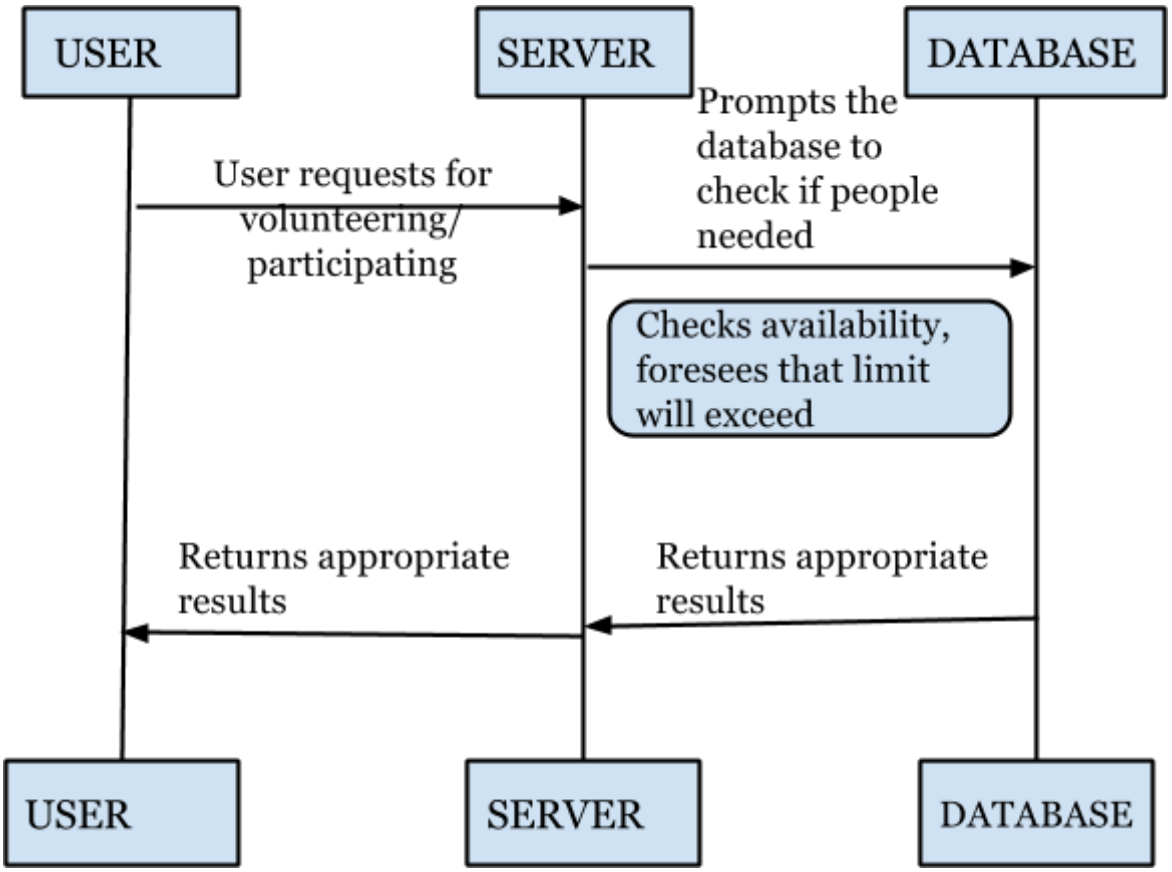
S.D 6: If a user wishes to update his/her profile/event section.

The detail which needs to be updated can be anything ranging from an updated profile to updating an event's date or any other attribute of an entity.



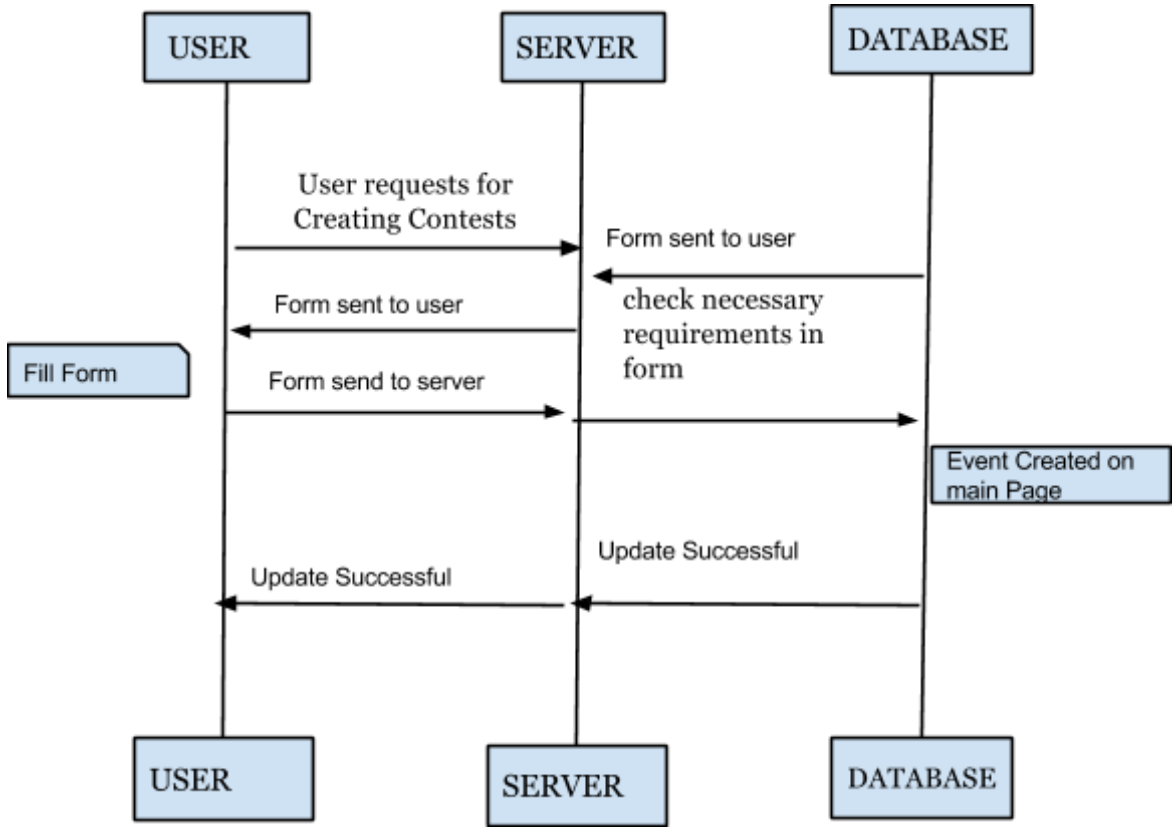
S.D 7: If a user wishes to volunteer/participate/sub-organize: The functionality which leads to this sequence diagram can be further divided into two cases:

Case 1: If the organizer has already specified the number of participants in an event or the no. of volunteers he/she must be needing in an event, then **no further requests of participating or volunteering will be entertained** by the organizer.

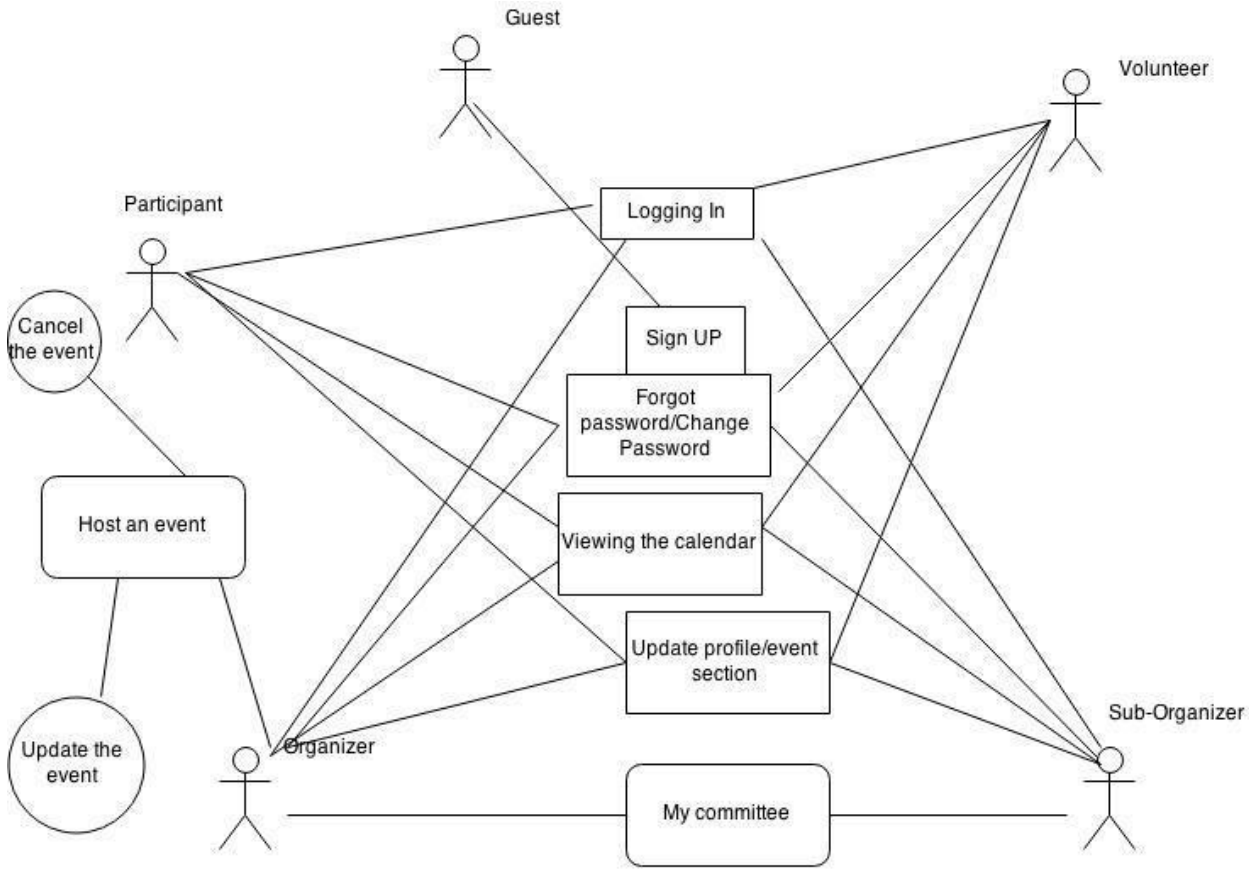


` Case 2: If there's still some room for new participants or the volunteers, the server sends the request to the database and the database accepts the request after checking in in the slots. Accordingly, the result returned is **successful** from DB to the server and from server to the user.

S.D 8: **If a user(organizer) wishes to create an event following sequence diagram will be followed:**

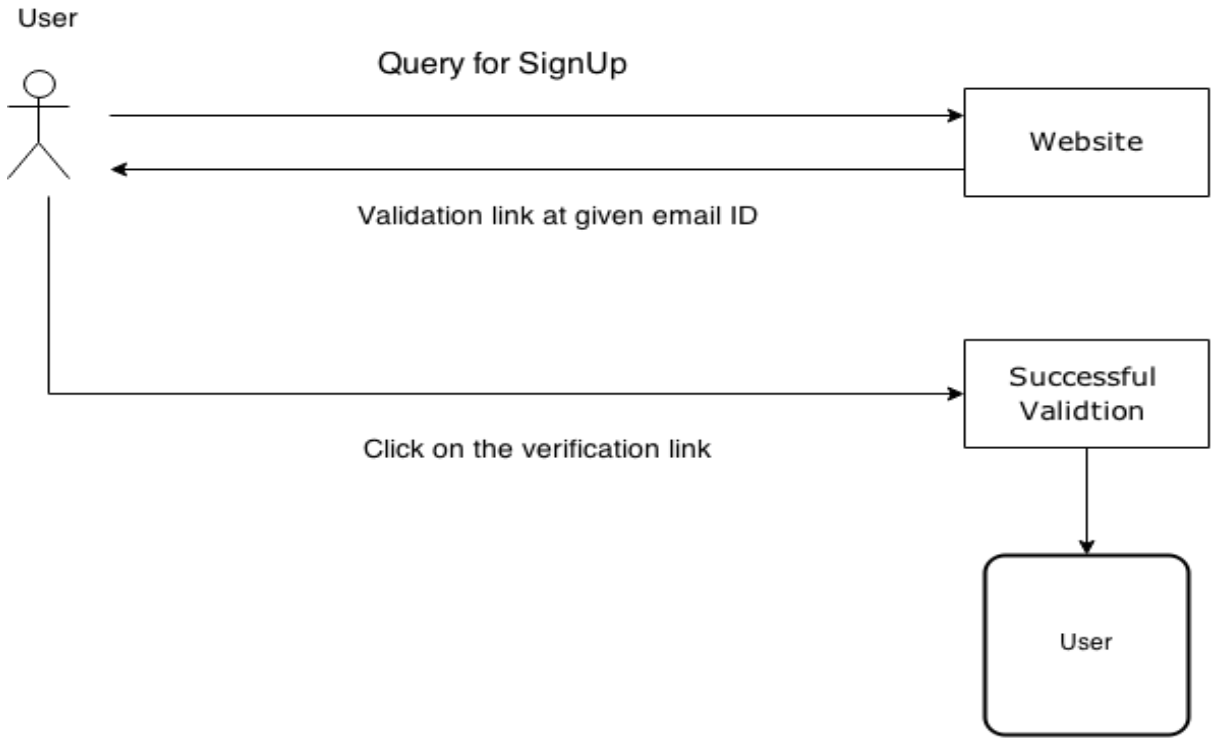


4. Use case diagram

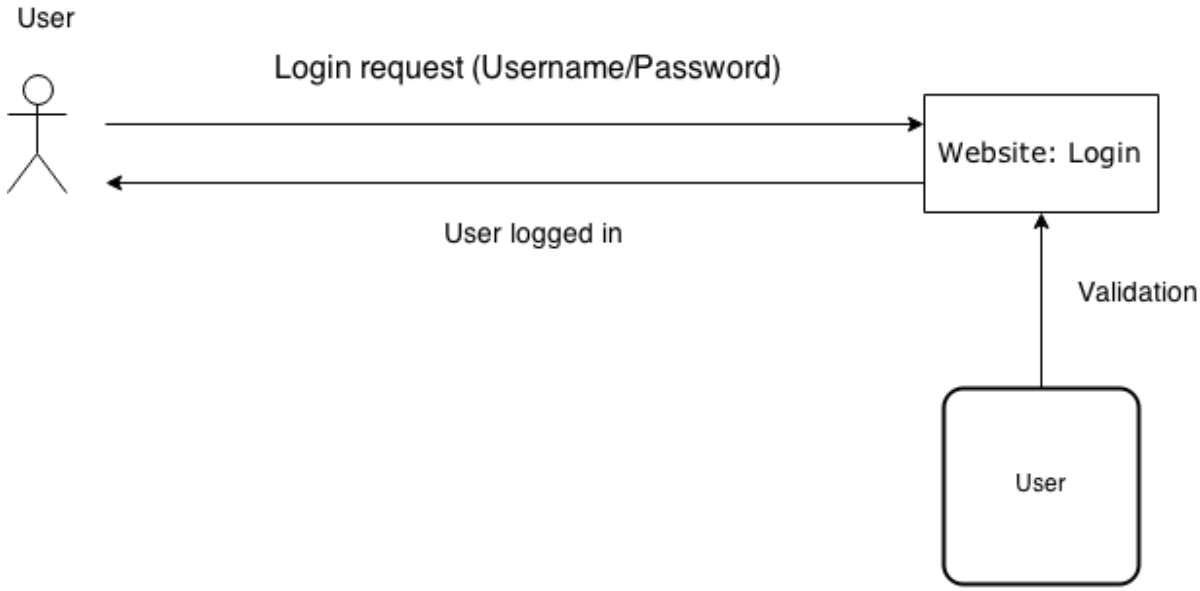


5. Data flow diagram

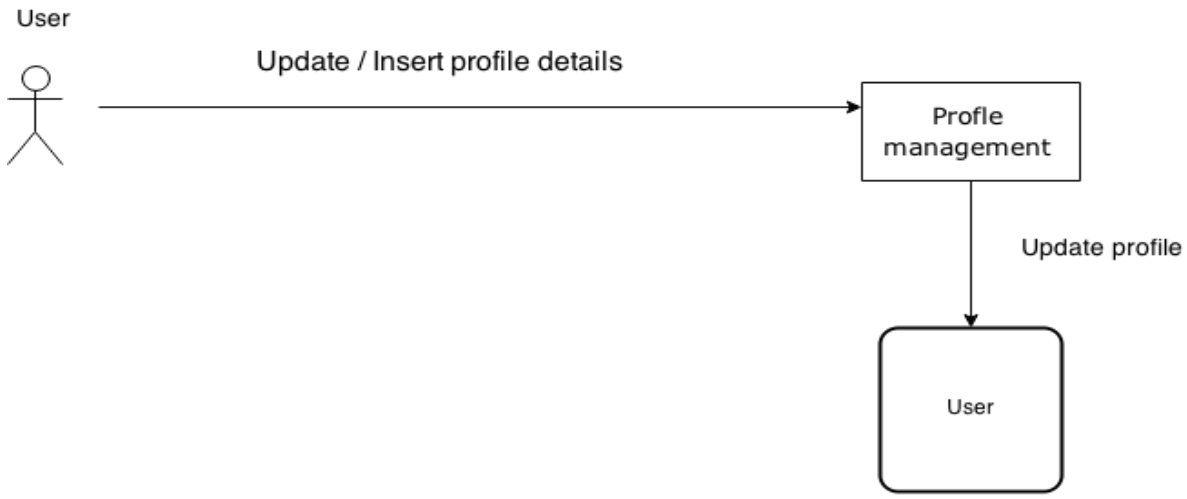
- ➢ Signup



➢ Login

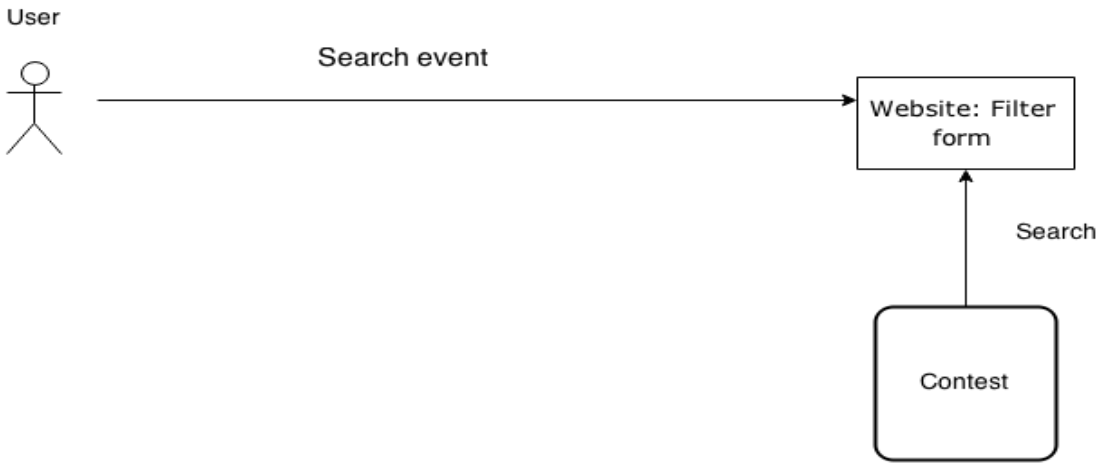


➢ Update Profile



➢ Host event

➢ Search event

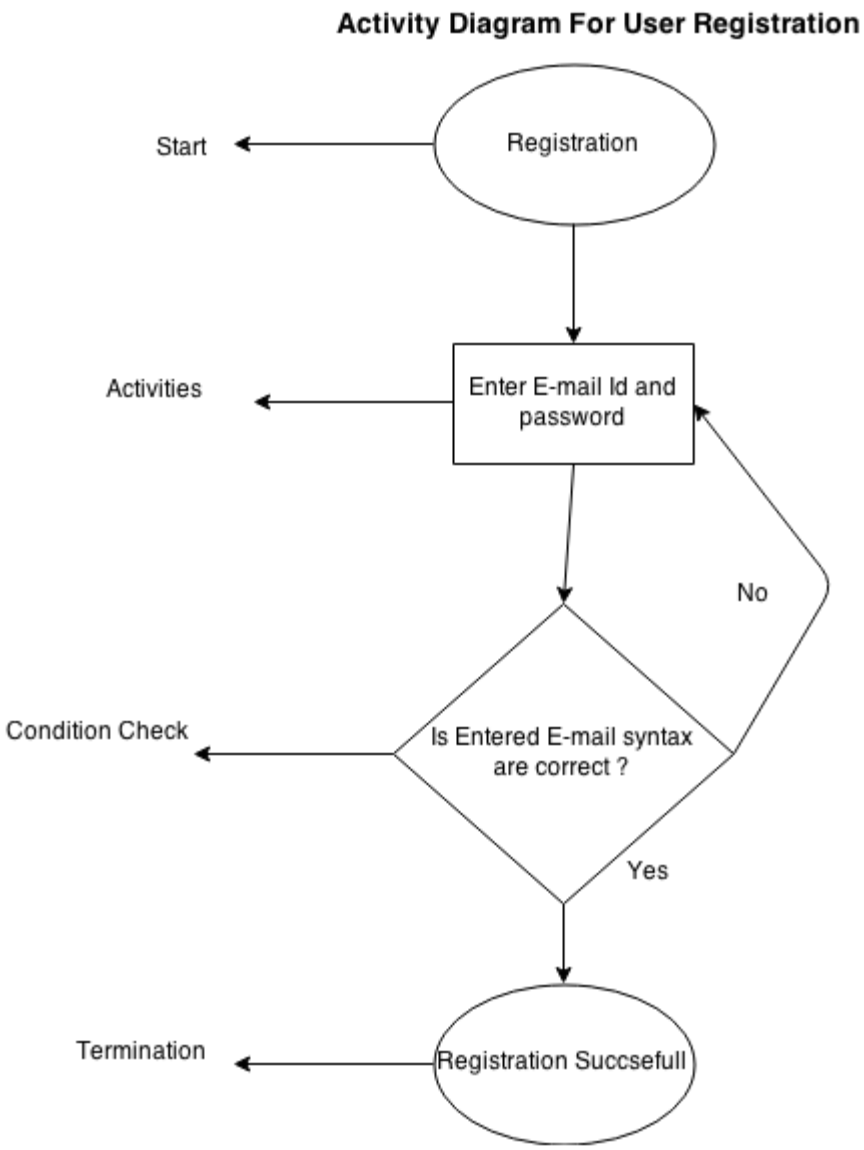


LOW LEVEL DESIGN

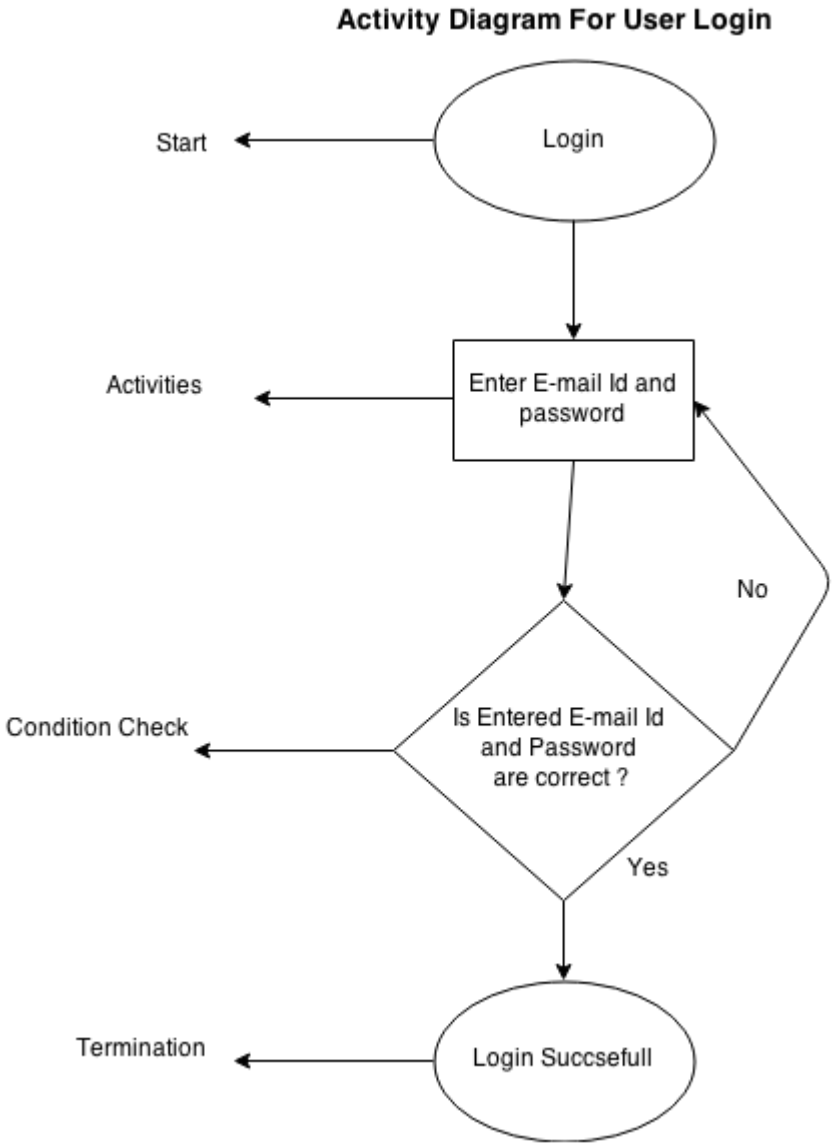
1. Activity Diagrams

Activity diagrams are graphical representations of workflows of stepwise activities and actions. These are used to describe the operational step-by-step workflows of components in a system. An activity diagram shows the overall flow of control.

1.1 Register

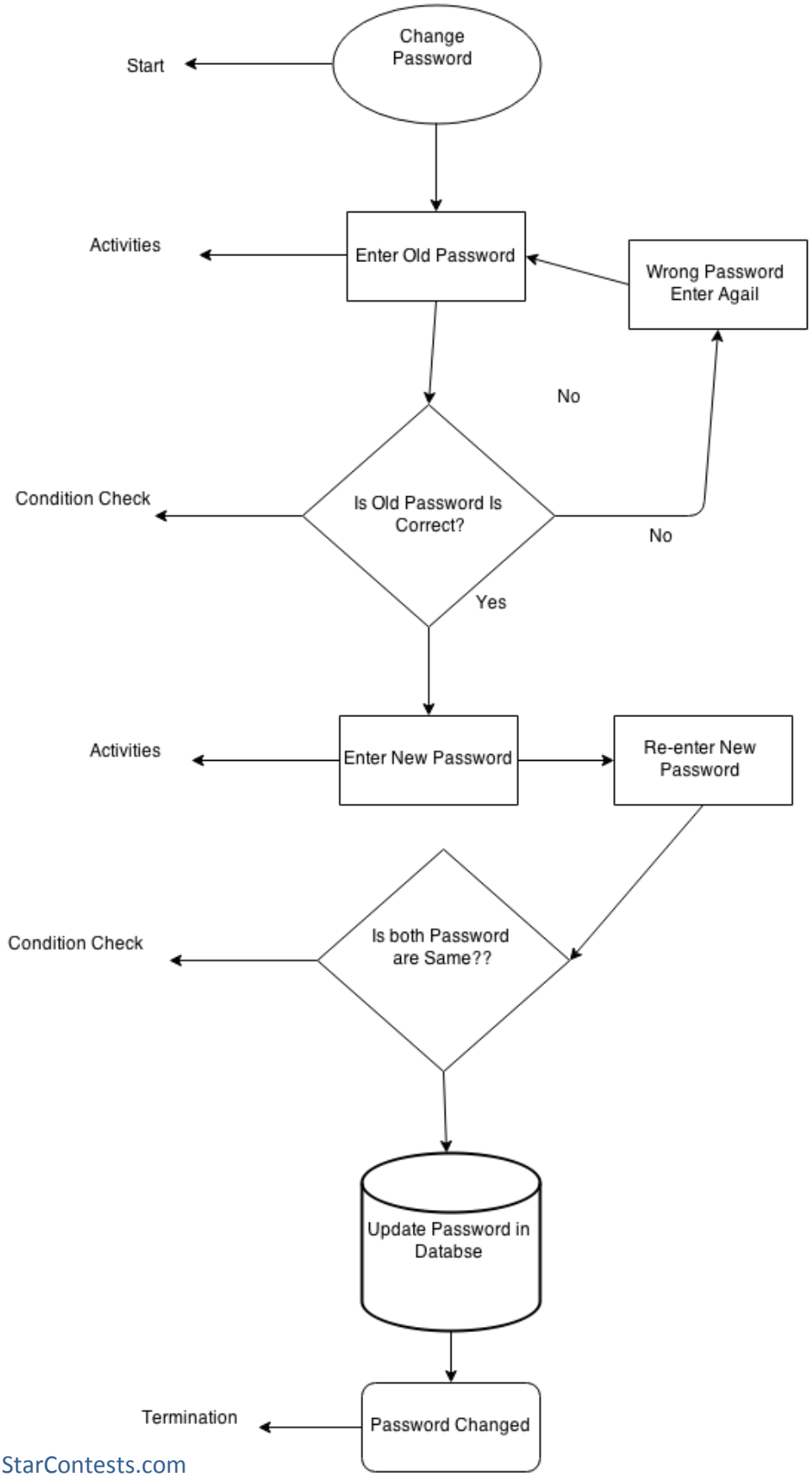

Activity Diagram For User Registration
Start
Registration
Activities
Enter E-mail Id and password
No
Condition Check
Is Entered E-mail syntax are correct ?
Yes
Termination
Registration Succsefull

3.1.2 Login

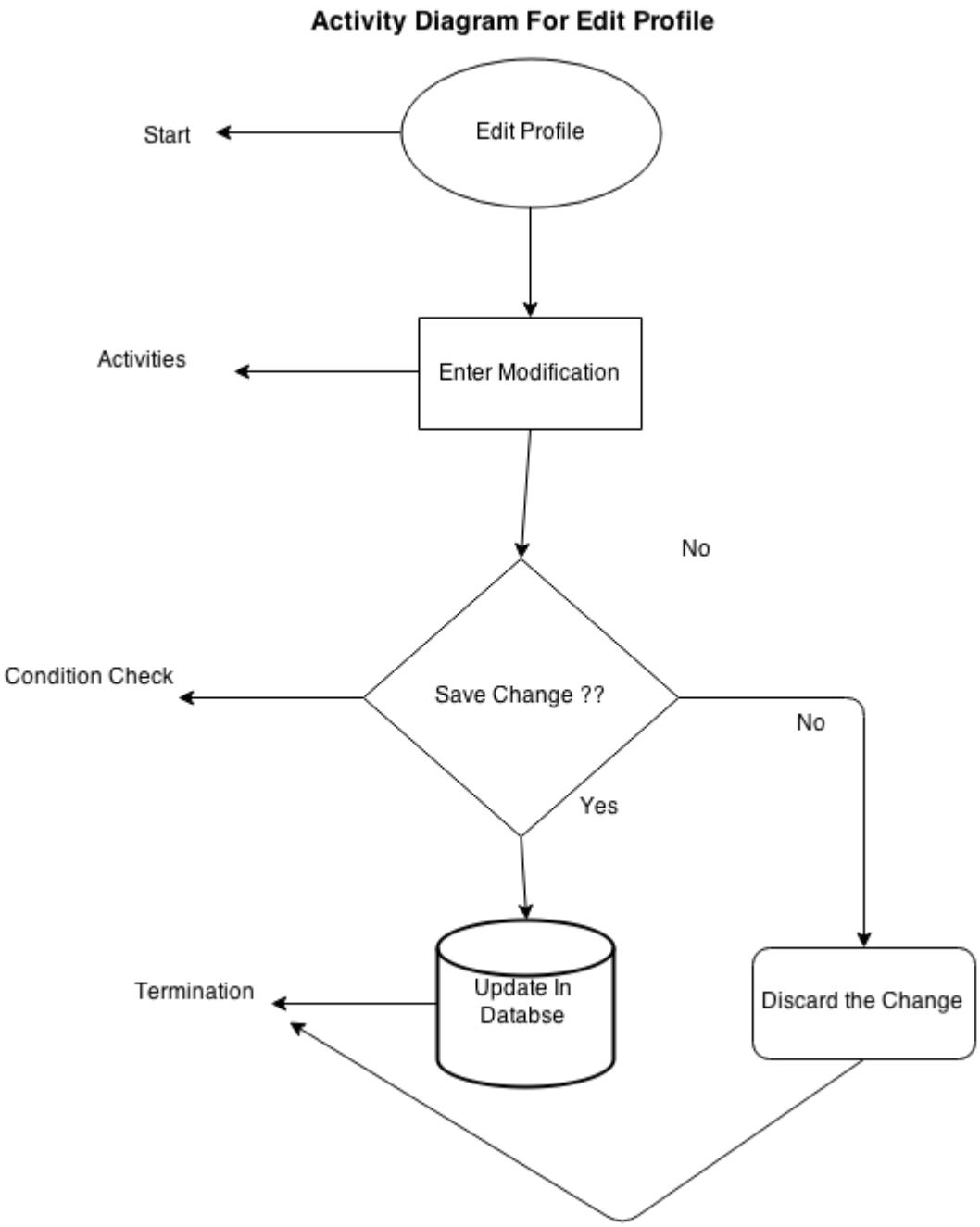


3.1. Change Password

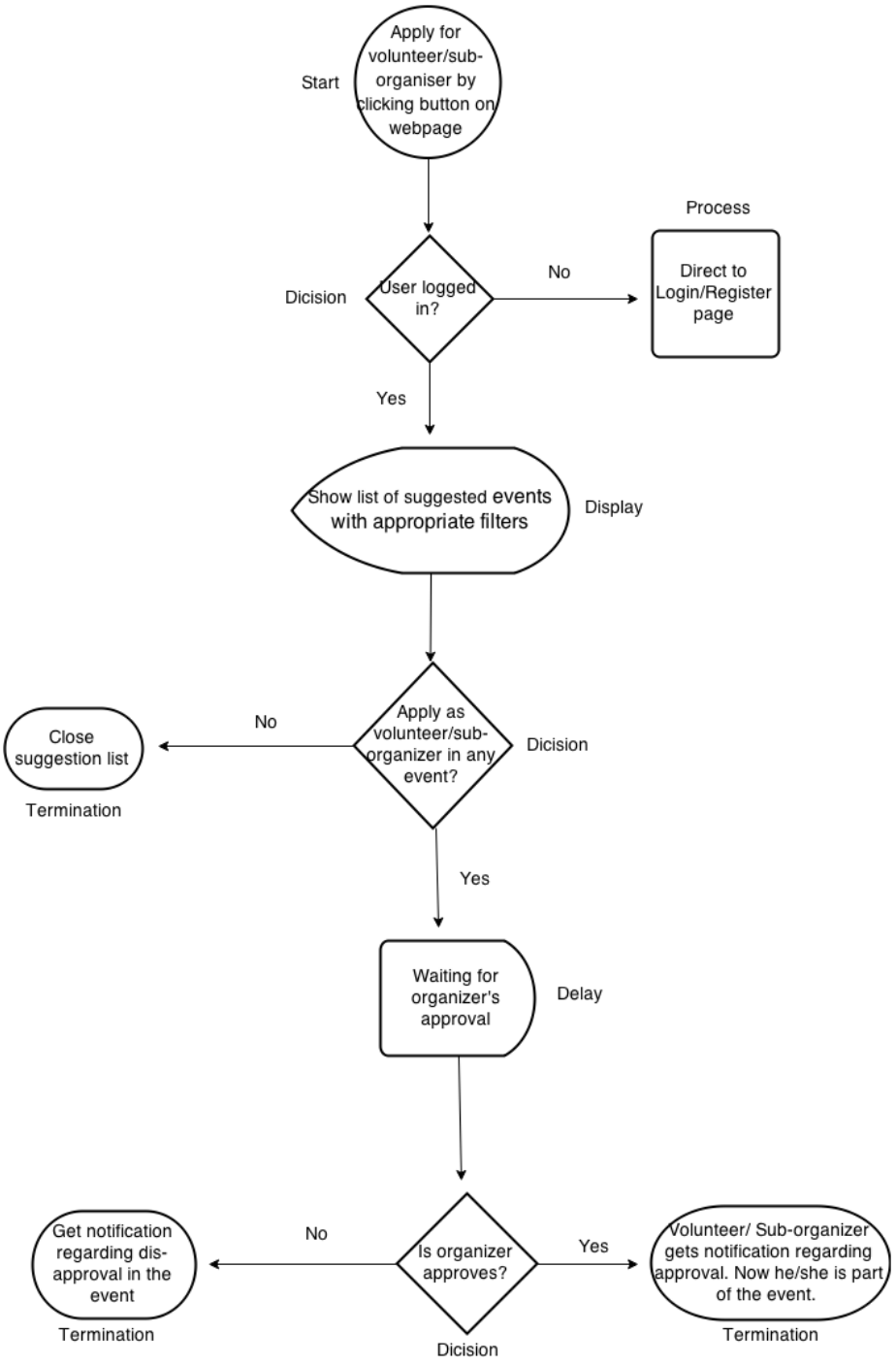
Activity Diagram For Change Password



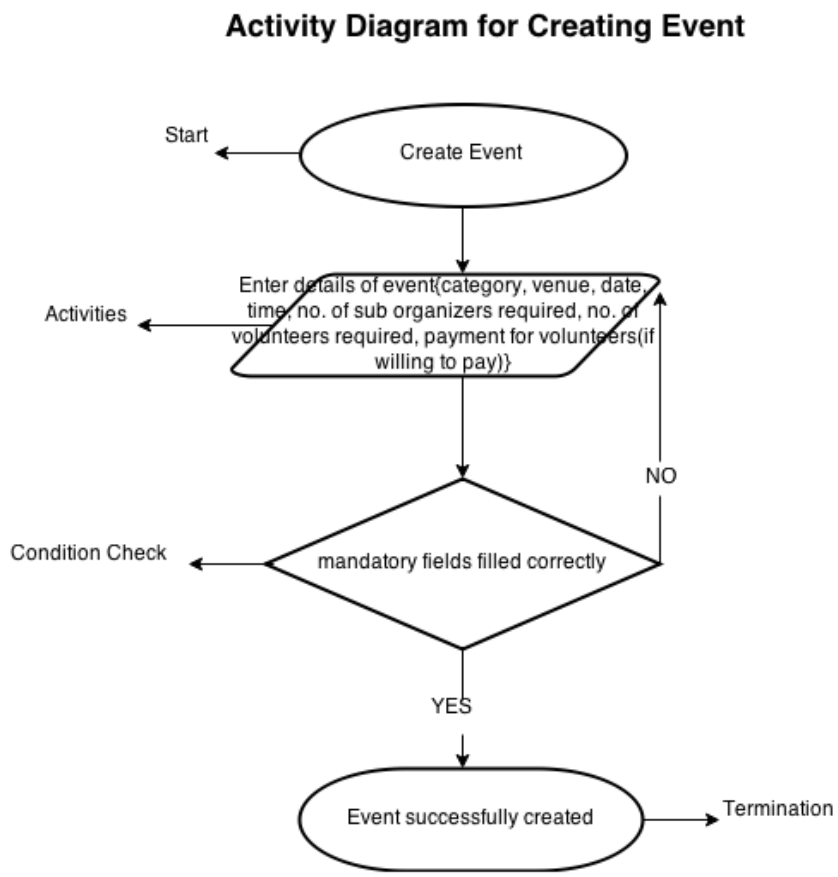
3.1.4 Edit Profile



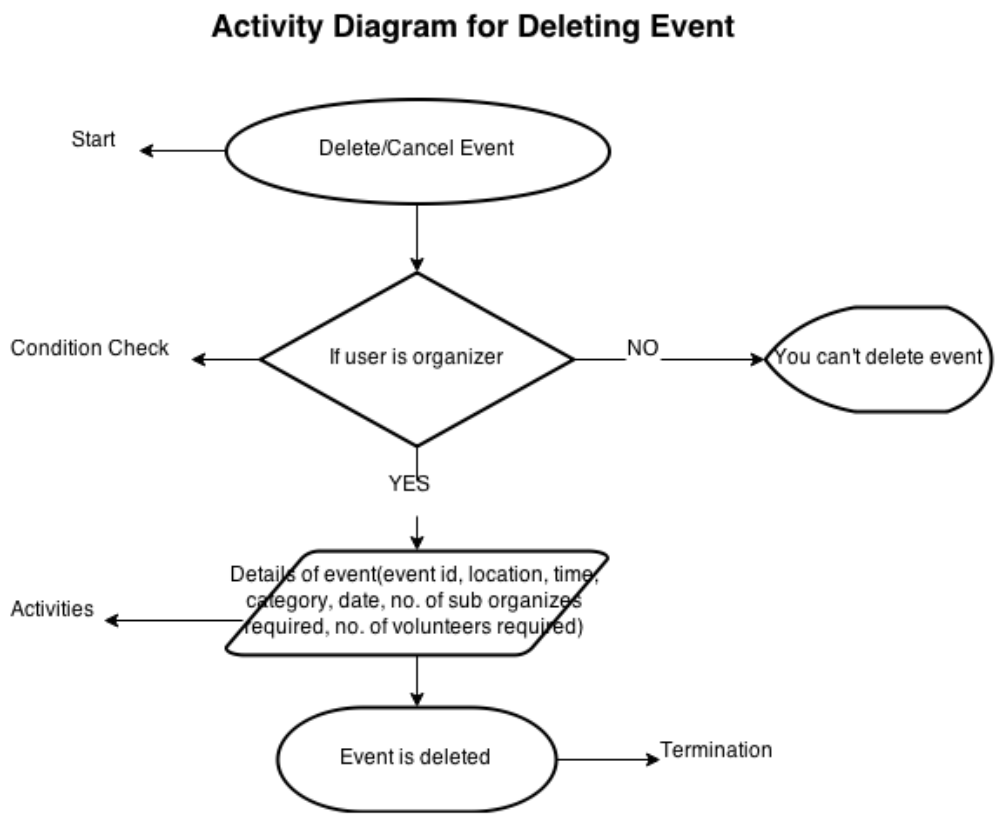
3.1.5 Be a Volunteer/suborganizer



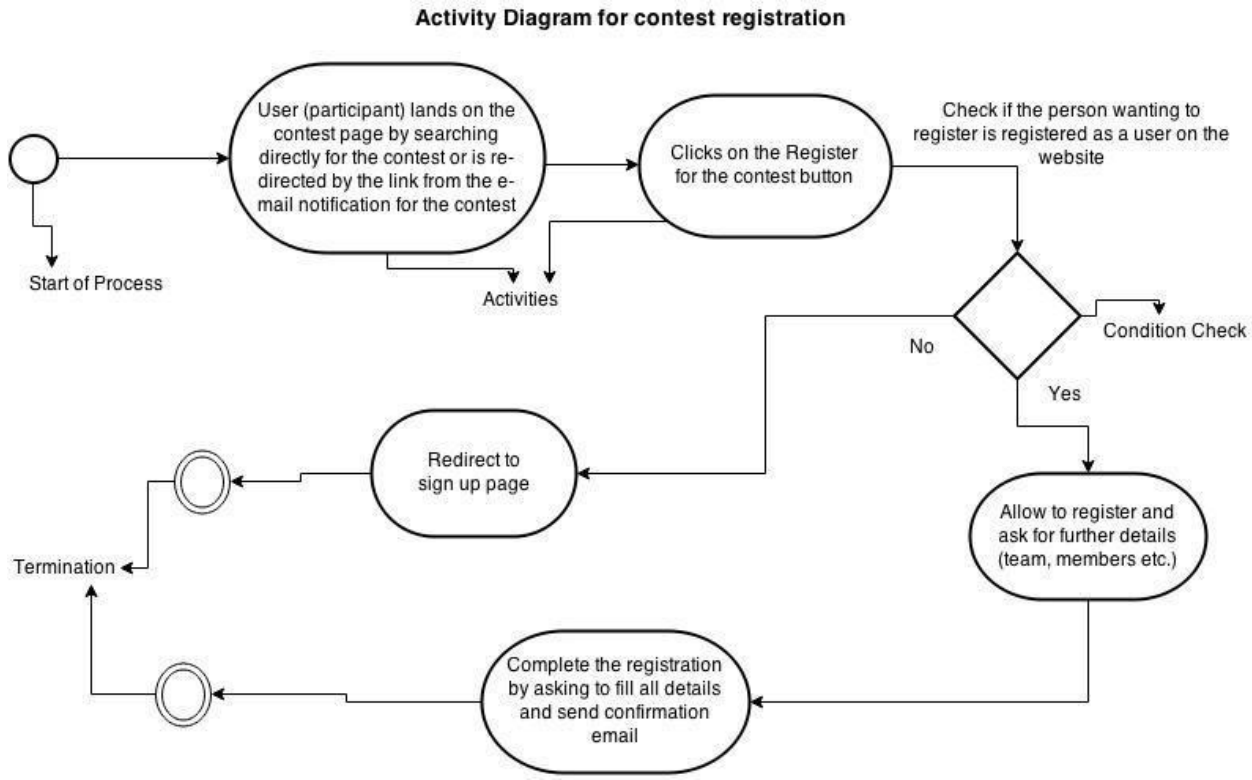
3.1.6 Create Event:



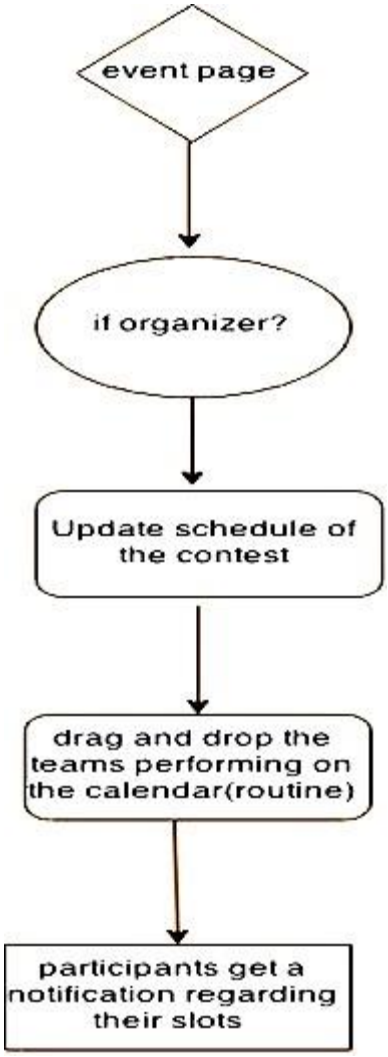
3.1.7 Delete/Cancel Event:



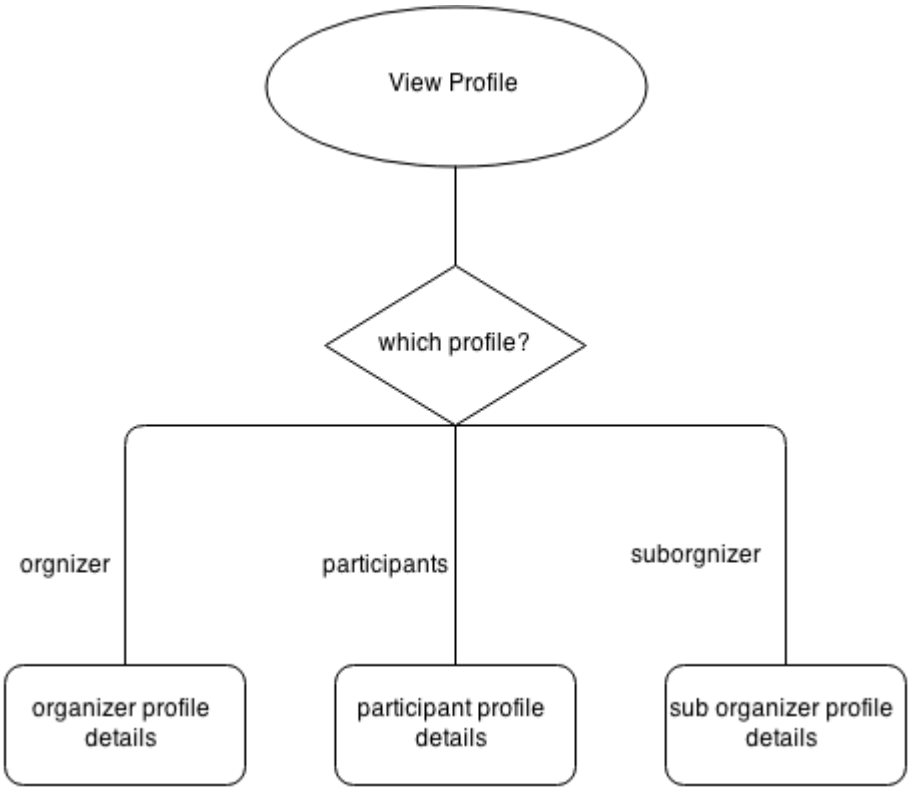
3.1.8 Register for a contest



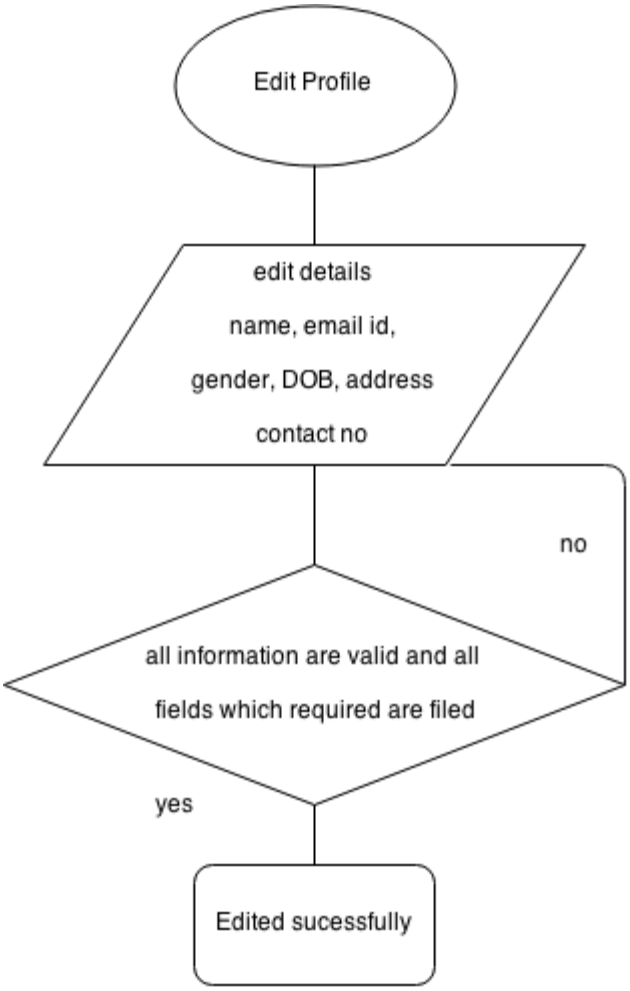
3.1.9 Update contest Schedule


event page
if organizer?
Update schedule of the contest
drag and drop the teams performing on the calendar(routine)
participants get a notification regarding their slots

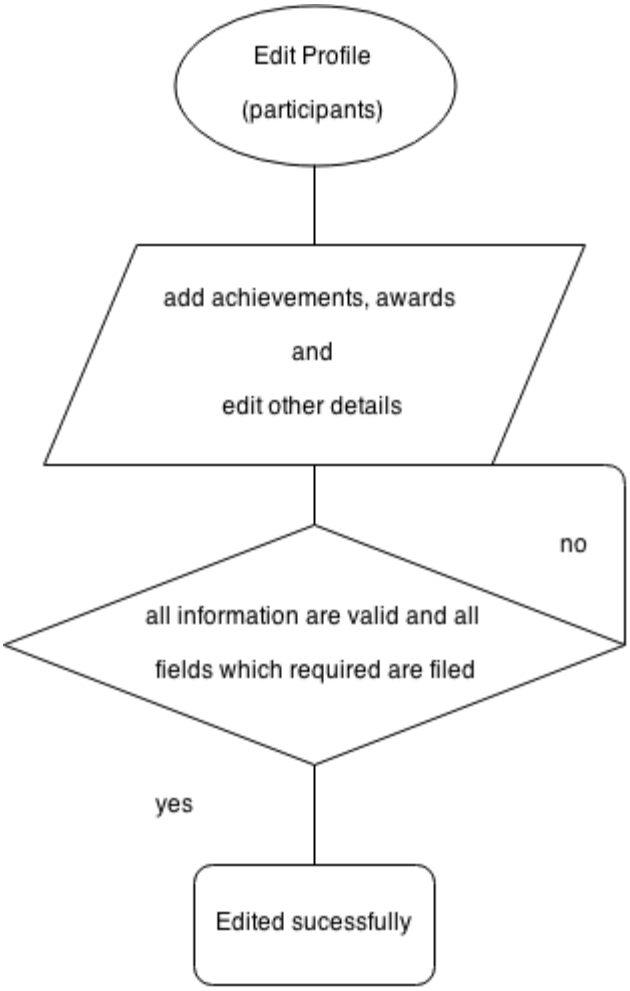
3.1.10 View Profile



3.1.12 Edit profile



3.1.13 Edit Profile (participants)



3.1.14 My committee

Activity Diagram For My Committee