SOFTWARE ENGINEERING

SOFTWARE DESIGN SPECIFICATION

FOR

ConferNow - A CONFERENCE MANAGEMENT SYSTEM

GROUP MEMBERS-

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TABLE OF CONTENT

1.Introduction

1.1 Purpose

This software design specification is made with the purpose of outlining the software architecture and design of the international conference management system in detail.This document will provide developers an insight in meeting client's needs and requirements efficiently. Moreover, the document facilitates communication and understanding of the system by providing several views of the system design.

1.2 Scope

ConferNow is a web application that shall support every aspect of the conference organization process.We describe what features are in the scope of the software to be developed.

In scope:

1. Hosting of online conferences and webinars
2. Registering of participants into their interested conventions
3. Detailed description of each held conference along with their program schedule and introduction of the speakers
4. Q&A boards and constant updates of the conducted meeting

1.3 Definitions, Acronyms, and Abbreviations:

"ConferNow©" - copyright application name

IEEE: Institute of Electrical and Electronics Engineers
DATABASE - Database is used to verify login and store the details of candidates.
PARTICIPANTS - People who register to their interested conference held in the platform
ER DIAGRAM - Data model for describing a database in an abstract way

SEQUENCE DIAGRAM - An interaction diagram that shows how process interacts with one another and in what order
STATE DIAGRAM - Represents the condition of the system or part of the system at finite instances of time.
HOST - Organizes or arranges the conference and addresses the participants on the decided topic of the discussion
SESSION - Every event like a conference will have sessions
SRS: Software Requirement Specification
SDS: Software Design Specification
DBMS: Database management system
ER: Entity Relationship

1.4 References

1. IEEE SDS Format
2. Software Requirements Specification for International Conference Management System

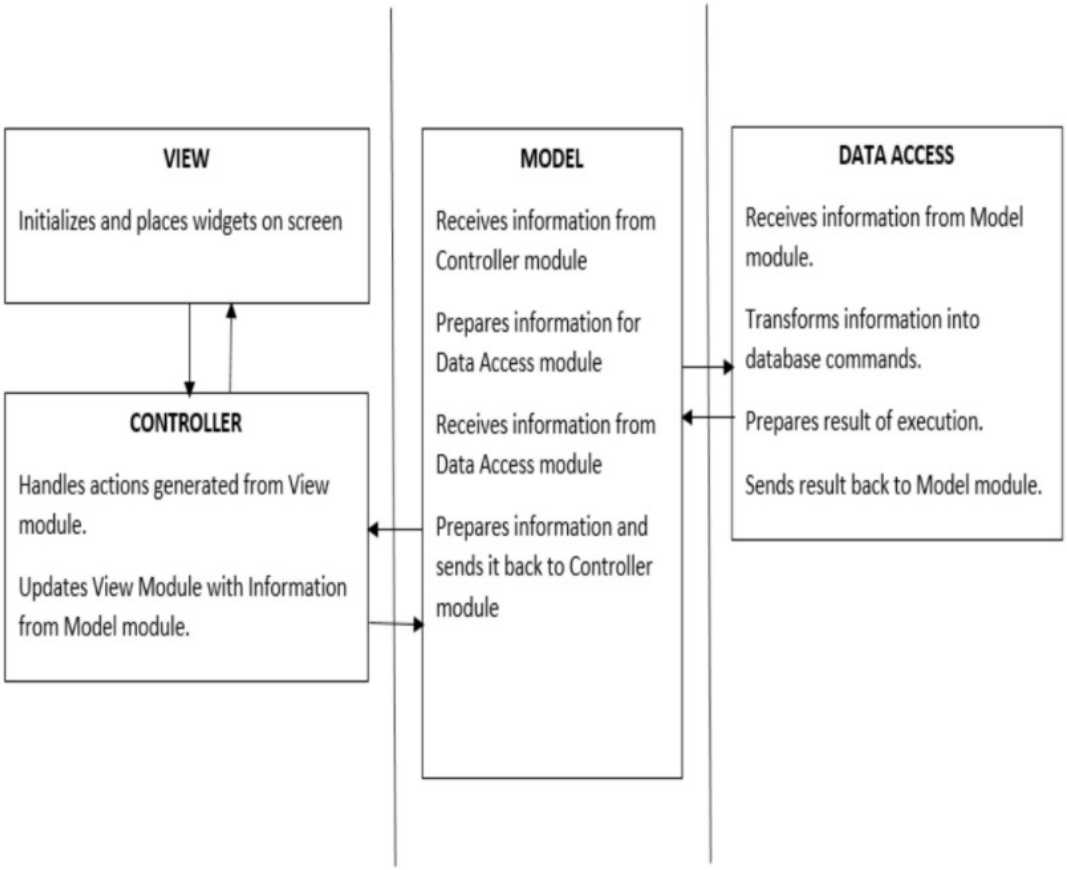
1.5 Overview

This SDS is divided into seven sections with various sub-sections. The sections of the Software Design Document are:

1. **Introduction:** describes the document, purpose, scope of development project definitions and abbreviations used in the document.
2. **Conceptual Architecture/Architecture Diagram:** describes the overview of components, modules, structure and relationships and user interface issues.
3. **Detailed Description of Components:** describes the different components being used in our platform and for what purpose
4. **System Models:** describes Logical Architecture Description and Components.
5. **Design Decisions and Trade-offs:** describes the decisions taken along with the reason as to why they were chosen over other alternatives.
6. **Appendices:** describes subsidiary matter if any

2. Architecture Design

2.1 Overview of modules / components

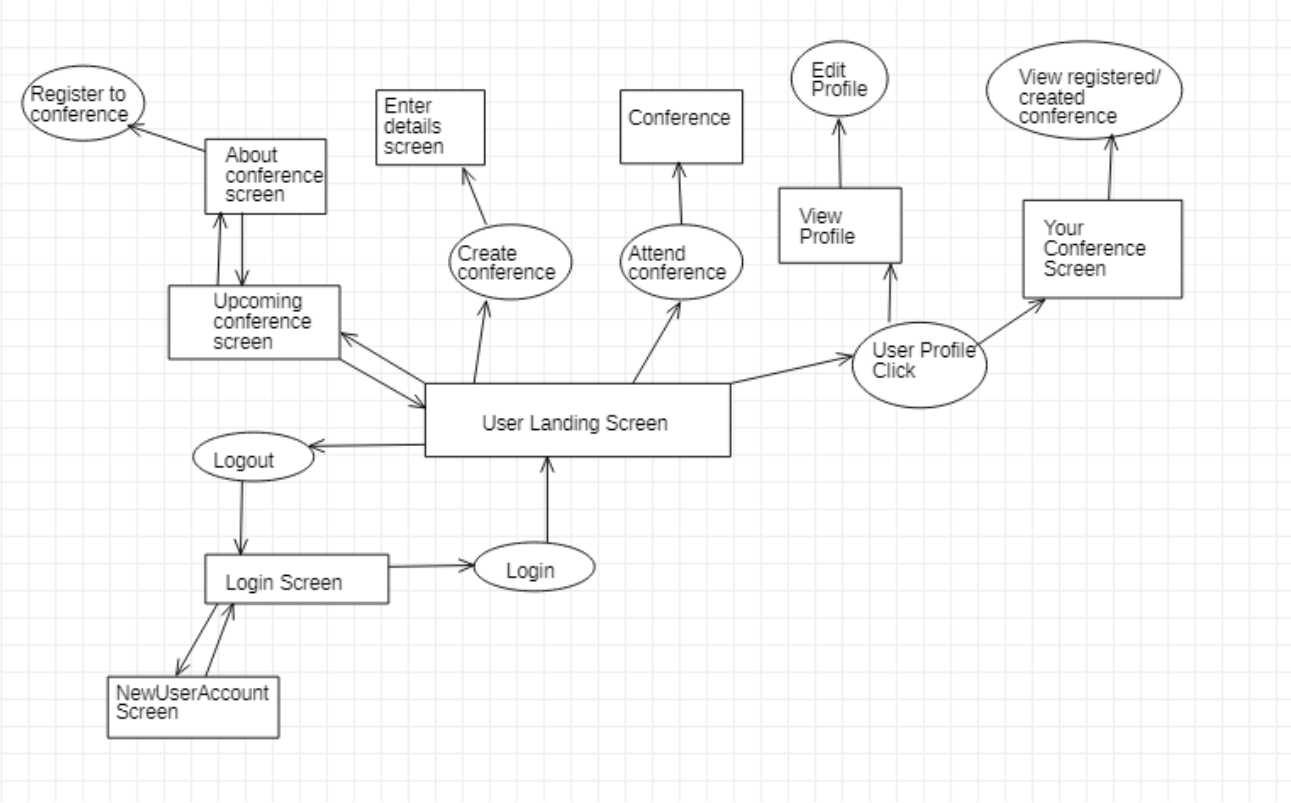


NOTE:

The horizontal lines represent the separation of modules.

More than one box within the same section represents sub-modules.

2.2 Structure and relationships



NOTE:

The boxes represent individual screens.

The circles represent actions that do not have screens.

The arrows represent navigation between screens.

2.3 User Interface

All the interactions between the user and the software product will occur through a web-based interface.

2.3.1 User Interface issues

This section will address User Interface issues as they apply to the following hypothetical users of theInternational Conference Management System, ConferNow.

- User A is a 25-year-old female who is fairly tech-savvy. Because User A is used to using web apps. ConferNow will use industry-standard user interface guidelines. For example, connections between screens will be labeled with common, easy-to-understand terms like "Login," "Create Conference," "Edit Profile," and so on.

- User B is a 68-year-old male .B may perceive this system as a barrier since he has little expertise with technology. He might or might not be able to see as well as the other users, therefore large, easy-to-read displays would be really beneficial. It is critical that he gets clear on-screen instructions. As a result, the user interface has a dark backdrop and bright lettering. He will be able to navigate the system appropriately even if he has no prior knowledge with technology. Additionally, upon registration, we will provide you a thorough textual handbook that will explain how to utilize our platform efficiently.

3. Detailed Description of Components

3.1 Component Template Description

Identification	The unique name for the component and the location of the component in the system.
Purpose	Function and performance requirements implemented by the design component, including derived requirements.
Subordinates	The internal structure of the component, the constituents of the component, and the functional requirements satisfied by each part.
Dependencies	How the component’s function and performance relate to other components. How this component is used by other components. The other components that use this component.

Resources	A complete description of all resources (hardware or software) external to the component but required to carry out its functions.
Processing	A full description of the functions presented in the Function subsection. Pseudocode can be used to document algorithms, equations, and logic.
Data	For the data internal to the component, describes the representation method, initial values, use, semantics, and format.

3.2 Description of Login Screen

Identification	LoginScreen
Purpose	The login screen assures that only officers and parking attendants can access the system.
Subordinates	This screen contains links to the following screens: ● · Main Menu Screen ● · New User Account Screen
Dependencies	The following screen links to this screen: ● User landing screen(Home Screen)
Resources	Database Access Requirements: access to the violator information found in the appropriate database tables.
Processing	The only type of processing required is inputting information into the text boxes and navigating to other forms using links in the bottom half of the screen. Each link directs the user to a different screen that corresponds to the link that the user selects.

Data	The data for the Login Screen is the username and password entered by the user. It is validated with a query against the database.

3.3 Description of New User Account Screen

Identification	New User Account Screen (Sign Up screen)
Purpose	The new user account screen allows new users to register into the platform and enjoy its features .
Subordinates	This screen contains links to the following screen: ● Login Screen
Dependencies	The following screen links to this screen: ● Login Screen
Resources	Database Access Requirements: access to enter the details of the new user , such as name , dob , email and a password for authentication into the database.
Processing	The only type of processing required is inputting information into the text boxes and navigating to other forms using links in the bottom half of the screen. Each link directs the user to a different screen that corresponds to the link that the user selects.
Data	The data supplied by the system are fields the new user must enter. The data given by the user is the appropriate information needed to fill in the given fields. This data once determined valid, by checking to make sure the user does not already exist, is saved in the database.

3.4 Description of User Landing (Home) Screen

Identification	Home screen
Purpose	The home screen assists the user by presenting them with tasks the platform performs
Subordinates	This screen contains links to the following screen: ● Upcoming conference screen ● Profile screen ● Registered/ Created conference screen
Dependencies	The following screen links to this screen: ● Upcoming conference screen ● Profile screen ● Registered/ Created conference screen ● About conference screen ● Enter details screen ● Conference
Resources	None
Processing	The only type of processing is selecting the desired links and navigating to the different pages .
Data	No data is entered for this screen.

3.5 Description of Upcoming conference Screen

Identification	Upcoming conference screen
Purpose	This contains a list of scheduled conference for users to choose and register into
Subordinates	This screen contains links to the following screen: ● About conference screen ● Registered conference screen
Dependencies	The following screen links to this screen: ● Home screen ● Registered conference screen
Resources	Database Access Requirements: access to search and show all the conferences scheduled from the database.
Processing	The only type of processing required is inputting information into the text boxes and searching through the database and showing the results.
Data	The data of scheduled conferences are shown on the screen.A user may enter the name or date of the conference in order to search for a specific one.

3.6 Description of About conference Screen

Identification	About conference screen
Purpose	All the details of the scheduled conference , including date,time,topic,keynotes,speaker etc are shown here.

Subordinates	This screen contains links to the following screen: ● Your conference screen
Dependencies	The following screen links to this screen: ● Upcoming conference screen ● Your conference screen
Resources	Database Access Requirements: access to search and show all the information regarding the particular conference.
Processing	Here , the user can read into the information and click on the register now button to participate in the conference.
Data	The data by the system includes all the information of the conference which helps the user in making a decision.

3.7 Description of Enter details screen

Identification	Enter details screen
Purpose	The user wanting to conduct a conference must enter all the necessary information such as date, time, name , topics of discussion , keynotes , speakers etc.
Subordinates	This screen contains links to the following screen: ● Upcoming conference ● About conference
Dependencies	The following screen links to this screen: ● Home screen
Resources	Database Access Requirements: access to enter and store all the information regarding the conference in our database.

Processing	The only type of processing required is inputting information into the text boxes and navigating to other forms using links in the the screen
Data	The data is entered by the user for scheduling a conference.

3.8 Description of Edit Profile screen

Identification	Edit Profile screen
Purpose	The user wants to make changes to the prior personal details entered or change the password.
Subordinates	This screen contains links to the following screen: ● Login screen
Dependencies	The following screen links to this screen: ● Home screen
Resources	Database Access Requirements: access to search , enter and store all the changed information .
Processing	The only type of processing required is inputting information into the text boxes and navigating to other forms using links in the the screen
Data	The data is entered by the user to make changes to his or her profile.

3.9 Description of Your Conference screen

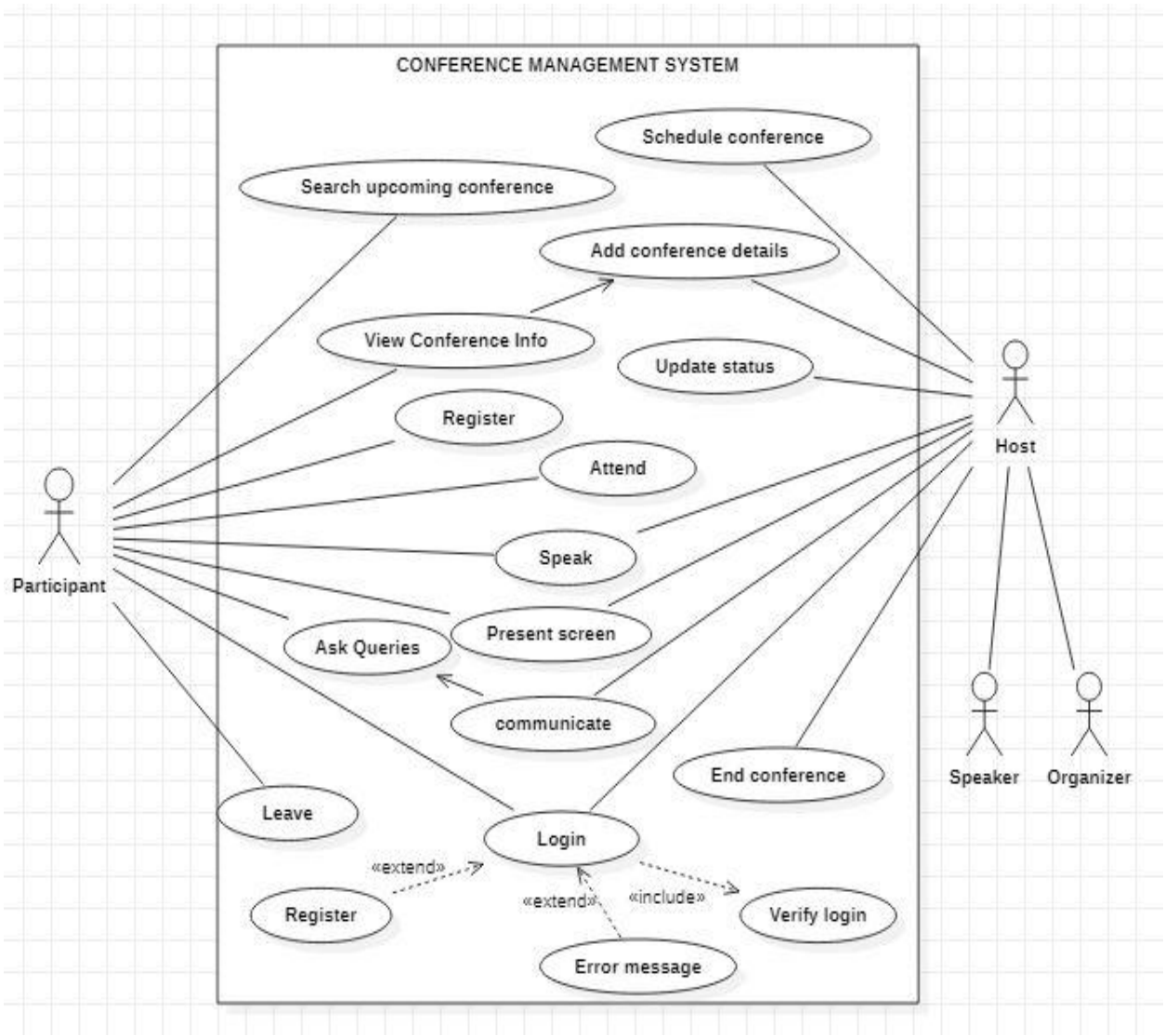
Identification	Your Conference screen
Purpose	All the registered conferences or created conferences are shown here
Subordinates	This screen contains links to the following screen: ● Upcoming conference ● Attend Conference
Dependencies	The following screen links to this screen: ● Home screen
Resources	Database Access Requirements: access to search and show all the present and past conferences connected to the user
Processing	The only type of processing required is searching the database and showing the connected conferences.
Data	The data of registered or created conferences by the particular user is shown by the system.

4. System Modeling

In order to model the behavioral and structural dynamics of ConferNow, we adopted the Unified Modeling Language (UML). UML is a standardized, general-purpose modeling language in the field of software engineering. It includes a set of graphical notations to create visual models of object-oriented software-intensive systems. For the description and communication of user requirements and functionality of a given software system, one can use UML's Use Case,Sequence Activity and State diagram.
This section documents the relevant UML diagrams for capturing the function and structure of ConferNow.

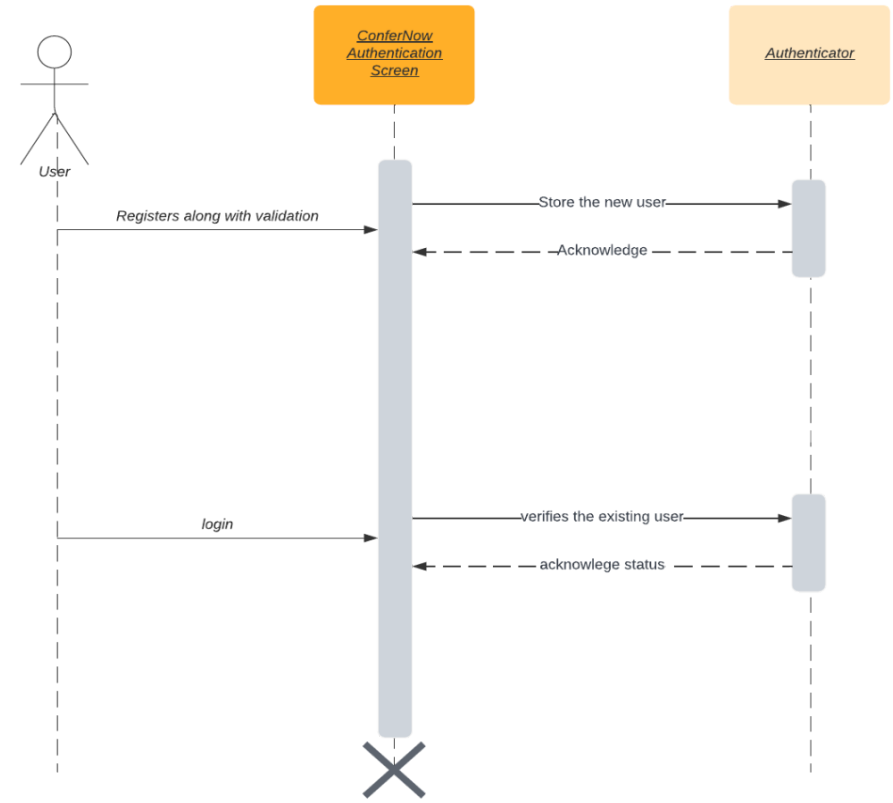
4.1 Use Case diagram

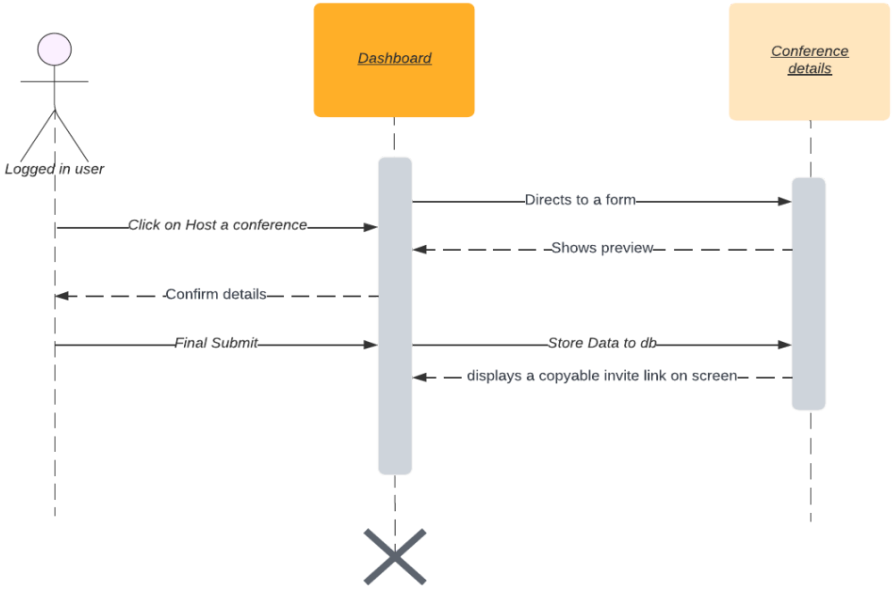
This UML diagram is used to show the interaction between the system and the actors so as to capture and communicate the user requirements. Use Cases are the description of system functionalities written in an organized manner and their relationship with the actors. Actors can be defined as "something" that interacts with the system .Here host and participant are the two major actors.The host role in a conference can be given to the speaker or the organizer of the conference which in all cases need not be the same.

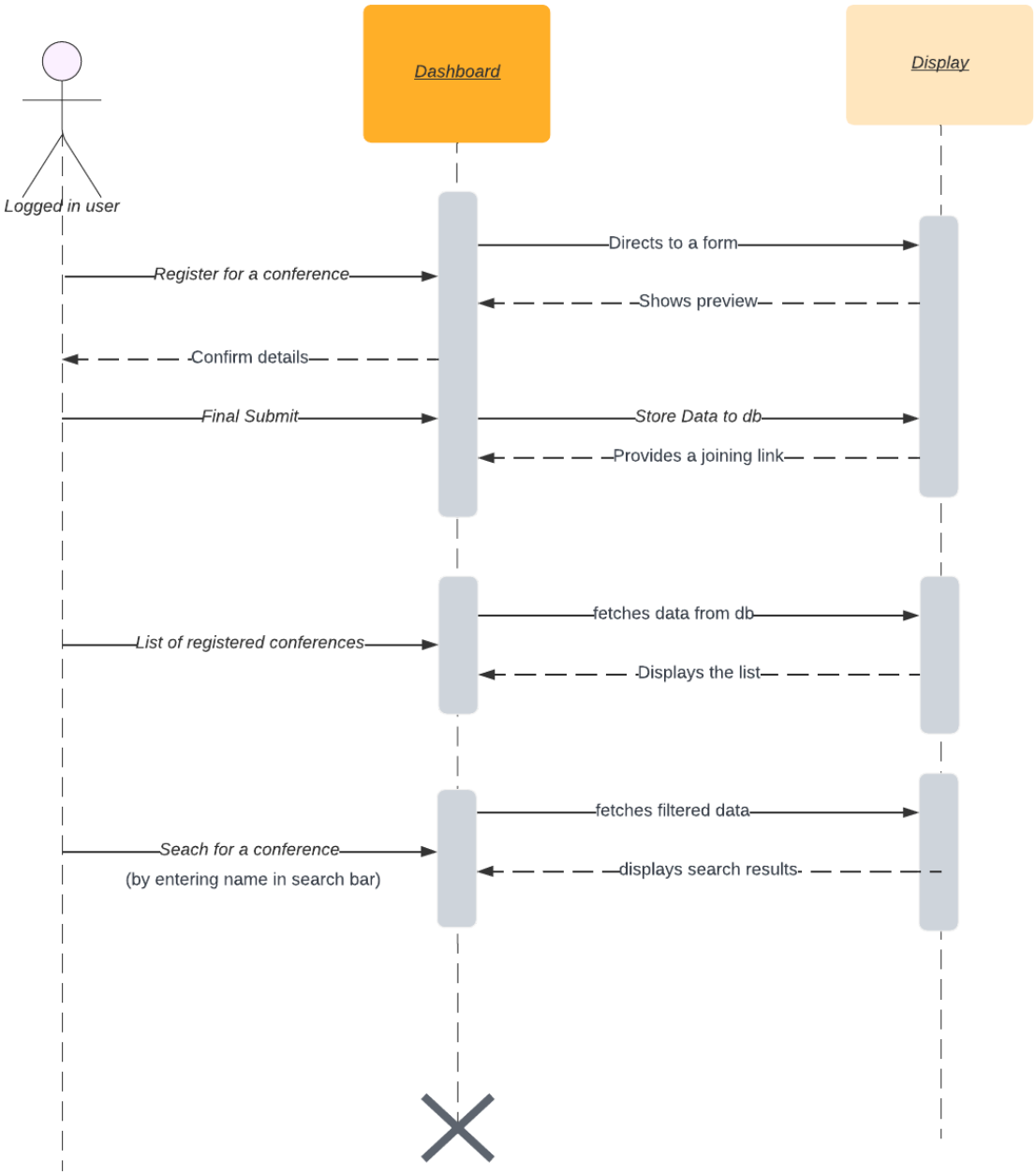

CONFERENCE MANAGEMENT SYSTEM
Schedule conference
Search upcoming conference
Add conference details
View Conference Info
Update status
Register
Attend
Speak
Present screen
Ask Queries
communicate
End conference
Leave
Login
«extend»
Register
«extend»
«include»
Verify login
Error message
Participant
Host
Speaker
Organizer

4.2 Sequence diagram

Sequence Diagrams are used to design the interactions between components of a system that need to work together to accomplish a task.



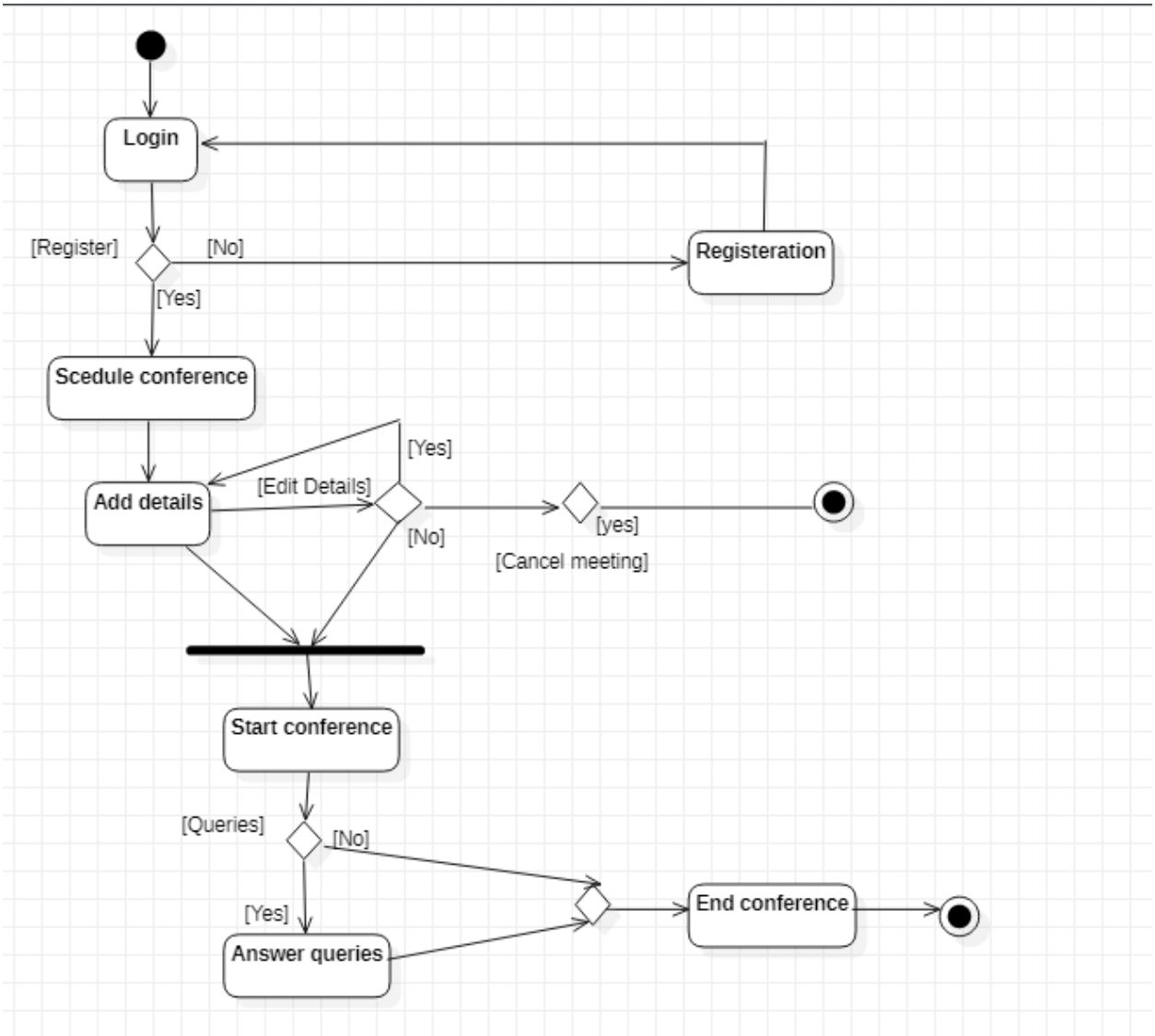




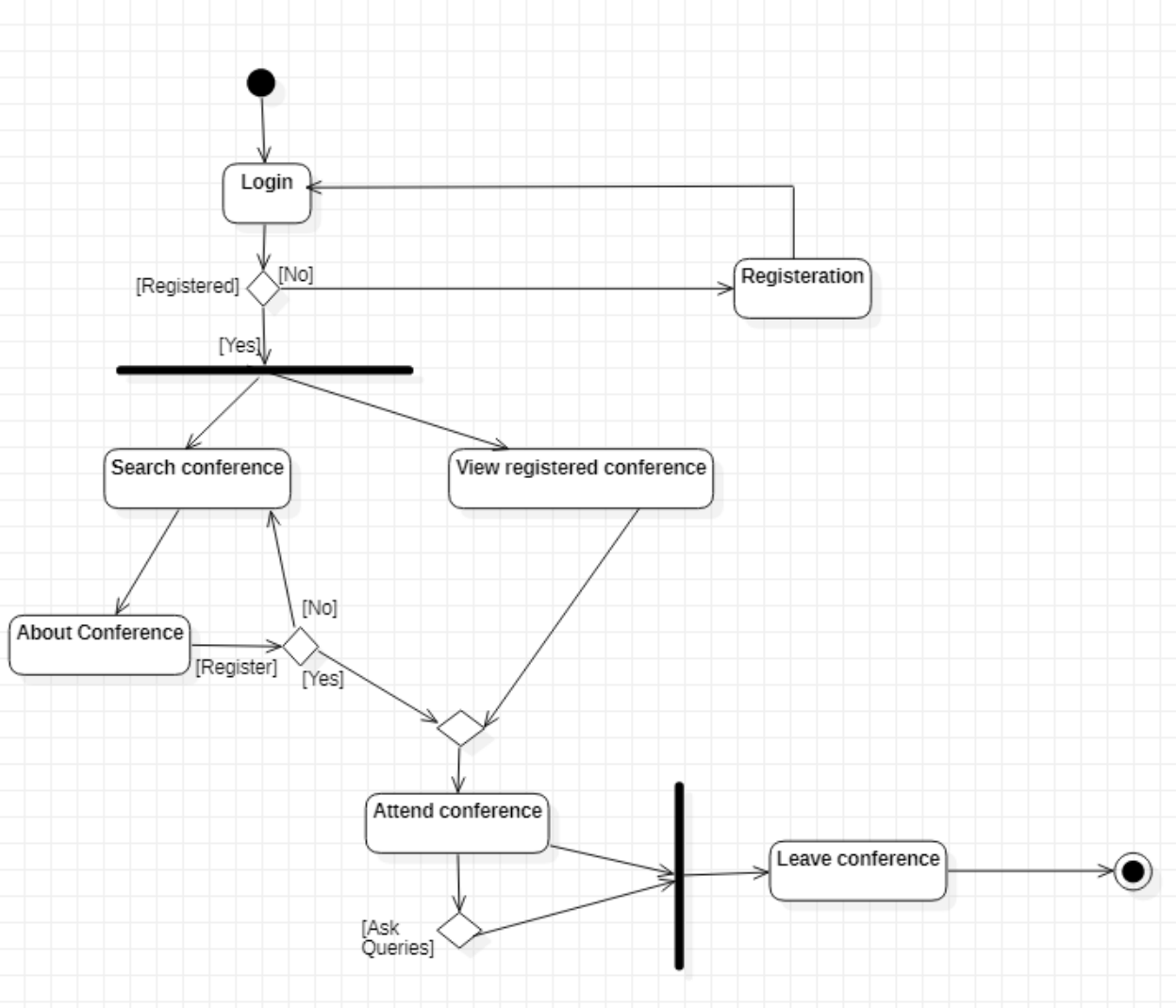
4.3 Activity diagram

Activity diagram depicts the dynamic behavior of a system, the activities or workflow and responsibilities of elements that constitute a system. It is the object-oriented equivalent of flowcharts and data flow diagrams used in procedural development. It can be used to represent situations where parallel processing may occur in the execution of

some activities. Also, activity diagram can be used to analyze a use case by describing what actions need to take place and when they should occur



Activity diagram of the host

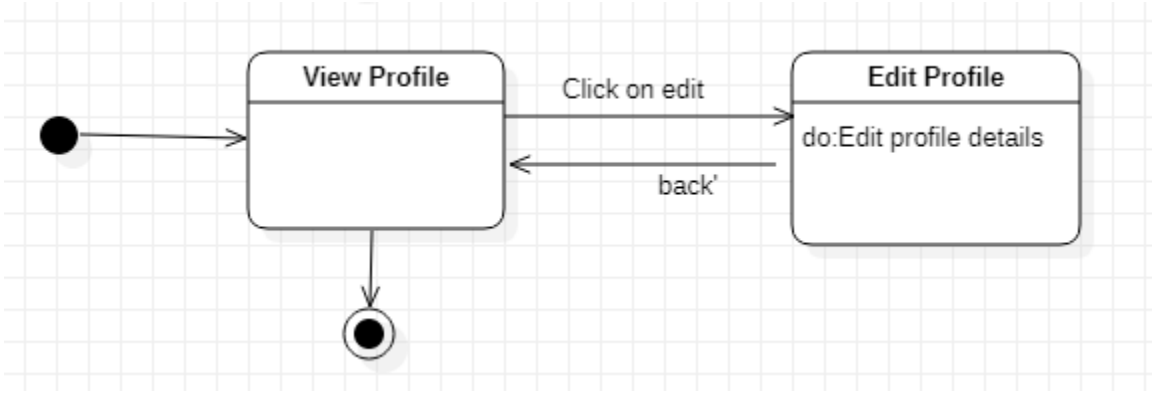


Activity diagram for the participant

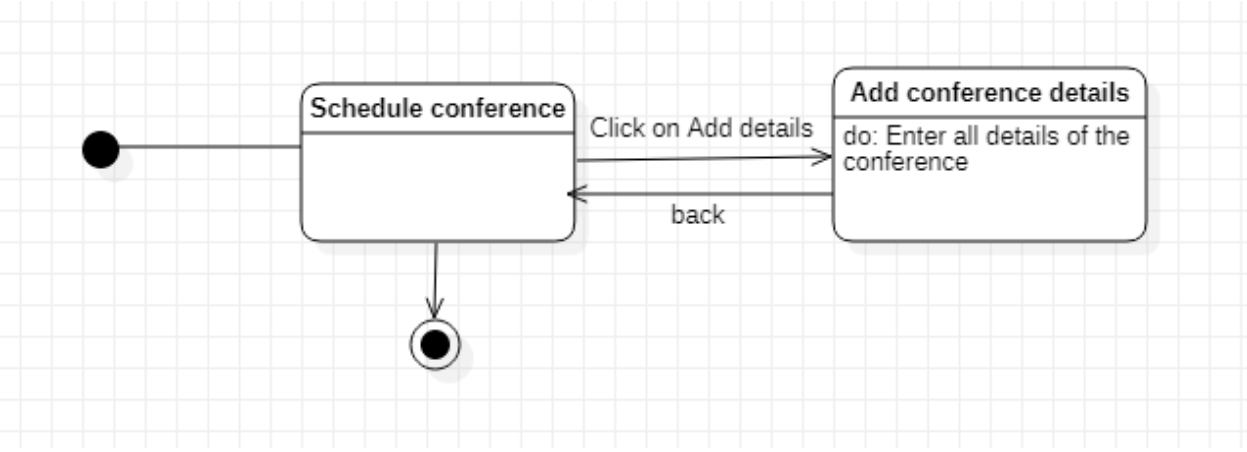
4.4 State Diagram

A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioral diagram that models the behavior of a single object, specifying the sequence of events that an object goes through during its lifetime in response to events.

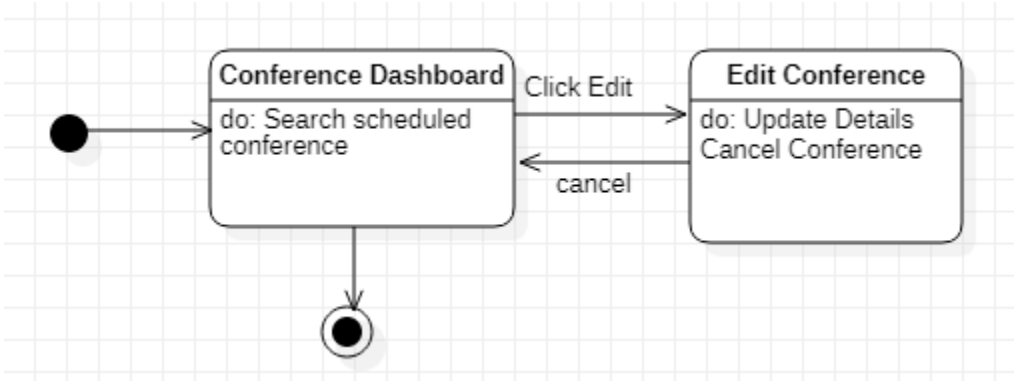
State diagram: User viewing and editing profile



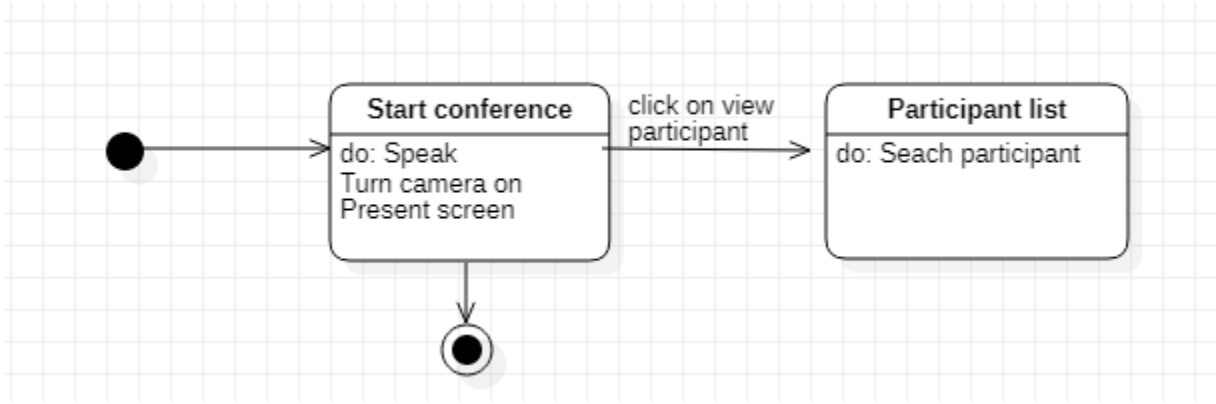
State diagram : Host scheduling a conference



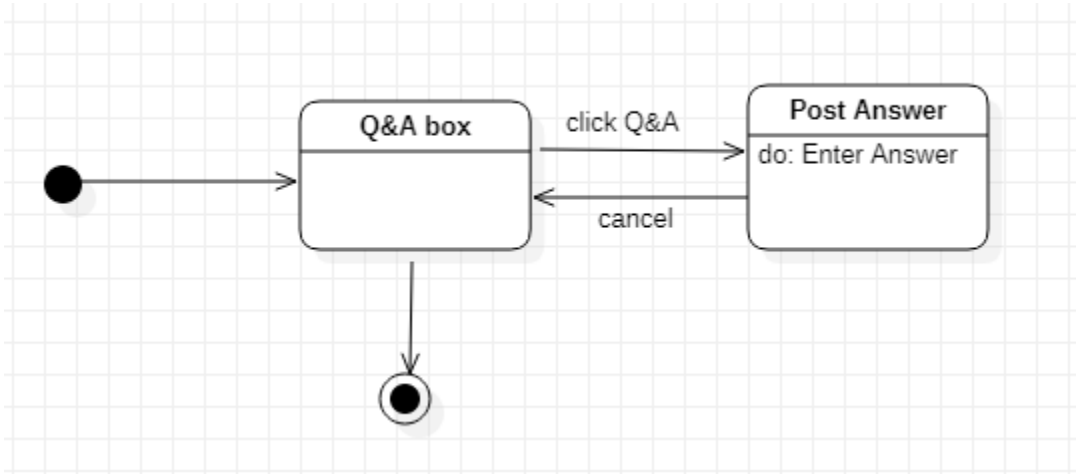
State diagram : Host editing a conference



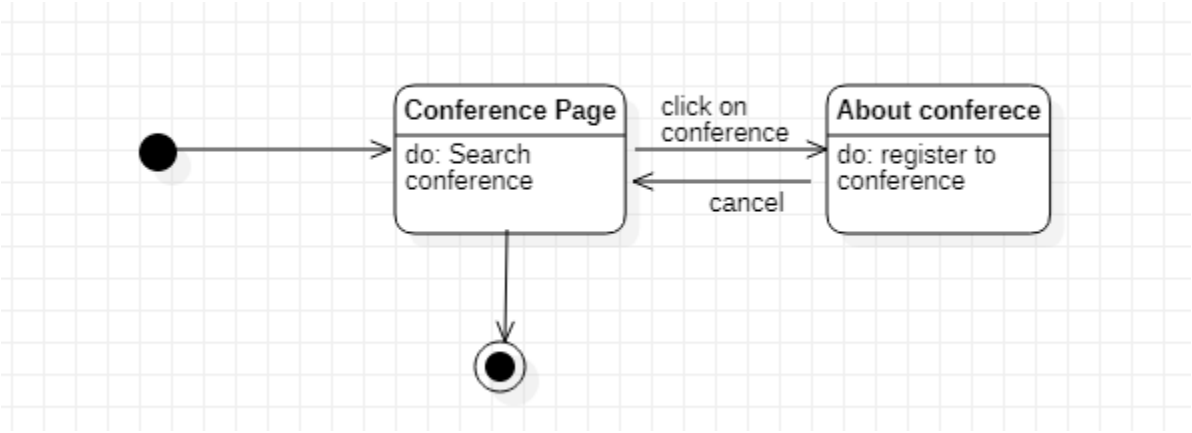
State diagram: Host start a conference



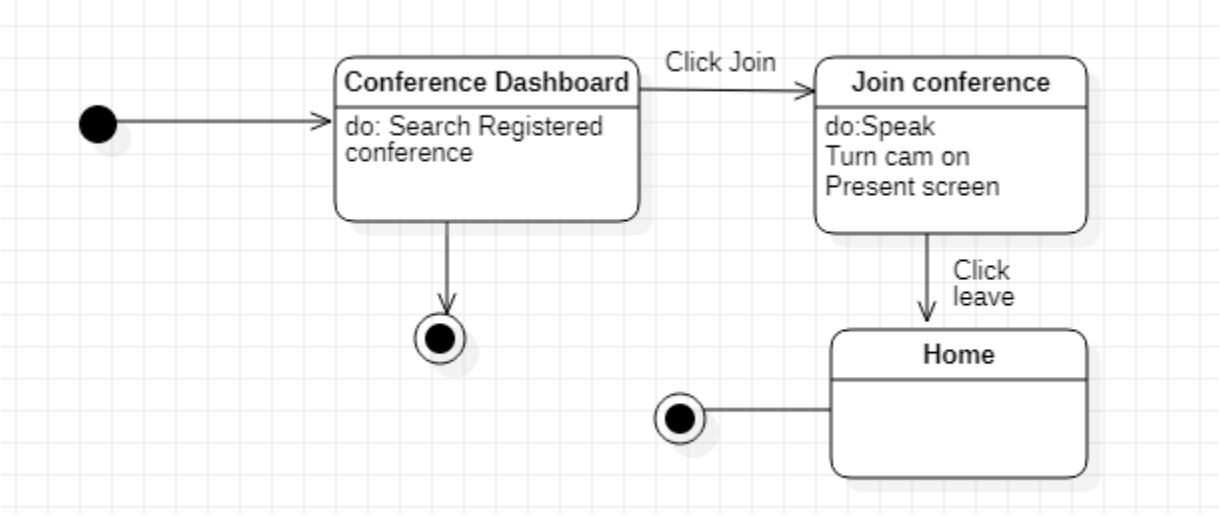
State diagram: Host answers Q&A



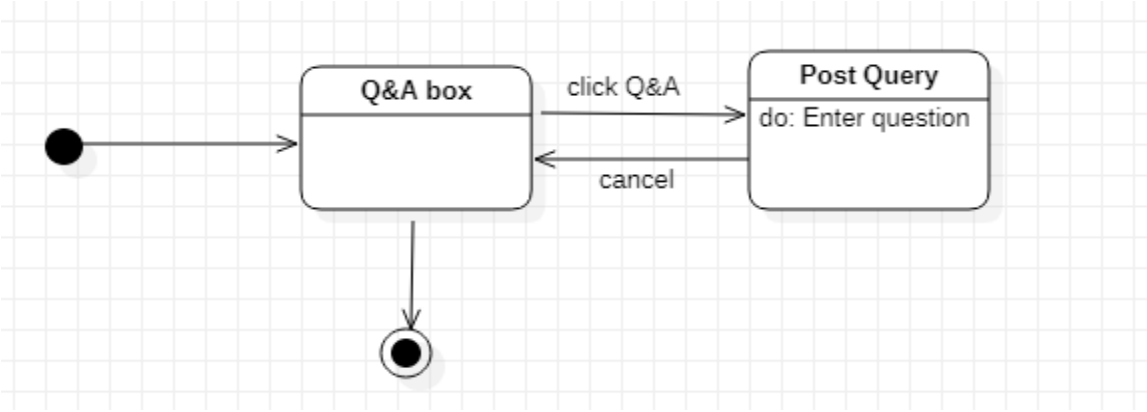
State diagram: User searches for conference



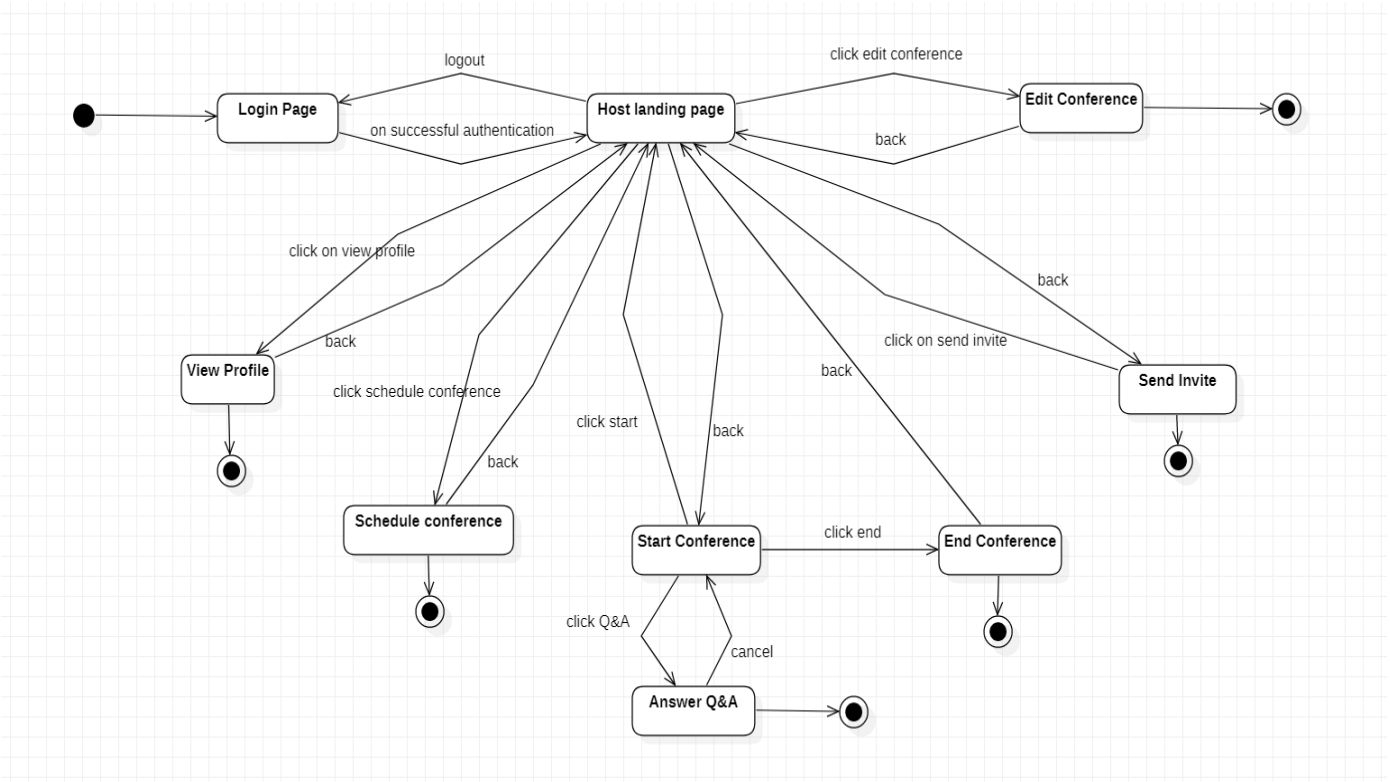
State Diagram: Participant joins conference



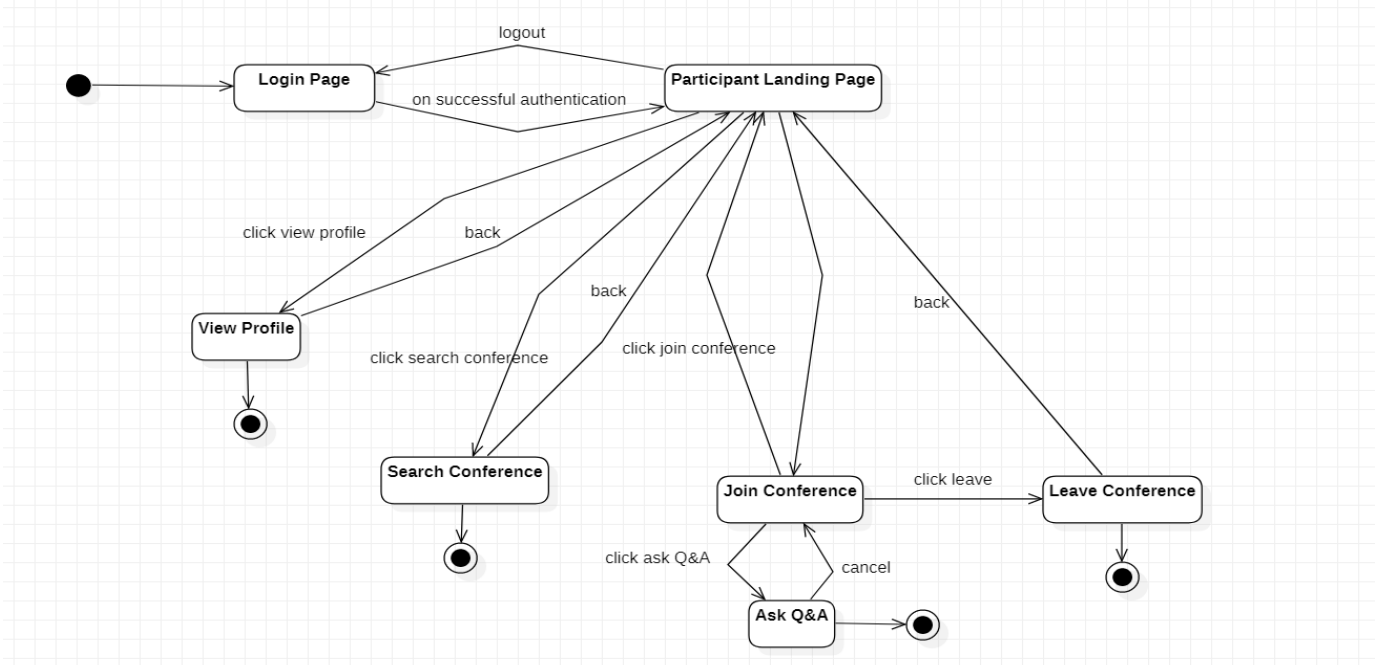
State diagram: Q&A post



State Diagram: Host login

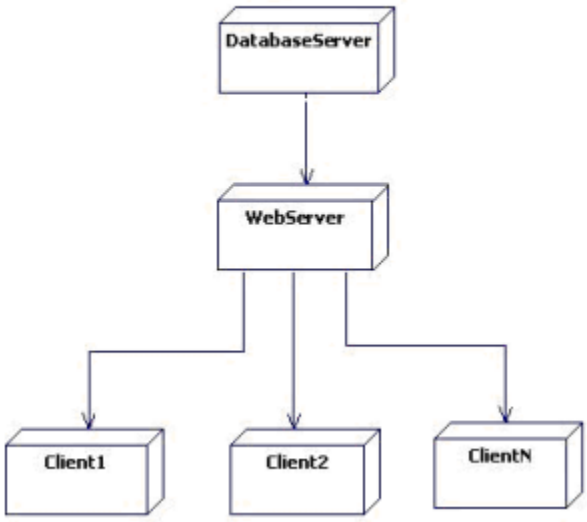


State Diagram: Participant login



4.5 Deployment and component diagram

Deployment diagrams are used to visualize the topology of the physical components of a system where the software components are deployed.



5. Design Decisions and Trade-offs

5.1 Design Constraints

The focus of ConferNow is on the seamless, anywhere and anytime delivery of prioritized services. The solution will be designed using the experiences from similar initiatives executed successfully. The scope and magnitude of the ConferNow is likely to impact the Conference Management System with an overarching effect on the current fragmented solutions that have been put in place.

5.2 Design Objectives

The following section outlines ConferNow's design objectives from a holistic perspective, keeping in view the requirements of all the constraints within which the proposed solution would need to operate.

The design objectives for the proposed technology solution in ConferNow are:

1. Adopt service oriented architecture.

2. Develop and expose business functionality as services.
3. Provide web based user interface.
4. Support multiple access devices such as desktop computers, Mobile phones, PDA, etc.
5. Ensure confidentiality of user data.
6. Enable easy discovery of information.

5.2 Design Considerations

5.2.1 Quality of Code

- Portal should use the correct Doctype.
- Portal should use a Character set.
- Portal should use Valid (X)HTML.
- Portal should use Valid CSS.
- Portal should not use CSS hacks.
- Portal should not use unnecessary classes or ids.
- Code should be well structured.
- Portal should not have any broken links.
- Portal should have good performance in terms of speed/page size.
- Portal should not have any JavaScript errors.

5.2.2 Accessibility for Users

- It should use relative units rather than absolute units for text size.
- Any aspects of the layout of the portal should not break if font size is increased or decreased.
- It should use visible skip menus.
- It should use accessible forms.
- It should use accessible tables.
- There should be sufficient color brightness/contrasts.
- For critical information other mechanisms should also be used to draw attention of the user in addition to color.
- There should not be any delayed responsiveness for dropdown menus.
- Links should be descriptive.

5.2.3 Accessibility for Devices

- Portal should work acceptably across modern and older browsers
- Content should be accessible with CSS switched off or not supported
- Content should be accessible with images switched off or not supported
- Portal should work in text browsers

- Portal should work well when printed.
- Portal should work well in common hand held devices Portal should include detailed metadata.
- Portal should work well in a range of browser window sizes.