

EduConnect

A PROJECT REPORT

Submitted by

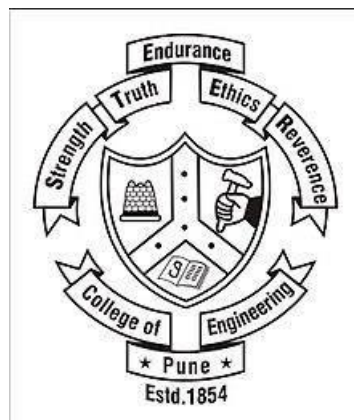
Sharique Shaikh

*In fulfilment for the award of the course
of*

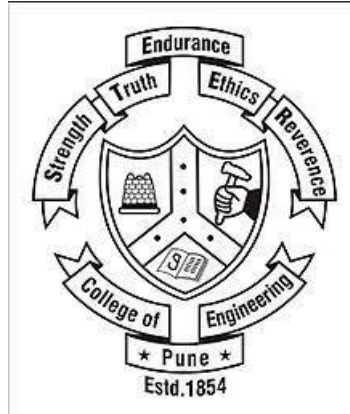
SOFTWARE ENGINEERING

in

Computer Science & Engineering



College of Engineering , Pune



College of Engineering Pune
Computer Science & Engineering
2019-20

CERTIFICATE

Date: _____

This is to certify that the dissertation entitled “**eduConnect**” has been carried out by **Sharique Shaikh** under my guidance in fulfilment of the Software Engineering in Computer Science & Engineering (6 th semester) of College of Engineering, Pune during the academic year 2019-20.

Guides:

Prof. Tanuja
Patanshetty

Head of the Department
Prof. Vahida Attar
Computer Engg. Dept.,
COEP

Project Abstract

In current education system, students and teachers are only connected during college times, while rest of the time, they rarely have communication regarding education. Thus, study becomes limited to the college hours. When we consider study, especially engineering and technical fields, it converges more towards research than towards formal textbook studies. And when we are considering such scenario, students will surely need guidance from various faculties and bugging them personally over phone would look awkward.

Currently, Social Networking has caught the trend and almost all the young generation is using Social Networking but more towards fun and entertainment. This system, **eduConnect**, adopts the idea to build a new system which will be similar however different. This concept will be used but it will still be education oriented, but not eliminating the entertainment of Social Media.

eduConnect will be a web-based system which will virtually map all the entities in real world University. All objects of University, say College, Departments, Classrooms etc will have their existence virtually in this system. Students, Faculties, Principal, etc persons will also be the user of this system. So, ultimately, all objects in **eduConnect** will have existence in real world also.

Using this system, any person who is a part of this system will be able to communicate with each other. They can ***Talk***, Chat, discuss and share information in Forums, communicate using Private Messaging, join groups, etc.

Thus, this system will become a media for all education related entities stay in touch with each other anytime, share information and communicate.

Introduction to Project

Concepts & Fundamentals

After college time, college students have no educational contacts with people related with college and university. So we decided to build a new environment to connect those people easily in any time at any place. We will create a system which connects all these people together. This system will reflect virtual places of all University and College related things. This will give an opportunity to people stay connected with the study related stuff all the time.

Study of Existing System

Currently, no system is being used by the University to keep all students, faculties and other related persons stay connected with each other round the clock. There are many open source Forums or Discussion Boards available which can be used to share information between students and related persons but they become very limited to their own functionality. It lacks the flexibility for more integration in studies. Instead of this, a single portal would be desired which has more flexibility and provides more functionality than just forums.

Aims and Objectives

Aims :

An Educational Portal has been developed to address the needs of the educational community in the region of pune and to foster the adoption of Information Society Technologies within the Educational System. It provides various online community facilities and access to educational resources for supporting collaboration, assistive learning and teaching practices.

Objectives :

Bridge the gap among students, educators, parents and administration, in order to increase interactivity and communication and to facilitate collaborative work and research

- enhance students awareness and exploration of educational resources available in the Web, and thereby create opportunities for the students to increase their learning potential
- increase the use of the Web by students and teachers and thereby foster further adoption of Information Society ideals within the educational community.

Motivation :

online education portal are essential for students in order to access knowledge . Today in this modernized world these all facilities are needed more than ever before.

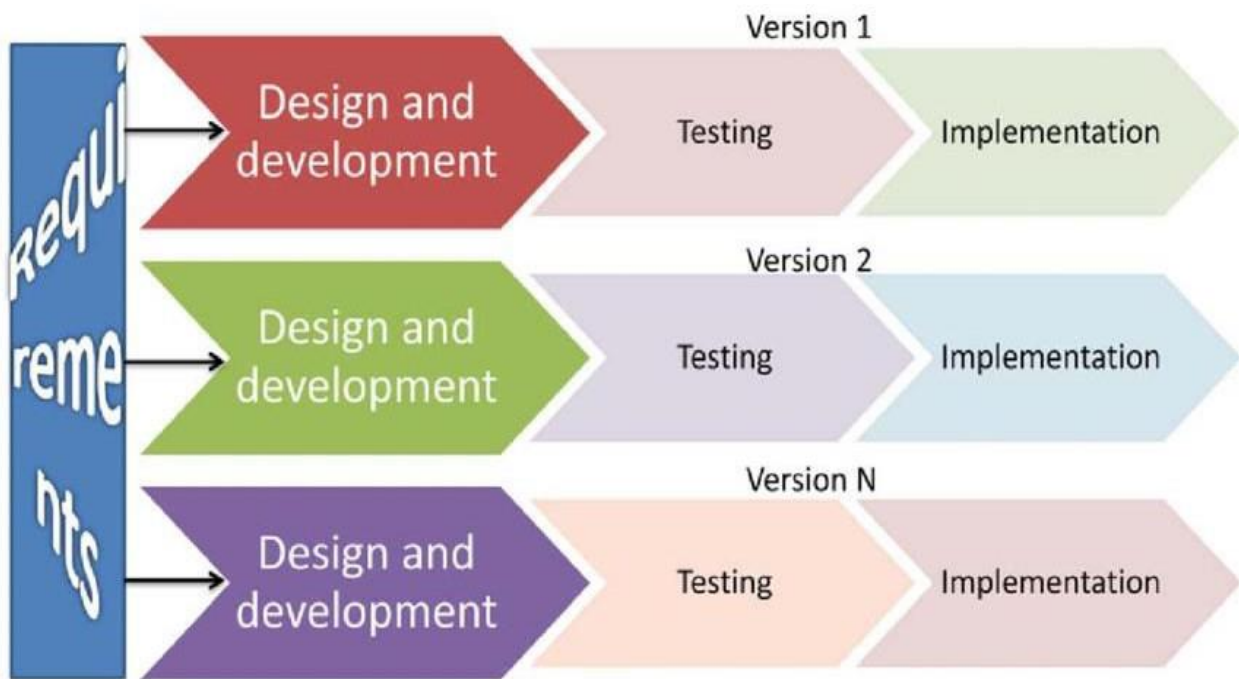
Learning and teaching are highly assisted through the available educational content, while collaboration is enhanced through the communication portal facilities.

increase the use of the Web by students and teachers and thereby foster further adoption of Information Society ideals within the educational community.

Model Chosen :

I have chosen to utilise the **Incremental model** for this project.

Incremental models have an advantage of divide and conquer strategy to breakdown the tasks. Also it is useful to track the working record of the project and at each milestone we achieve we can test our project for the same and can fix bugs or make appropriate upgrades in the project as per the requirement. This is convenient as we will be able to fix the bugs in the project as we go on developing it rather than identifying the bugs at the stage of development.



Proposed System :

Objective :

This system will have several **components** which include Private Messages, Talks, Forums, Chats, Groups, Events and many more. All this features will be education oriented and somehow interesting.

Project Definition:

Adding social integration and use of latest Internet technology in Education System and providing a platform for students and University people to stay connected with each other 24x7.

Project Scope :

This system will have several components which include Private Messages, Talks, Forums, Chats, Groups, Events and many more. All this features will be education oriented and somehow interesting.

Project Platform :

This is a web-based System. System will use xHTML and CSS for designing. Javascript and techniques like AJAX for better UX. PHP will be used for server side scripting and MySQL as a database.

Proposed Architecture :

I will be primarily using HTML AND CSS for the project on the front-end, to form an interface which will be easily used on any device with a condition that the device should have a required specification.

Back-end will consist of a database that will store all the data of the system, I will be using mySQL Database which is very convenient to store large data with accuracy and efficiency.

For development, either Windows or Linux based OS is recommended. To test

the system, a Web Server, *Apache or IIS*, will be required however any other Web Server which can run PHP will suffice. However, **WAMP Server** will be used, which is a Windows stack of Apache, MySQL and PHP.

System Development :

Hardware Requirement :

For developing this system, system with minimum following requirements will be needed.

CPU : Dual Core CPU

Memory : 512 MB

Disk Space: 200 MB

Software Requirements :

For development, either Windows or Linux based OS is recommended. To test the system, a Web Server, *Apache or IIS*, will be required however any other Web Server which can run PHP will suffice. However, **WAMP Server** will be used, which is a Windows stack of Apache, MySQL and PHP.

For editing file, a simple file editor will be needed. **PsPad** will be used.

For versioning system, I will use Git which is a distributed versioning system so that multiple users can work on project concurrently on different branch. As an Git remote host, I will use, Github or BitBucket.

Functional Requirements :

Functional :

Functions expected from the systems are ability to stay connected with each other and share information with ease. Functional requirements are *Talks, Forums, Chats, Private Messaging, Groups, etc*

Non Functional :

Transport :

System is a web-based application and so it will use HTTP protocol for communication.

Security :

System must be secured from all types of known attacks like SQL injections, XSS. All loopholes will be detected and fixed while testing phase.

Performance :

System must load faster. System will have light-weight user interface but rich with functions.

Software Requirement Specification (SRS)

EDU-CONNECT

Prepared By: Sharique Shaikh

TABLE OF CONTENTS

list of Figures

Detailed Description of Project

Overview

Features

User and Permission levels

Talks

Private Messaging

Forums

Chat

Groups

Misc 6

Future Extensions

How will it work?

System Analysis

Fact Finding Technique

Feasibility Study

Operational

Technical

Economical Implementation

Other Non-Functional Requirement

Performance Requirements

Safety Requirements

Security Requirements

Usability Requirements

User Requirements

Software Quality Requirements

Business Rules

Timeline Chart

System Designing

Class Diagrams

User Case Diagrams

Sequence Diagrams

Activity Diagrams

Dataflow Diagrams

Conclusion

List of Figures

Figure No.	Figure Description	Page No
4.1	Class Diagram	13
4.2	Use-Case: Student, Faculty & HOD	14
4.3	Use-Case: College Principal & College Admin	15
4.4	Use-Case: University Head & University Admin	16
4.5	Sequence Diagram: Login	17
4.6	Sequence Diagram: Talk	18
4.7	Sequence Diagram: Send PM	19
4.8	Sequence Diagram: Create Topic	20
4.9	Sequence Diagram: Group	21
4.10	Sequence Diagram: Add College	22
4.11	Sequence Diagram: Update Profile	23
4.12	Activity Diagram: Login	24
4.13	Activity Diagram: Student Entry	25
4.14	Activity Diagram: Add College	26
4.15	Activity Diagram: Update Profile	27
4.16	Activity Diagram: Create Groups	28
4.17	Activity Diagram: Create Topic	29
4.18	Activity Diagram: Talk	30
4.19	Activity Diagram: Private Messaging	31
4.20	Dataflow Diagram: Context Level Dataflow Diagram	32
4.21	Dataflow Diagram: Talk Process	33
4.22	Dataflow Diagram: Add College Process	33
4.23	Dataflow Diagram: Create Forum Process	34

Dataflow Diagram: Add User Process	34
Dataflow Diagram: Create Chatroom	35
Dataflow Diagram: Update College	36

Detailed Description of Project

Overview

In these days, most of the people spend much time on social networking sites. Here, we will have somewhat similar concept but it will be education oriented and knowledge based where all users of system (students, faculties, principals, and others) share information and also have some fun with education.

In this system, we are dividing whole system into different virtual places. Virtual places are Class, Branch or Department, College and University. Here each real world entity of education is mapped into virtual place.

Features

Users and Permission Levels:

In this system, there are six types of different users having different permissions and privileges. They are as follows:

- Student: Have minimum privilege and permission.
- Faculties: These are those person who are teacher in college
- HODs: These are the head of the particular department having privilege place in that department.
- College Admin: This is the one who manages all virtual areas and does the work like user verification and moderation of places of college.
- Principal: Principal will have special place in college and he will be able to see college statistics and moderate the college.

- University Admin: This will have the privilege to moderate all colleges in that University and all management work of college verification and maintenance will be done by this user.
- University Head: Most privileged person of the system. It will have all permissions to see University statistics and data.

Talks:

Users of this system will be able to make friends. Now all users will be able to update status or share thoughts and this will appear in Talks

These Talks are filtered in five different categories:

- Friends: Only updates from friends.
- Class: Updates from all classmates
- Department: Updates from users in same department of same college
- College: Updates from users of same college
- University: Updates from all colleges.

This will allow users to know what's up with friends, or in class, department, college or in whole university. Users may be able to comment on Talks. Each ***Talk*** will have a scope too as above categories to provide some privacy so that particular share doesn't go beyond its scope.

Private Messaging:

Private messaging will allow users to communicate with a single or multiple users privately. This will help to discuss the issues that is not possible to be discussed in public or in person.

Forums:

Forums are the integral and one of most important parts of this system. It is a discussion board for all users. Forums allow all users to communicate with each other, discuss on particular topics, share information and knowledge. It will serve several purposes.

Forums have different view permissions. Forums have different visibility scope like available just to class, department, college and university. Each forum will have a permission group as said above and so only group in that scope will have access to the forum. So a forum is class-level, department-level, college-level and university-level. There may be some special groups and it will be possible to create private forums for them too.

Forums are categorized in sections. Now, this forums having different permissions will allow to create a branch wise, subject wise forums so that discussion that is relates a particular group can be created and no other users have to bother about it if it doesn't relate him.

HOW WILL IT HELP SYSTEM?

Following purposes may be fulfilled by the forums:

- Forums for and private to a single class may be used to talk and discuss about the things particular to that class and due to restricted permission, privacy of that class will remain to that class' students only.
- If the assignments are to be in soft format, faculty may create a forum private to that class and for each assignment, he/she may create a separate topic for it in that forum where students are suppose to attach their assignments with their post as file uploading is allowed in forums.
- Private forums may be used to discuss about problems and complains particular to that group.
- Public forums to University may be a great medium for

students of different colleges to discuss some topics and share information.

- University level forums may also help to discuss the problems and issues of University.
- Public forums may also help to share soft materials between the different colleges and students.
- Forums may be used to upload photos and videos thus providing a way to create galleries.
- This will simply help students that may fear to discuss things face-to- face in class or college.
- There may be lots of more uses of these forums that are beyond the scope of this report.

Chat:

Chat allows users to chat with all users in real time. Chat will have different chatrooms, again having all above permissions. It can be used for real time helps from online users or just general or study related talk. Chatrooms may allow only person having some privilege and so online meetings between faculties, HODs and/or principal can be organized. Thus it will serve many purposes.

Groups:

Administrator will be able to create different groups so that it can be used to give different permissions in different places of system.

Misc:

There are several other functionalities of system too. Each user will have his own profile showing his details. We will have different achievements which users will earn based on their usage of system and how well they perform in different places of the system.

Future Extensions

Events:

Users will be able to create an event online and send invitations to users. An Event will again work like a single user. An Event may have one or more admins and they will be able to post Talks like a user does. They will be able to create few custom pages for that event.

This will also help to create events for Techfest being held in every college, each year or semester. This will provide more exposure to the events than in-person campaigning as it will be possible to reach to all college just through that system in no time at all.

Quiz/Competitions:

Privileged users will be able to host quizzes online. Quizzes will have many options and auto evolution of results. Scoreboards and marks will be given for a quiz as predefined by Quiz Setter.

We are thinking about some ways so that some online competitions of inter-class, inter-college to encourage student for studies and spark the desire of gathering more knowledge.

How will System work?

When system will start, University Admin will set all University details and data. Now Admin will have rights to add a college and set its data. So if any college is interested in joining this system, it

can ask University Admin for it and he will add the college with all necessary details. Now after colleges have been added, College Admin will have rights to add department, class and college related stuff. Once college is set, it's time for students to join. Whenever a user wants to join the system, it will apply for it online. He will register with what type of users he is (faculty, student, etc) and fill all data about him. Now college admin will verify this data and approve the user and then user will be able to use the system. College Admin will have permission to set privilege level of the user so that in future promotion and demotions of user level can be possible. After all this, users will be able to use the system seamlessly.

System Analysis

Fact Finding Technique

I wanted to develop something that may be useful for education system. Even though, we are living in high-tech generation, we still think, we are not using the technology to it best when it comes about study. So our team was thinking to build a system that may enhance the use of technology in education system to some extent.

The young generation is tending much towards the Social Media, and so concept of having Networking in study will be very useful. But the question was how we can make this concept “education oriented”? We are already using Forums or Discussion boards, IRC for subject oriented chat, Social Networking sites like *Facebook*, *Twitter*, *Google+* etc and education portals like *Moodle*, but these all have some features missing in each other. We wanted to build a System that combines all *goods* from them and have all-in-one system.

We had some questionnaires and informal interviews with some students, faculties and some other experts. We considered their suggestions and advices and came up for this system.

Feasibility Study

Operational

This system does not require any special technical skills to be used. Interface will be simple and easy to use, self explaining. All colleges and most students/faculties have access to Internet and so it is easy to access the system. Any person having minimal knowledge of English can use this system with ease.

Technical

This system requires a web server with PHP and MySQL.

University and colleges already have web servers with these facilities and so technically, it is feasible to deploy the system.

Economical

University and our college already have web hosting for their own sites.

Implementation

Our team already has good experience with Web Development with PHP and MySQL on server side and so it will be easy for team to build system using them.

Other Non-Functional Requirements :

Performance Requirements :

1. Fast and Accurate
2. Flexible around multiple machines

Safety Requirements :

1. Data loss must not take place
2. User information must be safe

Security Requirements :

1. Use of Data for without Authority must not take place
2. Secured Registration
3. No leaking of Database

Usability Requirements

1. Proper Connection
2. Proper Version of Browser that is Required

User Requirements :

1. Privacy
2. Verification
3. Availability
4. Robustness

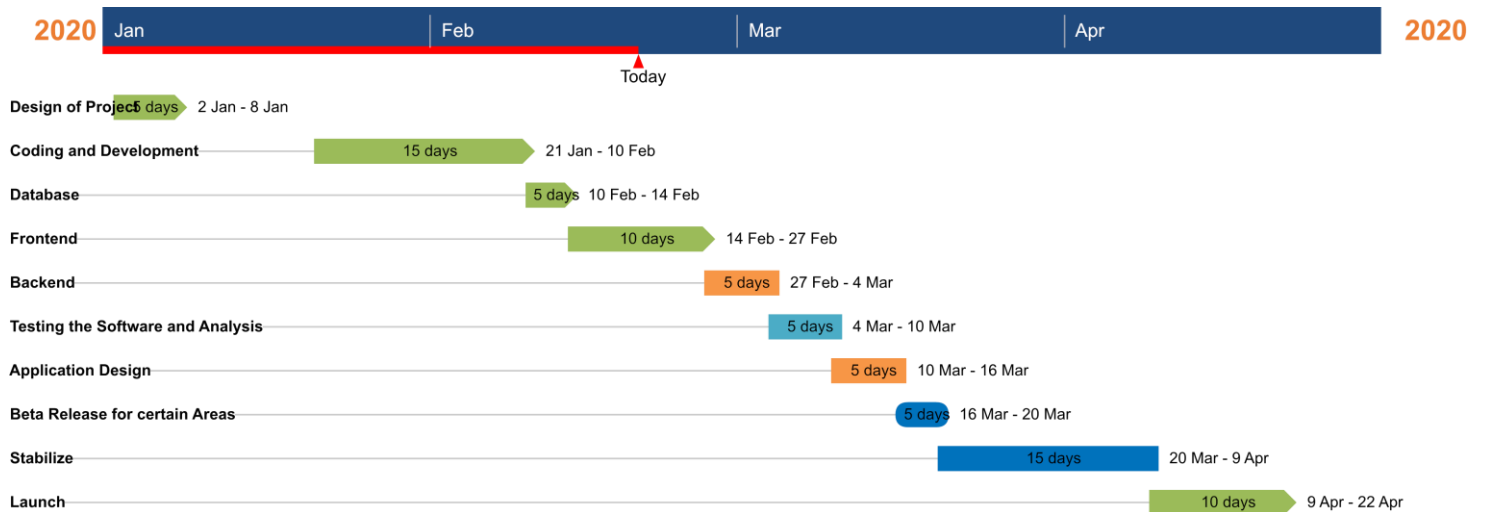
Software Quality Attribute :

1. Code should be reusable by other developers
2. Software should be robust, testable, usable
3. Software should be user friendly

Business Rules :

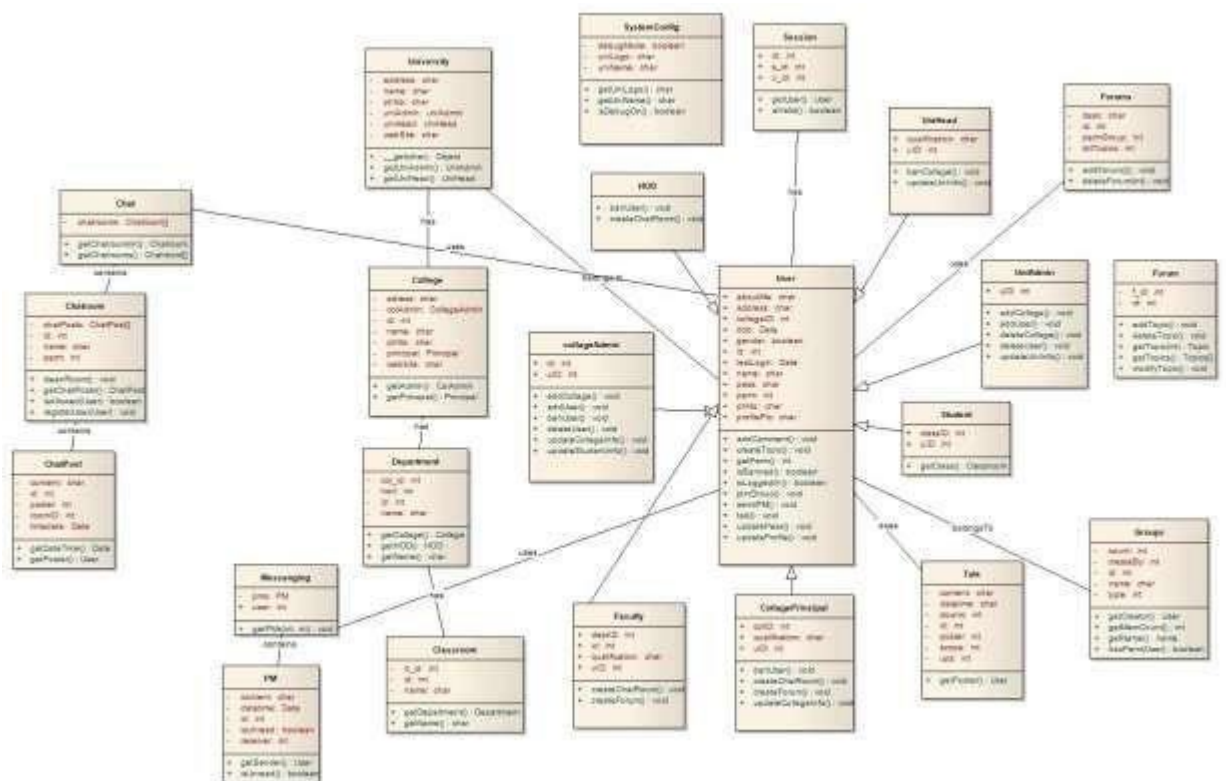
Any Information Regarding Payment or Classified Documents must not be shared without authority.

Timeline Chart:



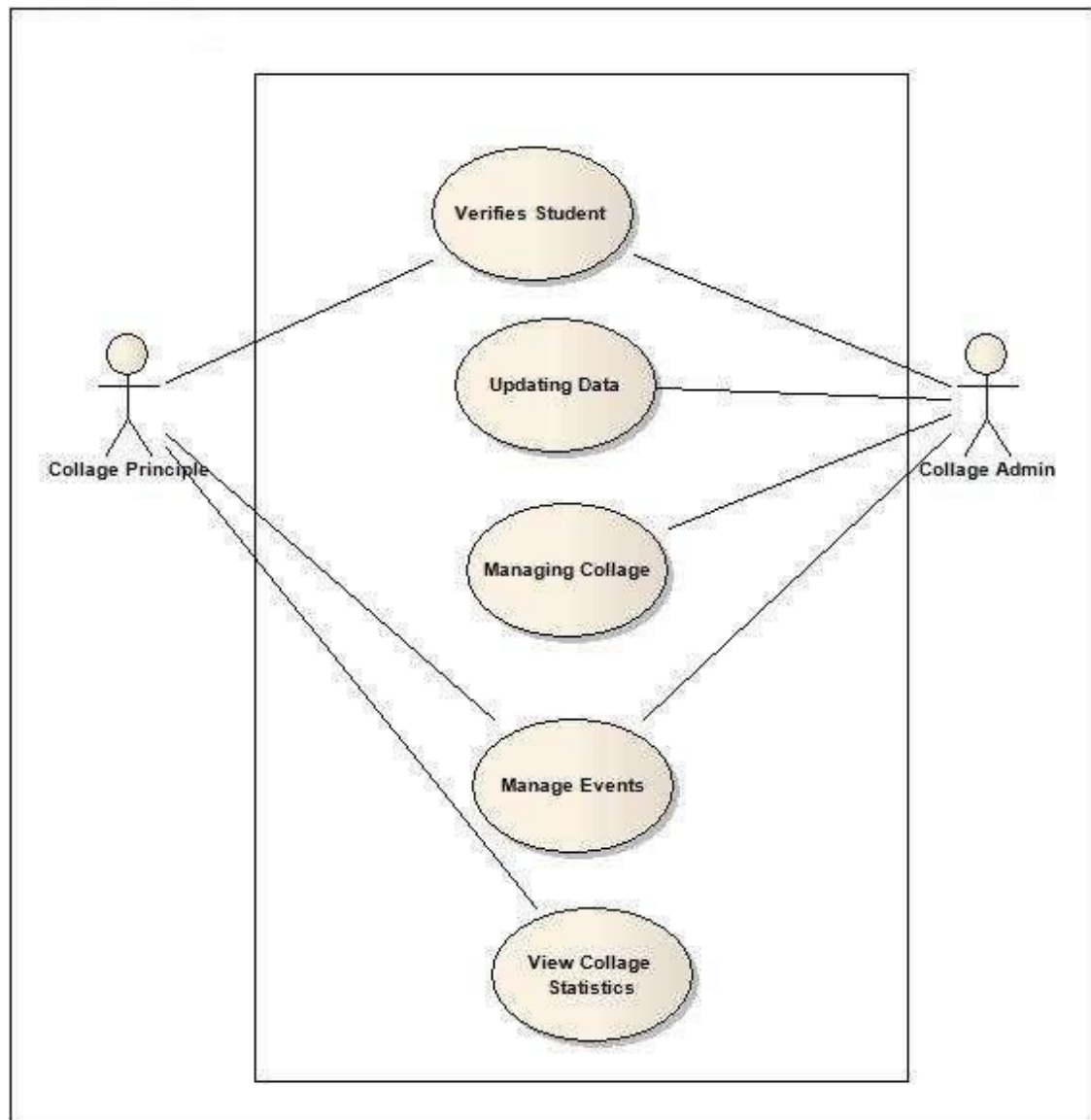
System Design

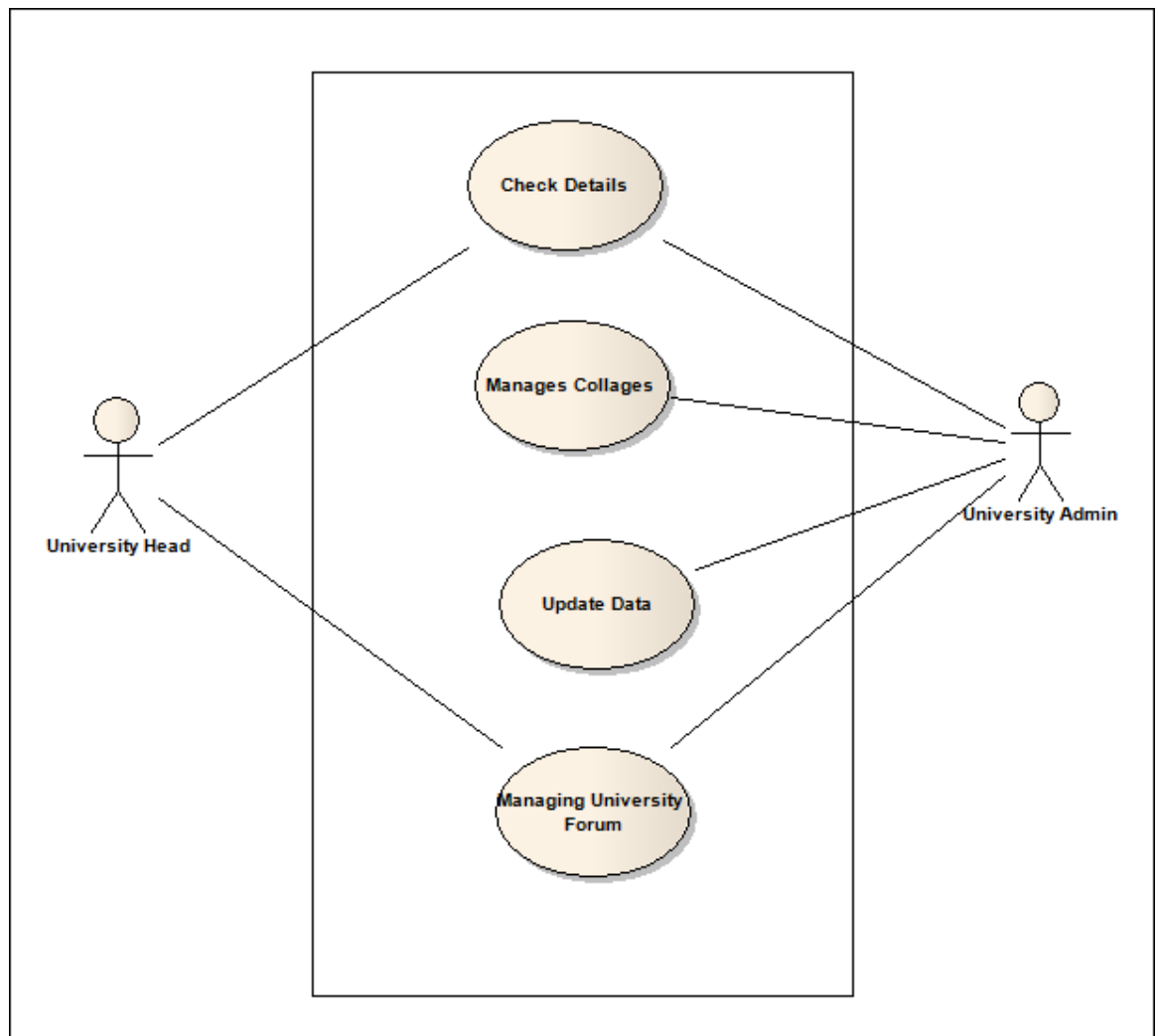
Class Diagram



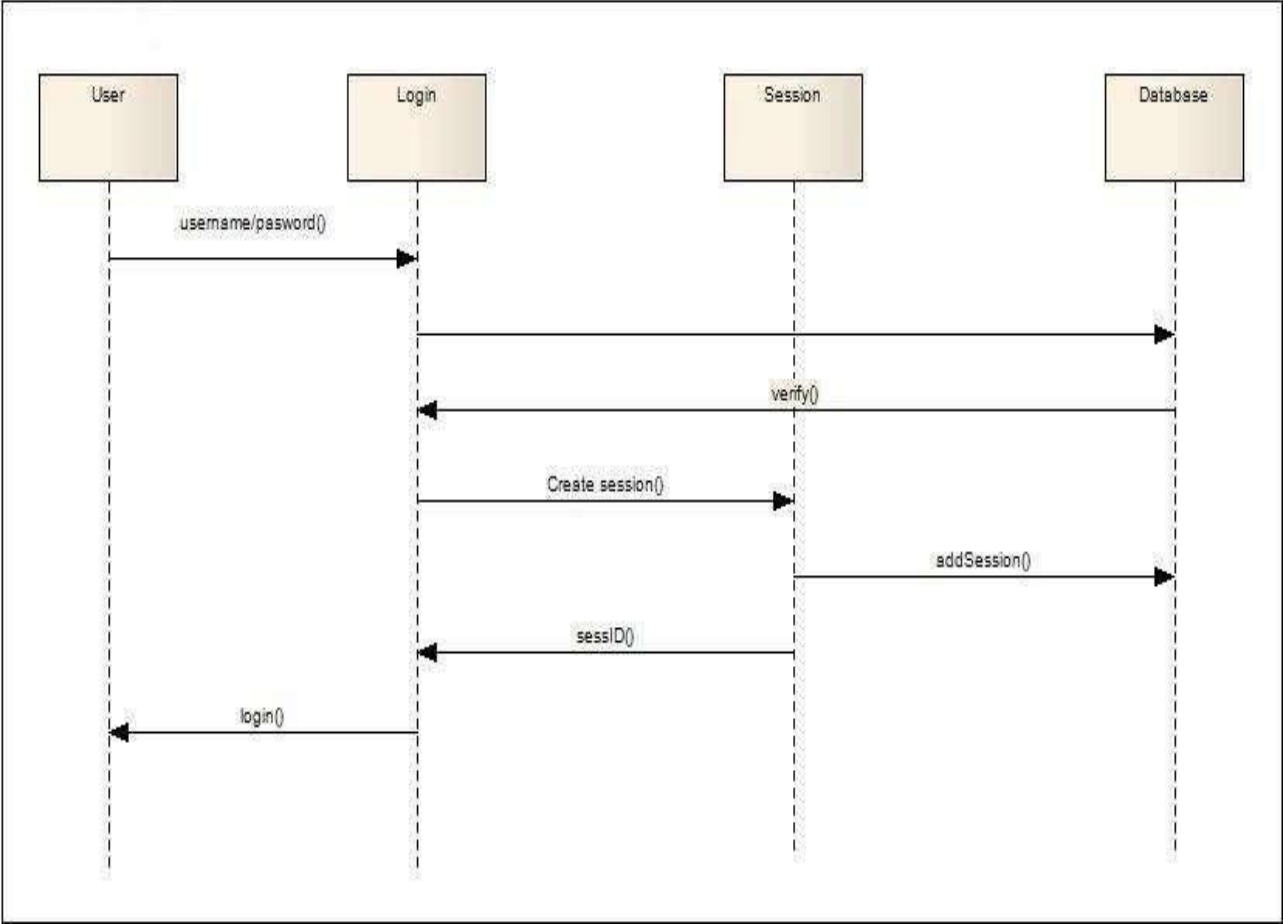
Use Case Diagrams



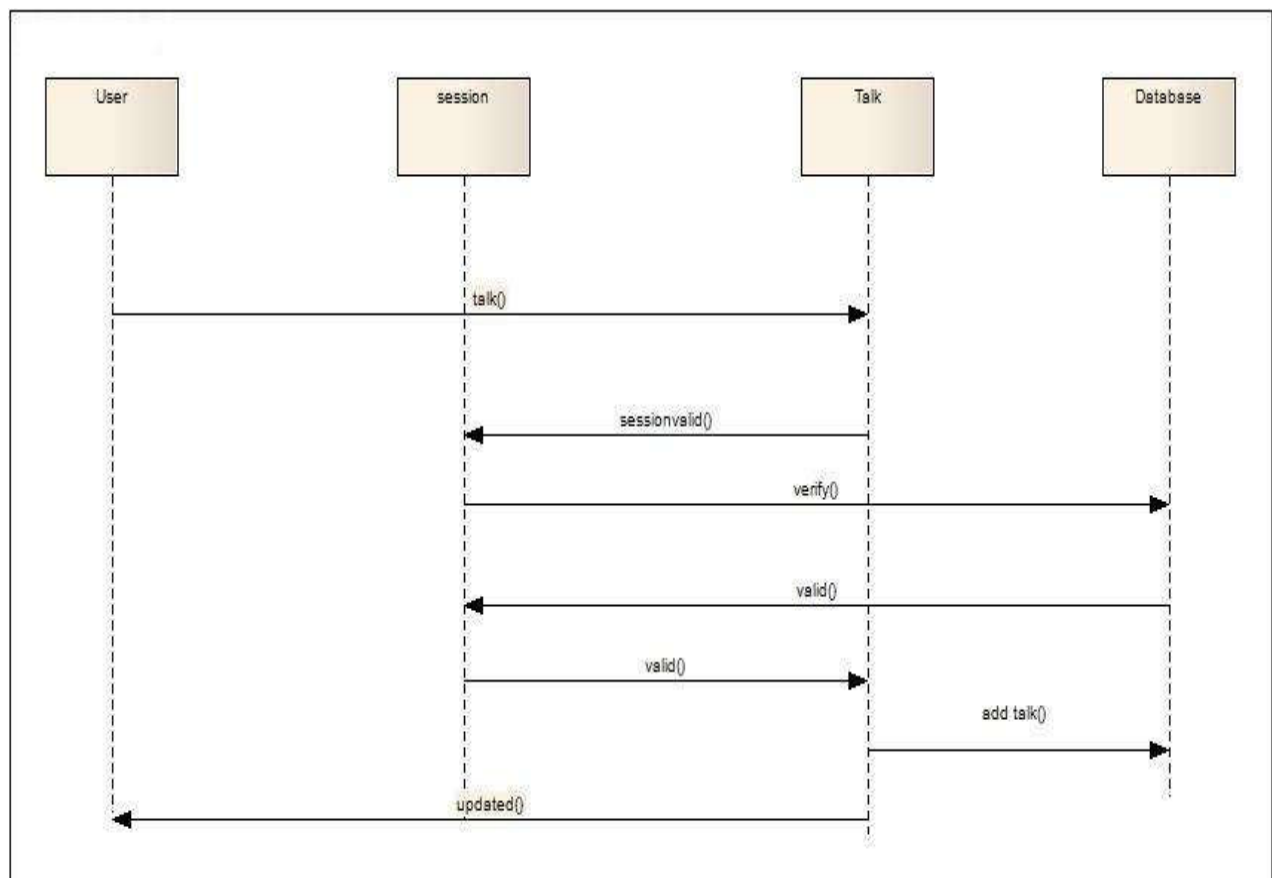




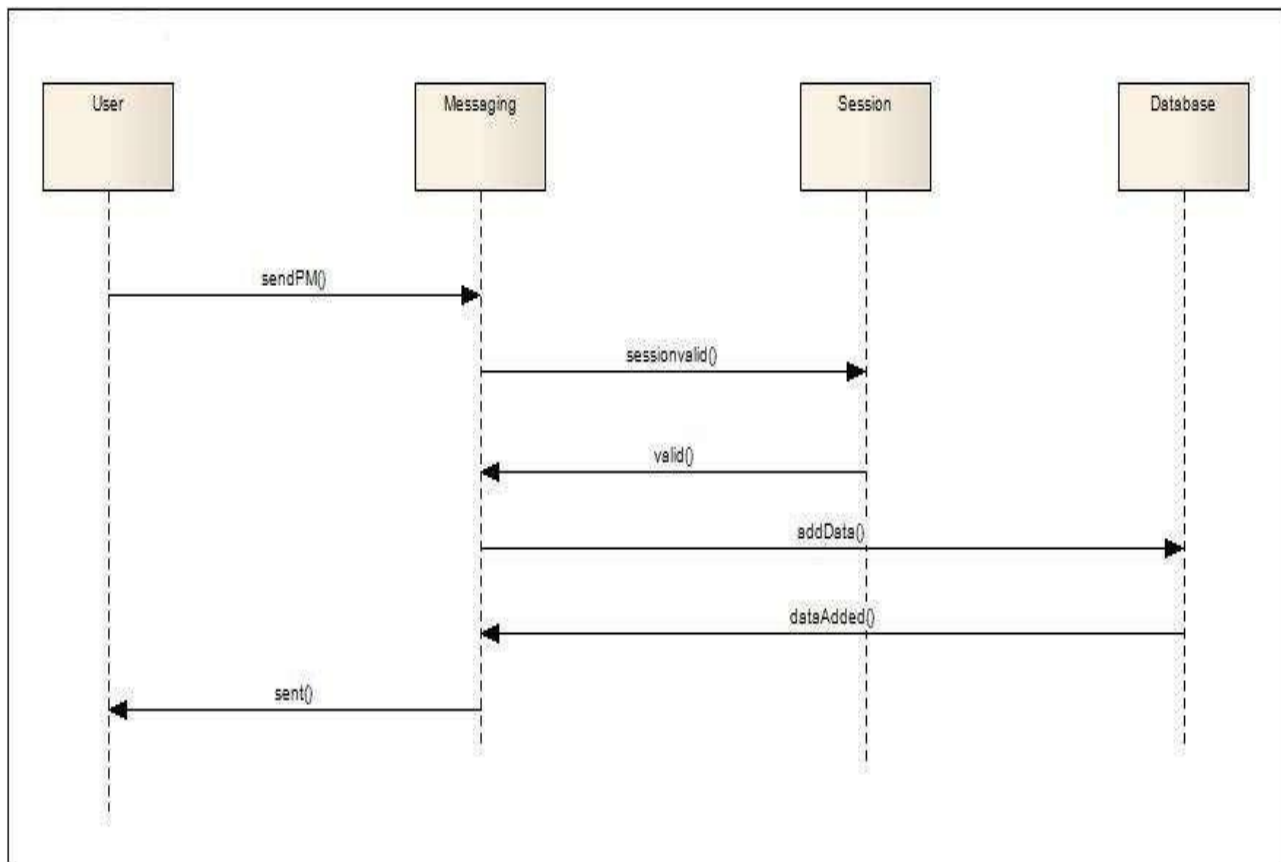
Sequence Diagrams



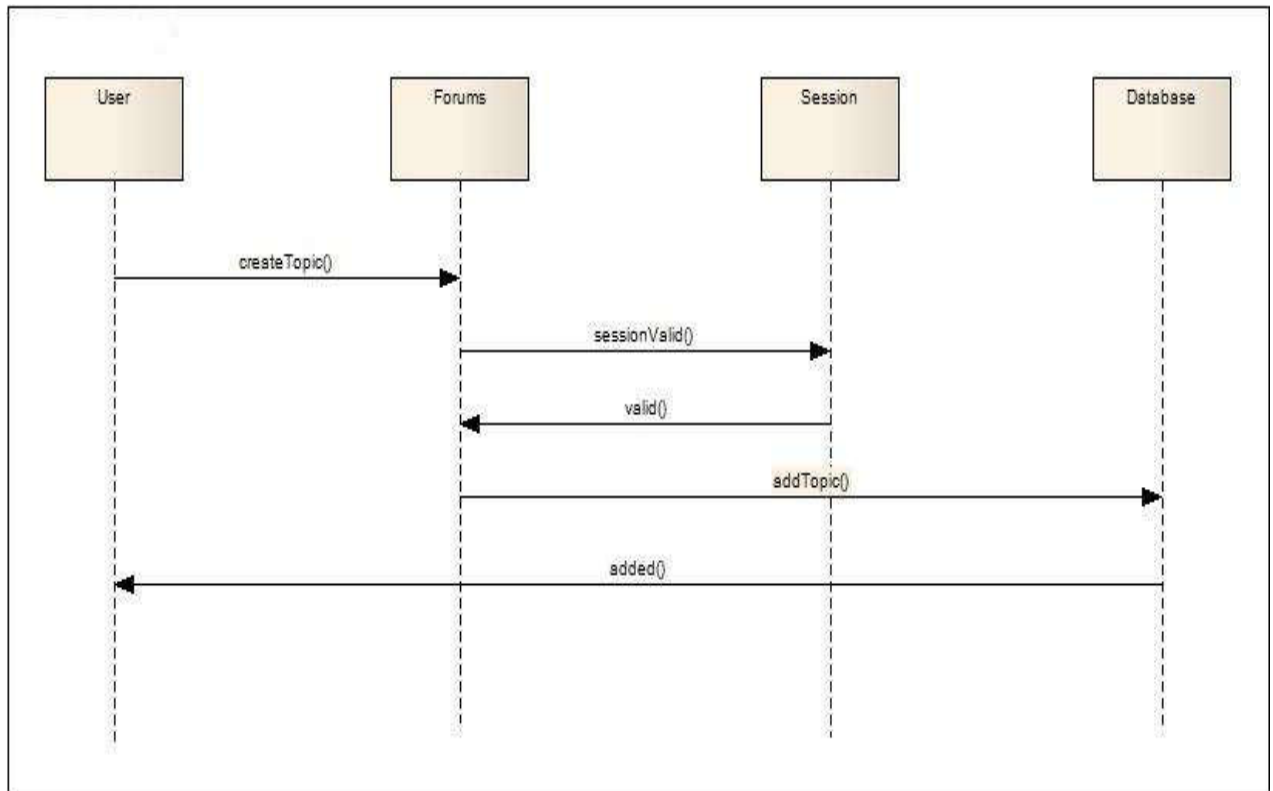
Login



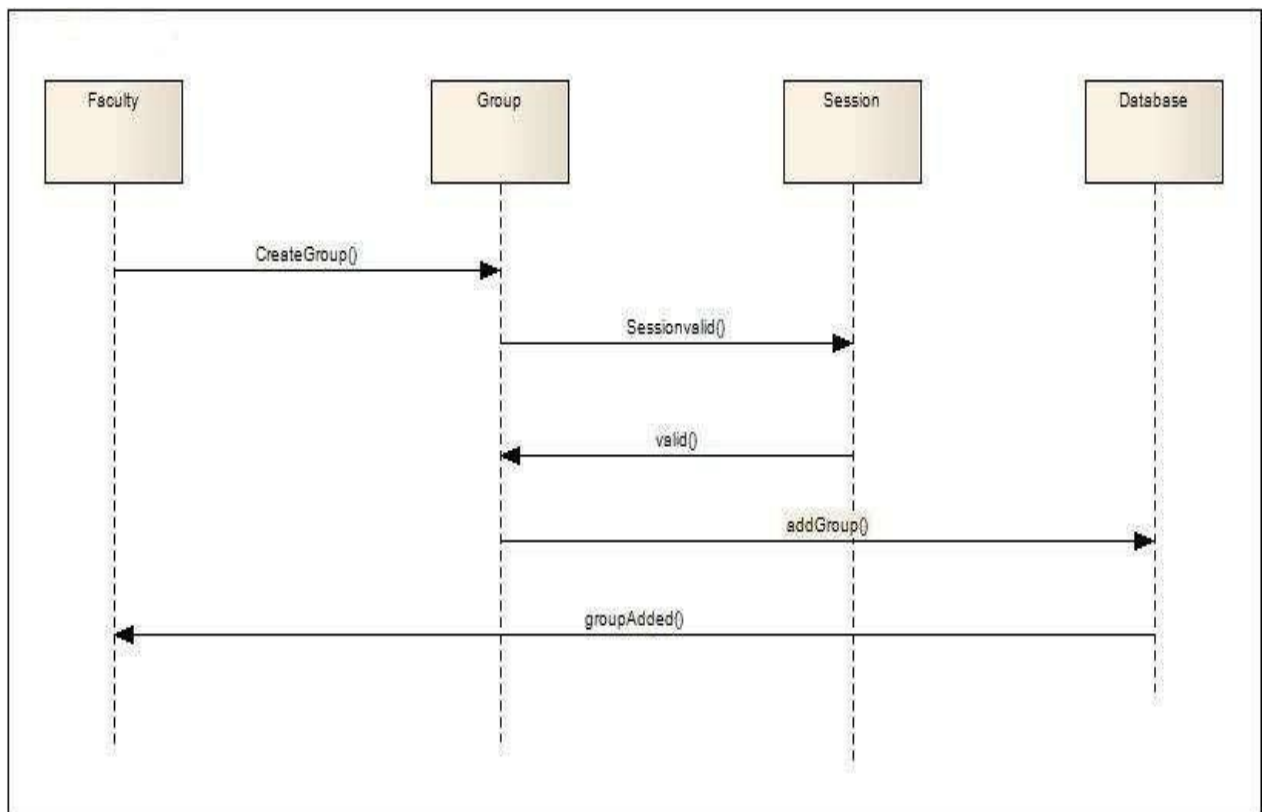
Talk



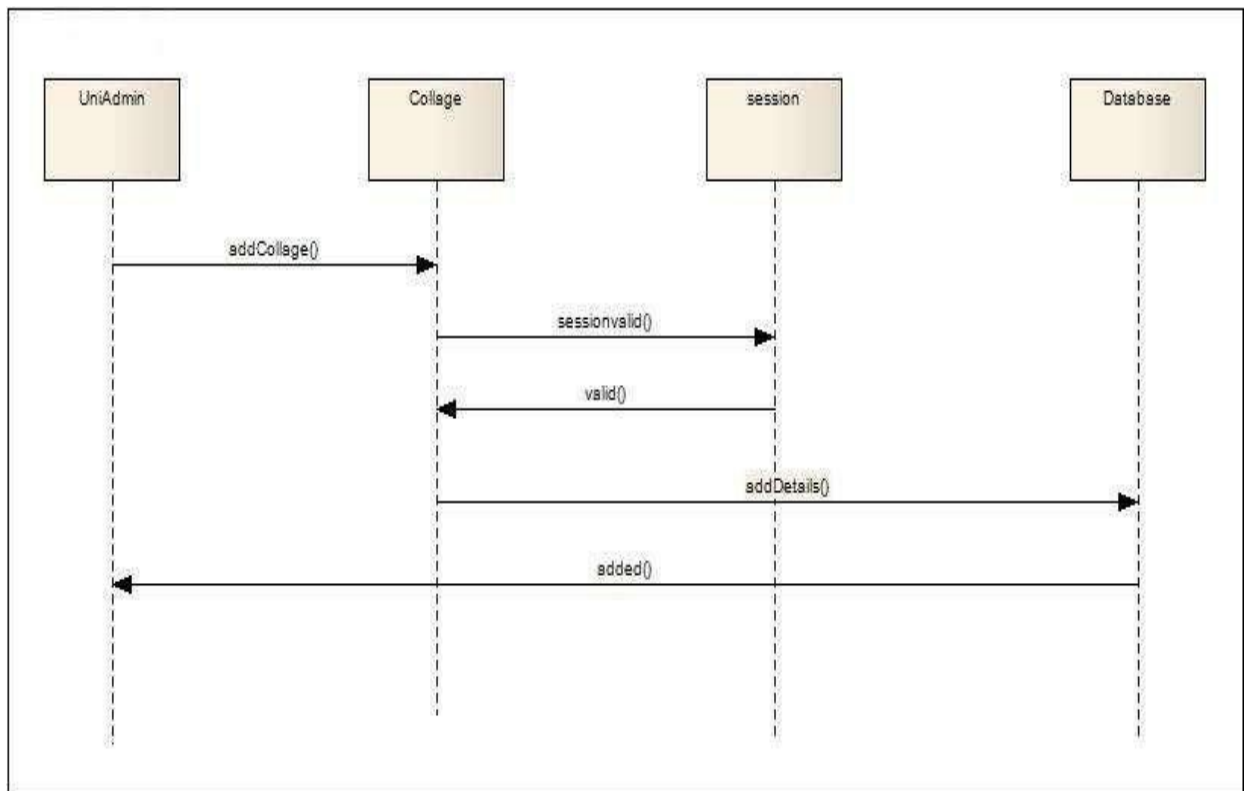
Send PM



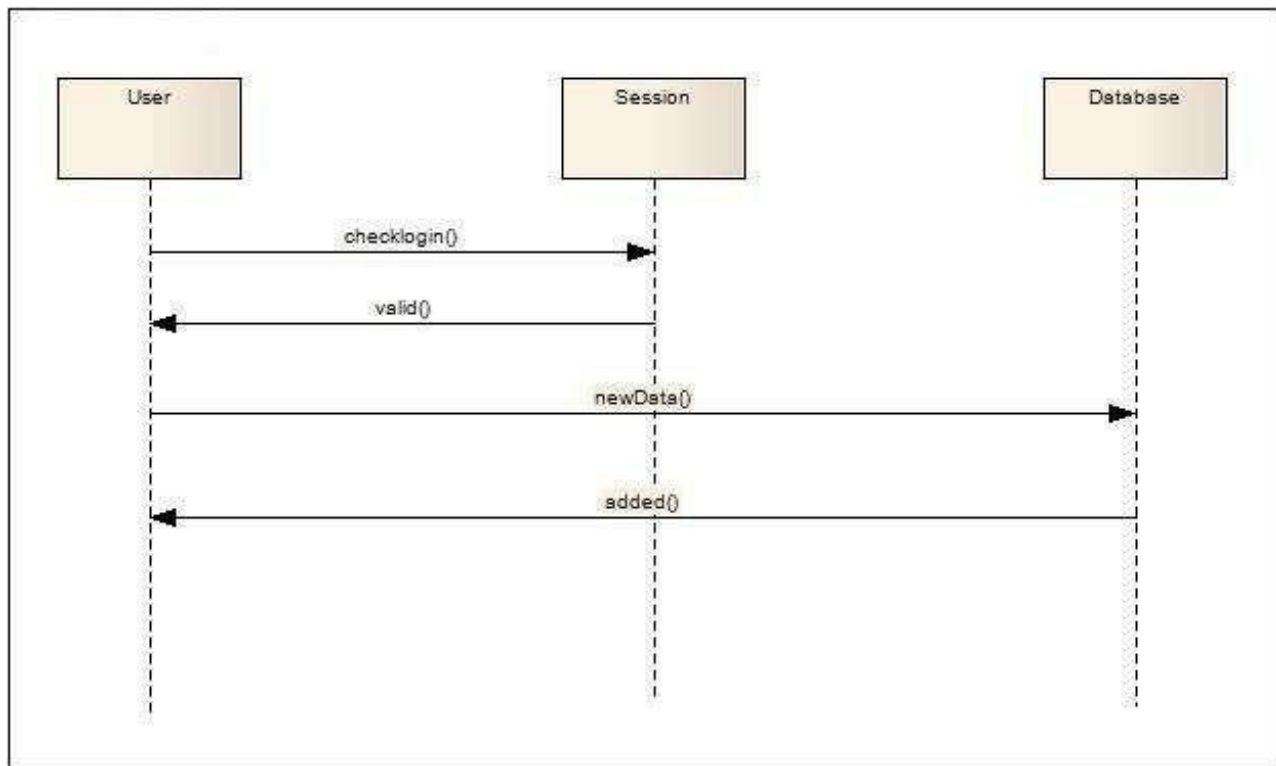
Create Topic



Group

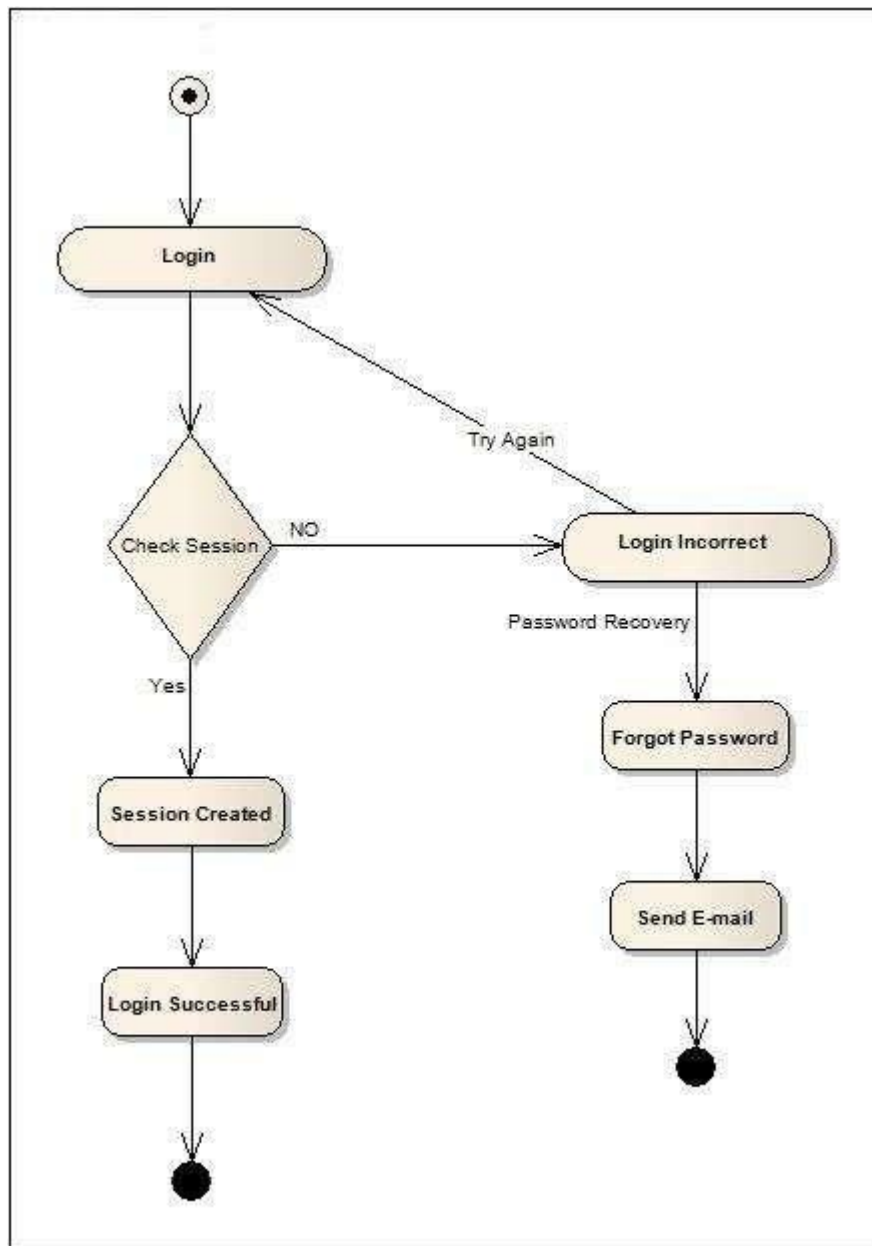


Add College

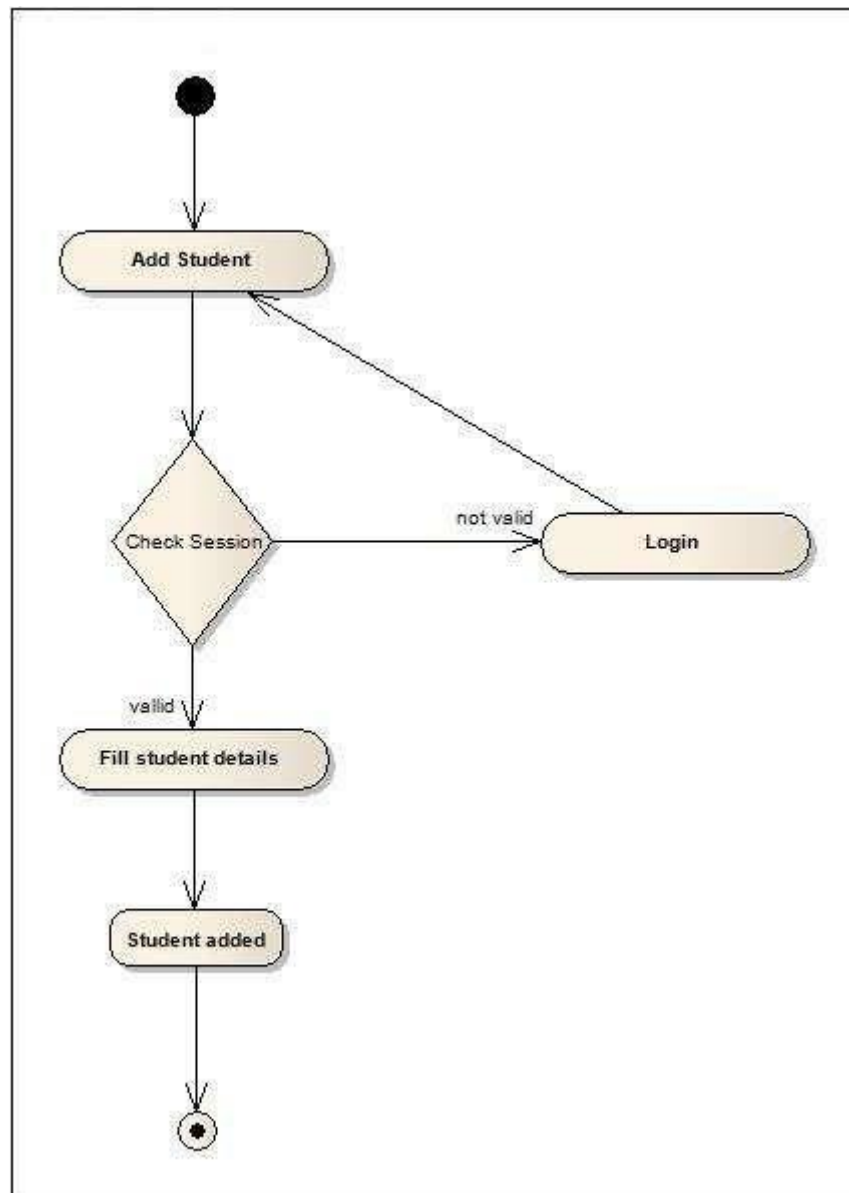


Update Profile

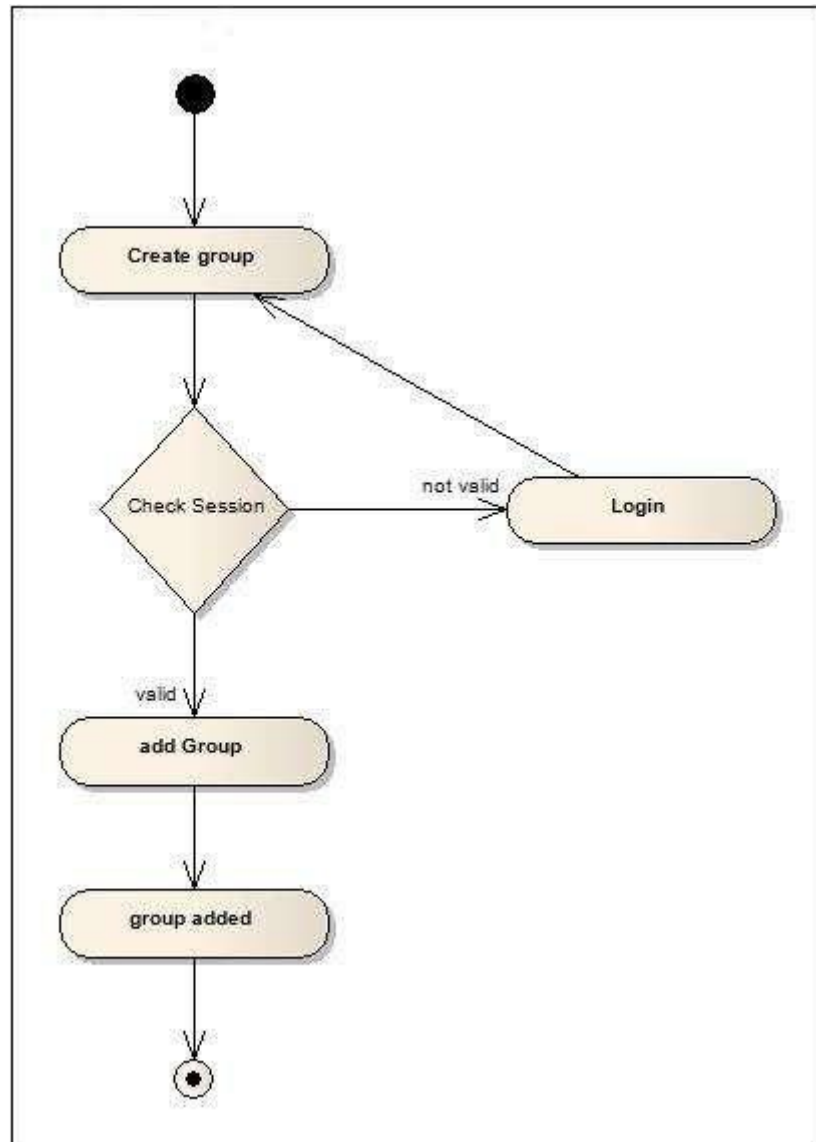
Activity Diagrams



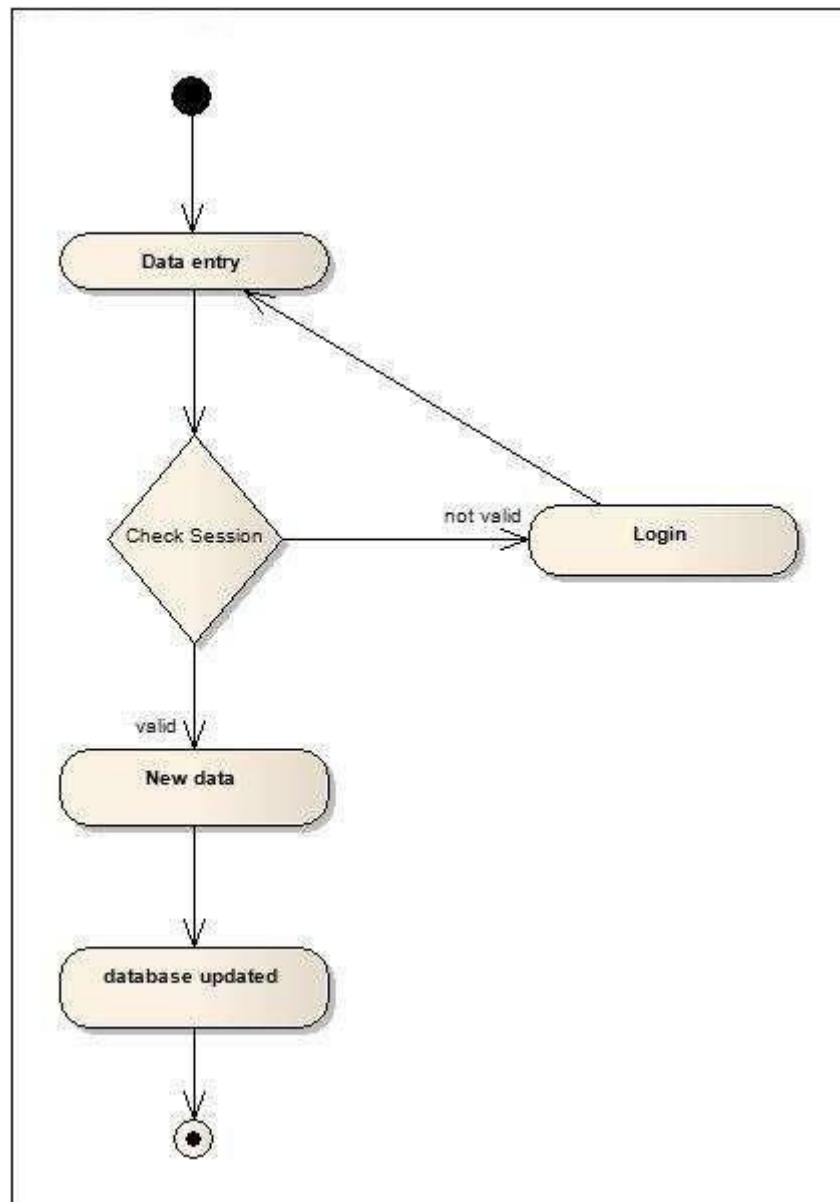
Login



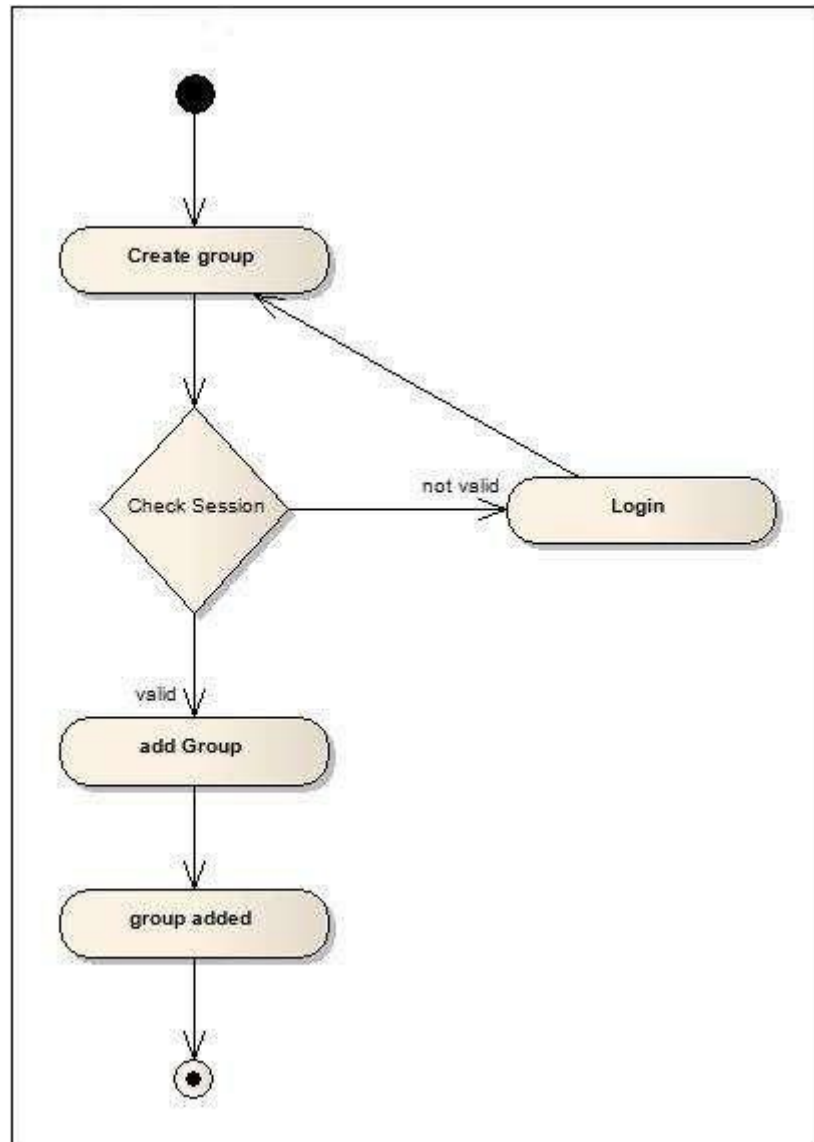
Student Entry



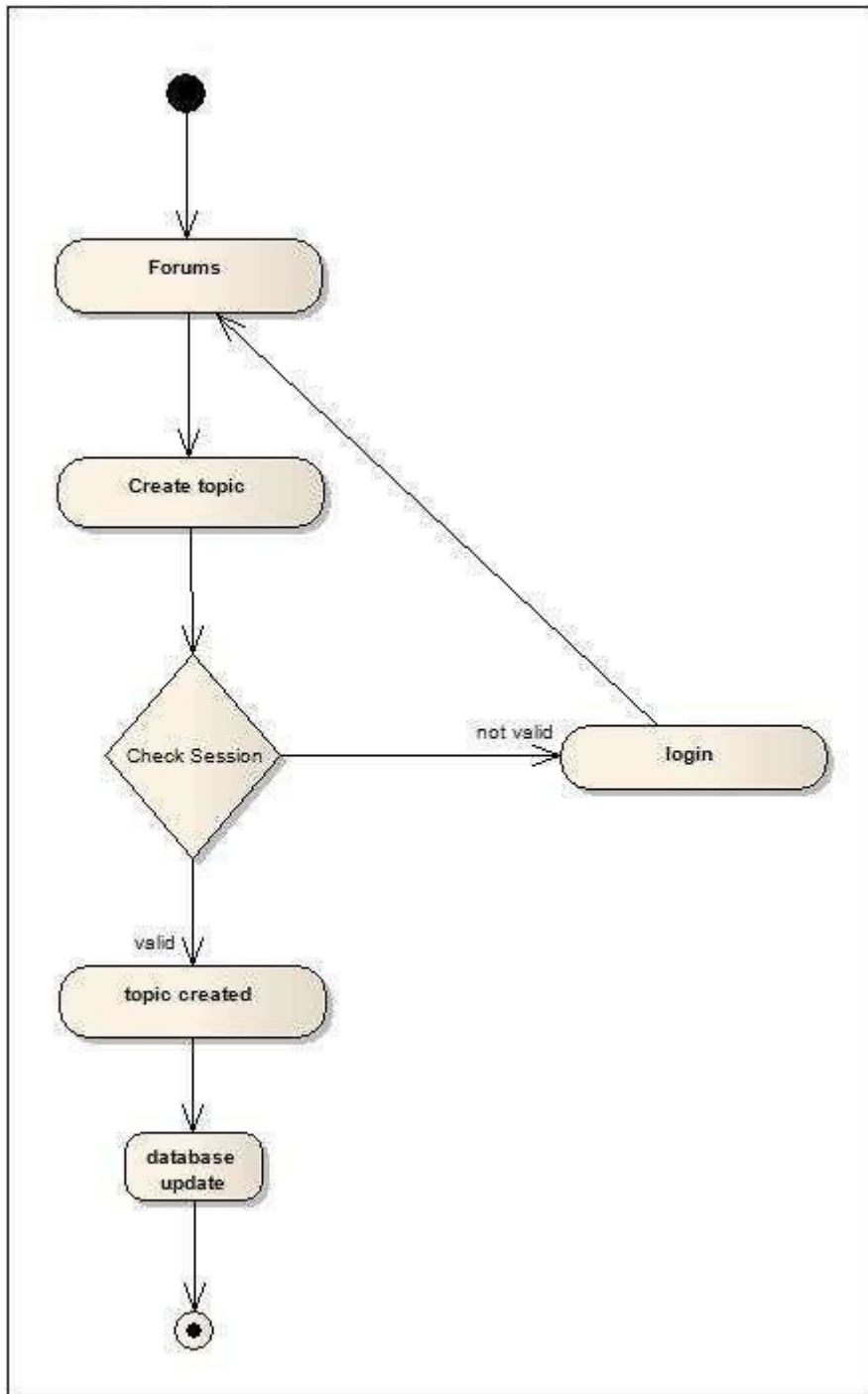
Add College



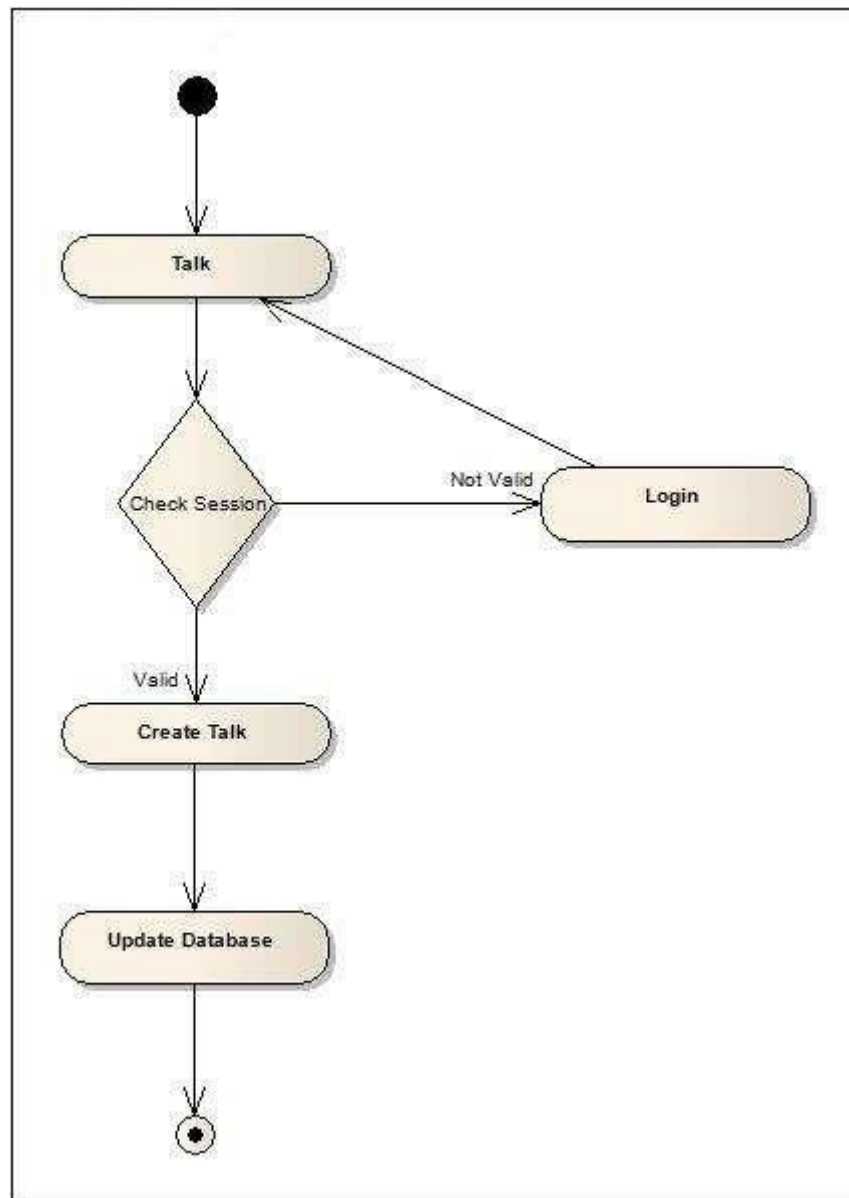
Update Profile



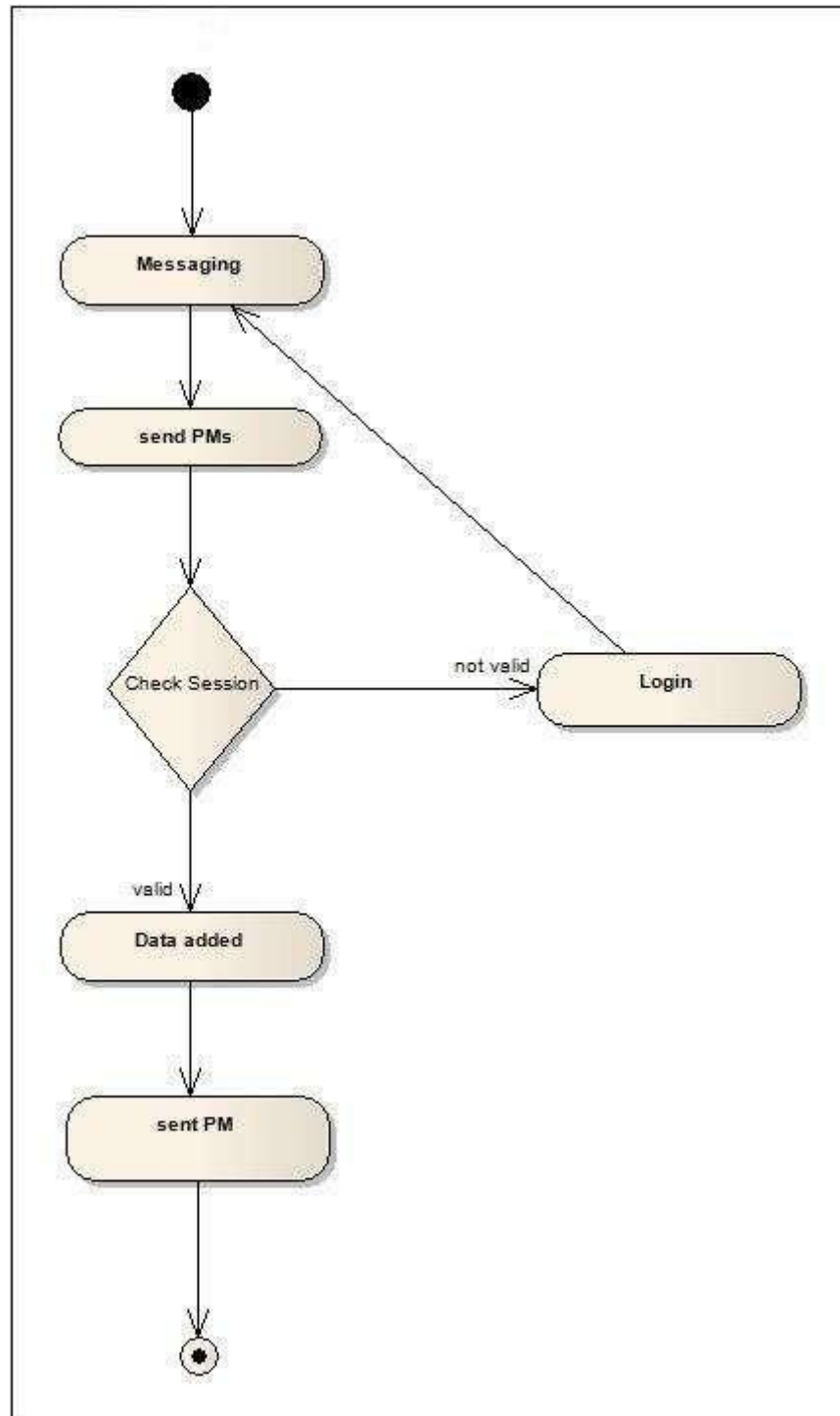
Create Group



Create Topic

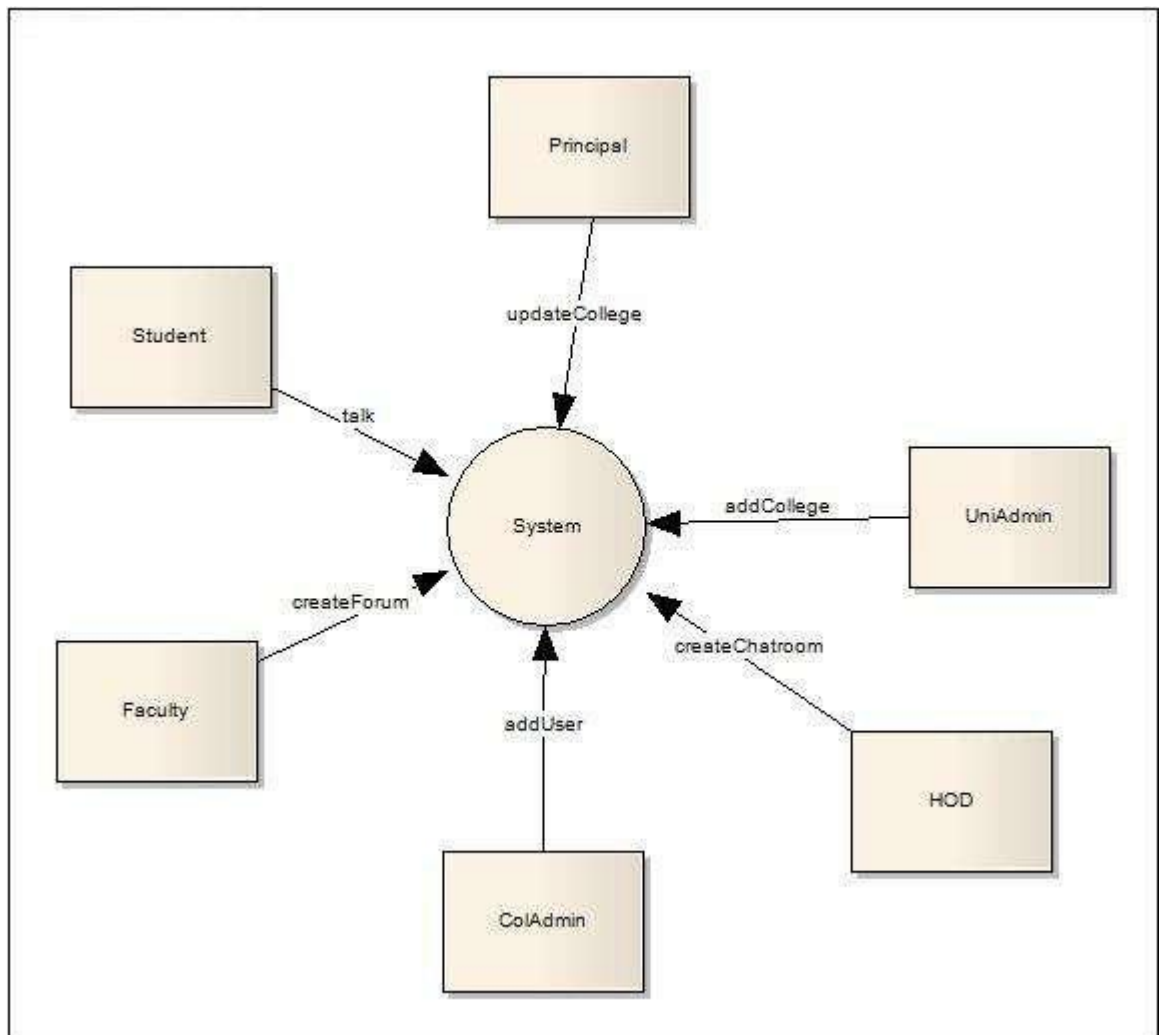


Talk

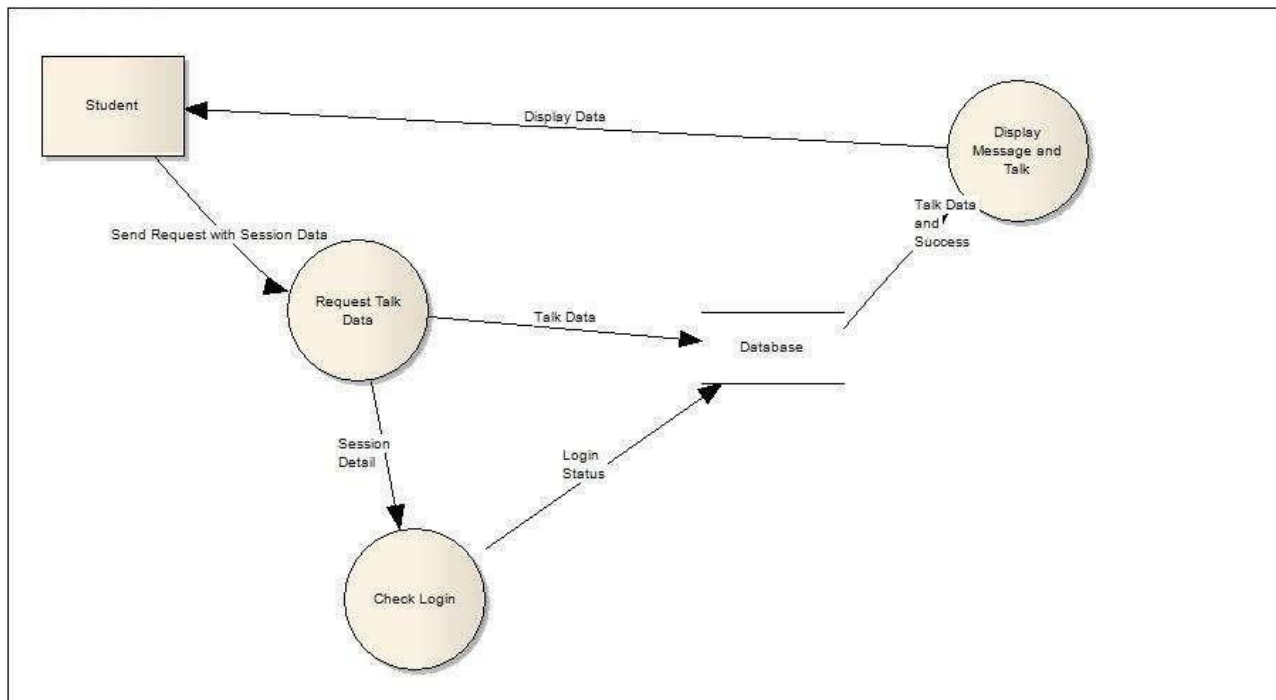


Private Messaging

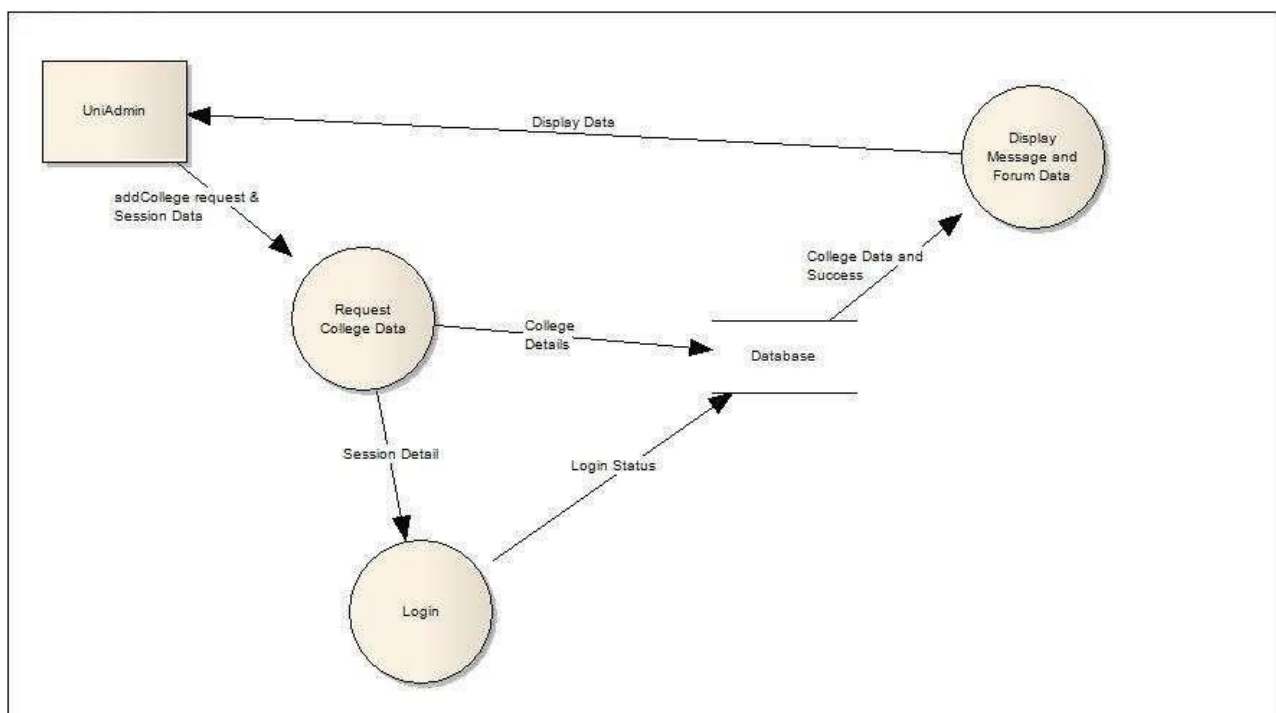
Dataflow Diagrams



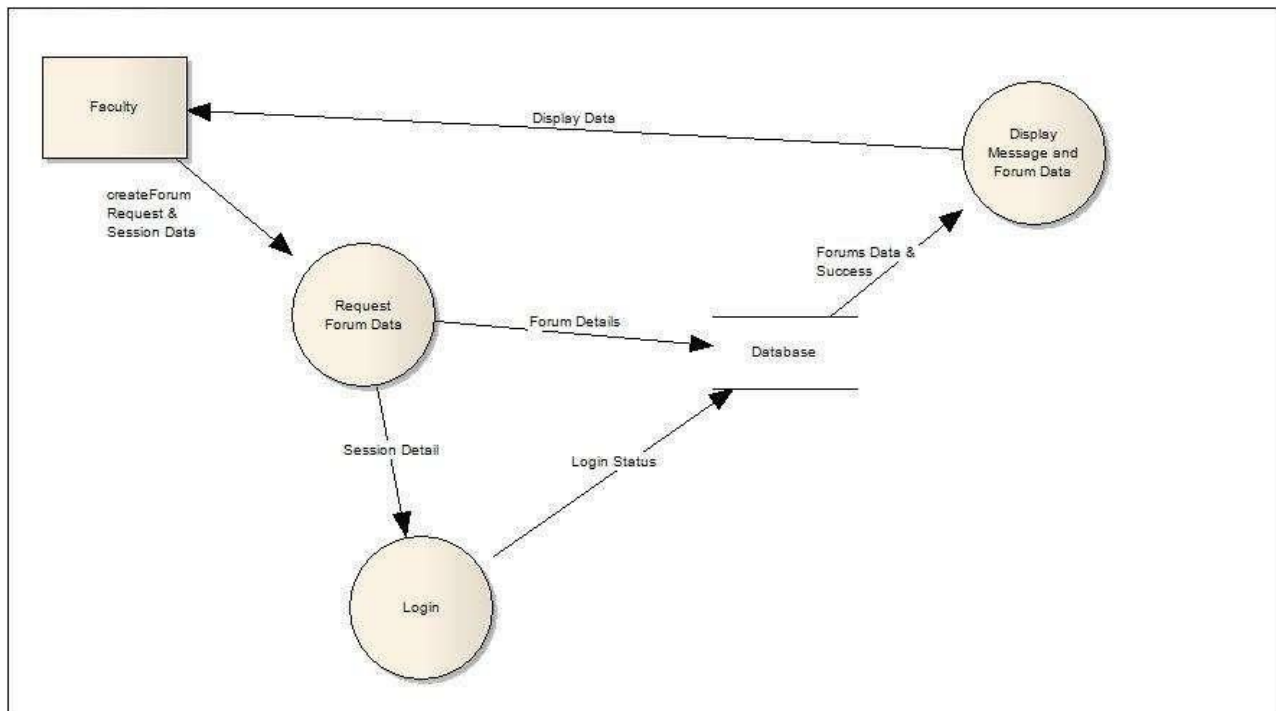
Context Level Dataflow Diagram



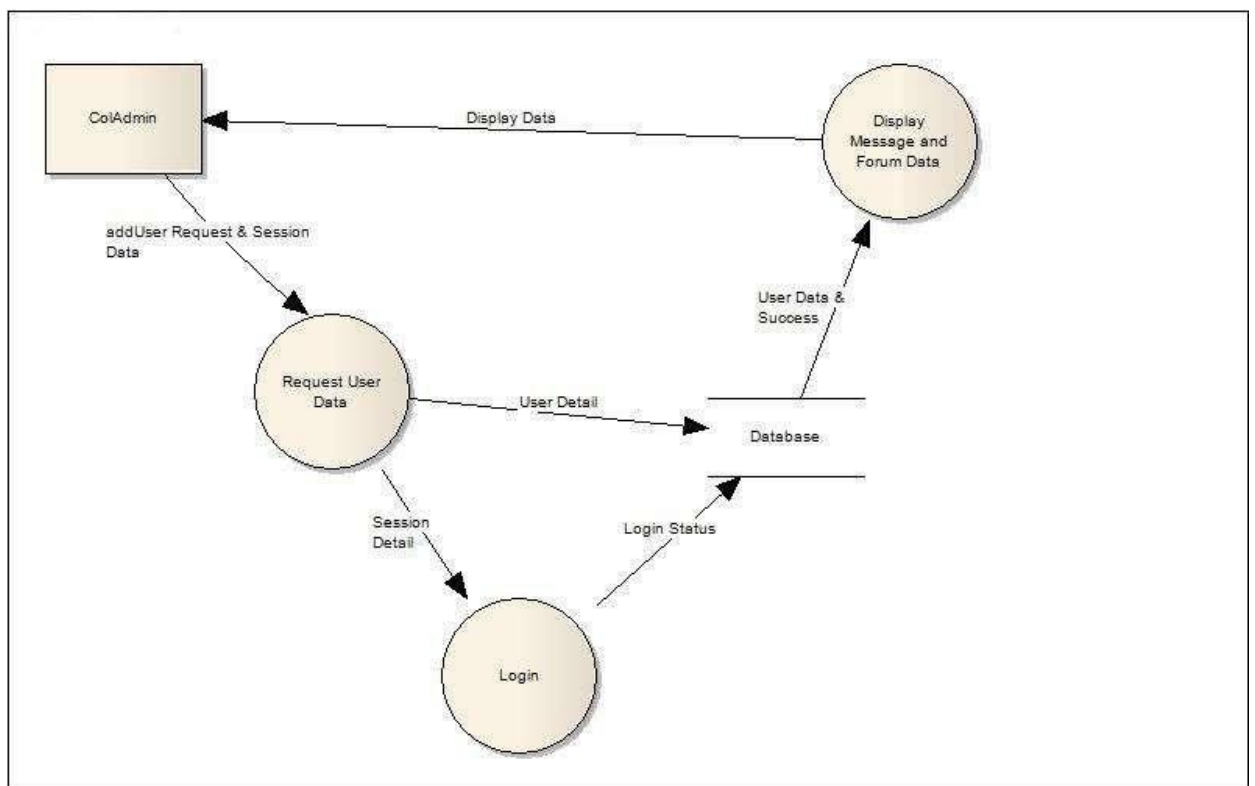
Talk Process



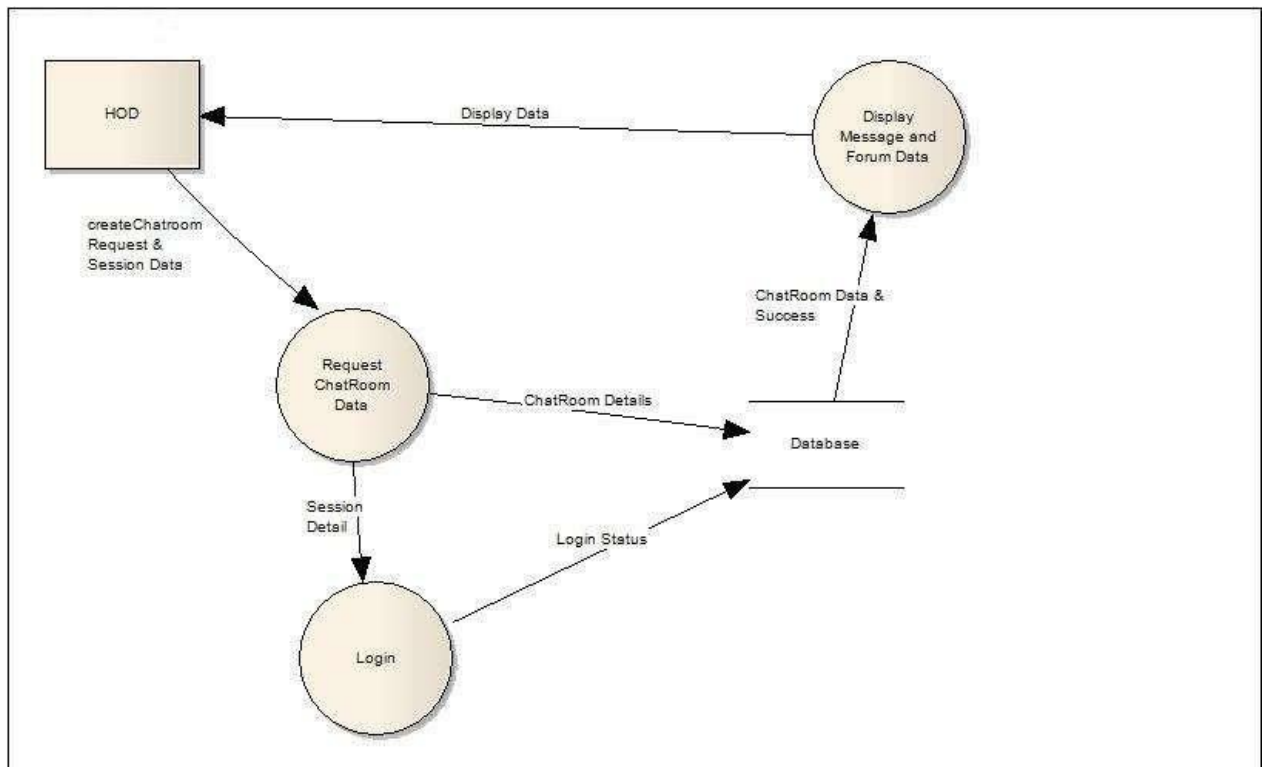
addCollege Process



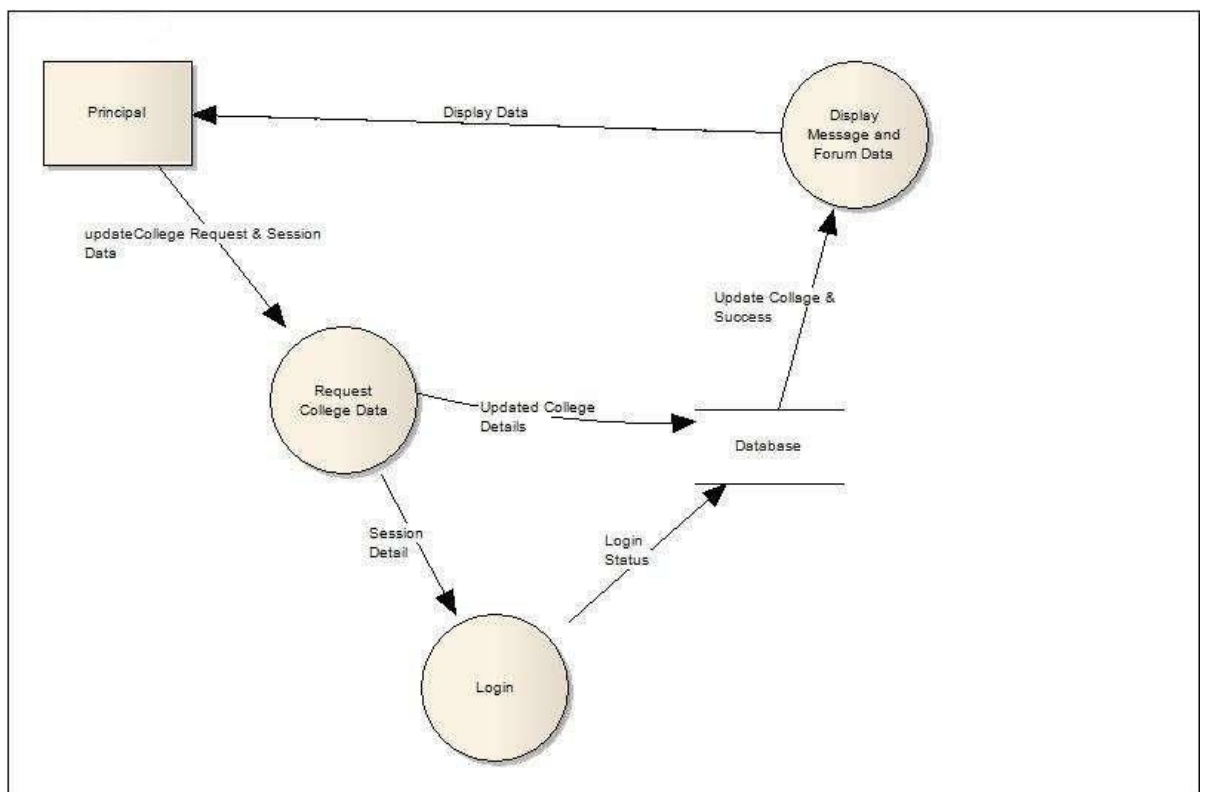
createForum Process



addUser Process



createChatroom Process



updateCollege Process

System Development

Hardware Requirement

For developing this system, system with minimum following requirements will be needed.

CPU: Dual Core CPU

Memory: 512 MB

Disk space: 200 MB

Software Requirement

For development, either Windows or Linux based OS is recommended. To test the system, a Web Server, *Apache or IIS*, will be required however any other Web Server which can run PHP will suffice. However, **WAMP Server** will be used, which is a Windows stack of Apache, MySQL and PHP.

For editing file, a simple file editor will be needed. **PsPad** will be used.

For versioning system, we will use **Git** which is a distributed versioning system so that multiple users can work on project concurrently on different branch. As an **Git** remote host, we will use, **Github** or **BitBucket**.

Conclusion

The Project Report entitled “**eduConnect**” has come to a partial fulfillment. Our team will try its best to develop the system with their level best and provide a platform to its user with great media to communicate with each other and share their knowledge.

This system will provide a great medium to Students to get help from faculties, their classmates or any persons which are connect to this system. Real time chat will allow discussions in real time or to have online meetings. Forum can be used for discussions, share information or for any type of public announcements to university.

Implementation phase will start from vacation and all other phase will be carried out upto the next semester's term end. Some time will be allocated for future extensions also.