GROUP NO: 16

Supervisor: Dr. S.C GUPTA ,College: IIT Delhi

ABDUL HADI SHAKIR (2010CS10202)
ANUBHAV SINGH (2010CS10209)
BHARAT RATAN (2010CS50280)
RAHUL NAGAR (2010CS10236)

[WEB PORTAL FOR ACADEMIC INSTITUTION-“PortAc”]

SOFTWARE REQUIREMENT SPECIFICATION

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1. Introduction

1.1 Purpose

The purpose of our web portal is to provide a single platform to handle all academic business in the institution. The primary purpose of the portal would be:

- course registration
- lecture room allotment
- academic calendar
- college wiki
- centralised admission and counselling system

1.2 Scope

Our web portal is aimed at academic institutes and any academic institute can use our portal for their academic requirements. Other than course registration system it includes a unique feature of an efficient lecture room allotment system, which can be used by institutions with scarcity of rooms. It also empowers the institution by enabling them to handle admission and counselling procedure.

1.3 Definitions, Acronyms and Abbreviations

- *PortAc* : Short for 'Academic portal' and the name of product.
- HTML : Hyper Text Markup Language
- HTTP : Hyper Text Transfer Protocol
- LAN : Local Area Connection
- ID : Identity
- E-R Diagram : Entity-Relationship Diagram

1.4 References

- [IEEE] SRS Template: The applicable IEEE standards are published in "IEEE Standards Collection," 2001 edition.
- The principal source of textbook material is: "Software Engineering" by Ian Somerville (8th Edition, Pearson Education)
- www.stanford.edu : Academic portal of Stanford University, to gain idea about academic portal.
- https://wiki.iitd.ernet.in/mediawiki : IIT Delhi's wiki page.

1.5 Overview

Our web portal will be an online login based system where each student and professor will get a unique id and password. There will be some features open to guest users too. Any institute can use the portal by customizing the features that best suits their needs.

2. Overall Description

2.1 Product Perspective

2.1.1 System Interface: *"PortAc"* will use centralized server hosting the web portal, database for courses, user profiles, applicants (for admission purposes), room details etc. Client from remote locations can connect to server and all the data processing will be done centrally.

2.1.2 User Interface: The user interface of "*PortAc*" will be a webpage (in HTML) that will allow users to choose among following options:

- User Login

  All the users will be provided with a unique user ID and password. Users are supposed to enter their designated ids and the system will, after the authentication check, redirect to the homepage. The users will also have to pass a captcha. The homepage will consist of the following:

  - Profile page containing users; academic information, personal details.
  - Course registration page for students: It will contain the information about the courses done and being currently pursued by the students. It will also deal with the primary course registration process which is active only during the registration period of the session. The course registration process shall work in the following way:
    - The user shall be able to see the list of all floating courses with all information about the course e.g. slot, professor, course overview, pre-requisites.
    - For each semester, the student will get 6-8 course slots to opt for the courses. Each slot/block could contain at most one course which can be chosen from the drop down list provided for the designated slot.
    - After selecting a course, the user will be checked for the pre-requisites from his academic database. He can always request for relaxation if the pre-requisite are not met, which then be approved by concerned authorities.

    - The user is allowed to put preferences for the courses.
    - The user can also withdraw any course before the withdrawing deadline.
    - In the end, the system will do the following checks; pre-requisite, non clashing slots, credit limit, availability of the seats.
- If the user is a faculty member, then he will be provided with a different interface. The interface will incorporate the lecture room booking/allotment system wherein the faculty member will be shown all the relevant available resources. The faculty member shall be able to put a request for available lecture theatres with his corresponding requirements. The request shall be sent to the administrator who will then decide based on the prioritization, availability and efficient utilization of resources in this order. At any point of time, the faculty member shall be able to see his/her application status. The faculty member shall be notified the final decision.
- Current semester course information page: It will contain the weekly/monthly schedule of the courses being currently pursued by the user. It will also provide the links to course pages. If the user is a faculty member, then he will be provided with editable course pages which will also incorporate lecture slides, tutorials.

- Introduction about the institution: This will be a page containing information about all the relevant stuff e.g. administrative, academic, student activities and collaboration with universities, research labs and companies. It will also have information about the alumni affairs of the institute. There shall be a standard user friendly interface.

- College wiki: It will be the collection of information pages related to the college. Every user will have the freedom to edit a college wiki page which then needs to be approved by a certain number of authentic users. The interface will be a standard Wikipedia

- Academic Calendar: It will have the information about all the important dates of the institution. Important date includes dates of academic importance (e.g. minors, majors, convocation etc), holidays and dates of important events in the institution.

- Admission/Counselling: The interface of admission/counselling process will be a standard dedicated page especially designed for best user experience. For any new user, there will be an option to register for the admission process. He has to go through the admission process of the institution and he will be notified about his application status on the website itself. Once selected he/she shall be able to access the counselling services.

- FAQ : It will have database of some most frequently asked questionnaire with their answers.

2.1.3 Hardware Interface :

Server Interface : The webportal will be hosted on the server provided by the college. The networking will be handled by the college LAN. For the purpose of this course this will be built on localhost.

Client Interface : Client will connect to the webportal from their individual machines. This will require the machine to be connected over LAN or internet.

2.1.4 Software Interface :

Server Interface : The already developed *Apache HTTP* server will be used for the purpose of hosting the portal. This will typically be run on a UNIX-like operating system. For our project in particular we will use the IIT Delhi's Apache server for hosting the portal.

Client Interface : Client will need a compatible web-browser for connecting to the server. Browser should be java-script enabled. Mozilla Firefox (3.0 or above), Internet Explorer (6 or above), Chrome (all versions) and Safari (3.0 and above) are recommended.

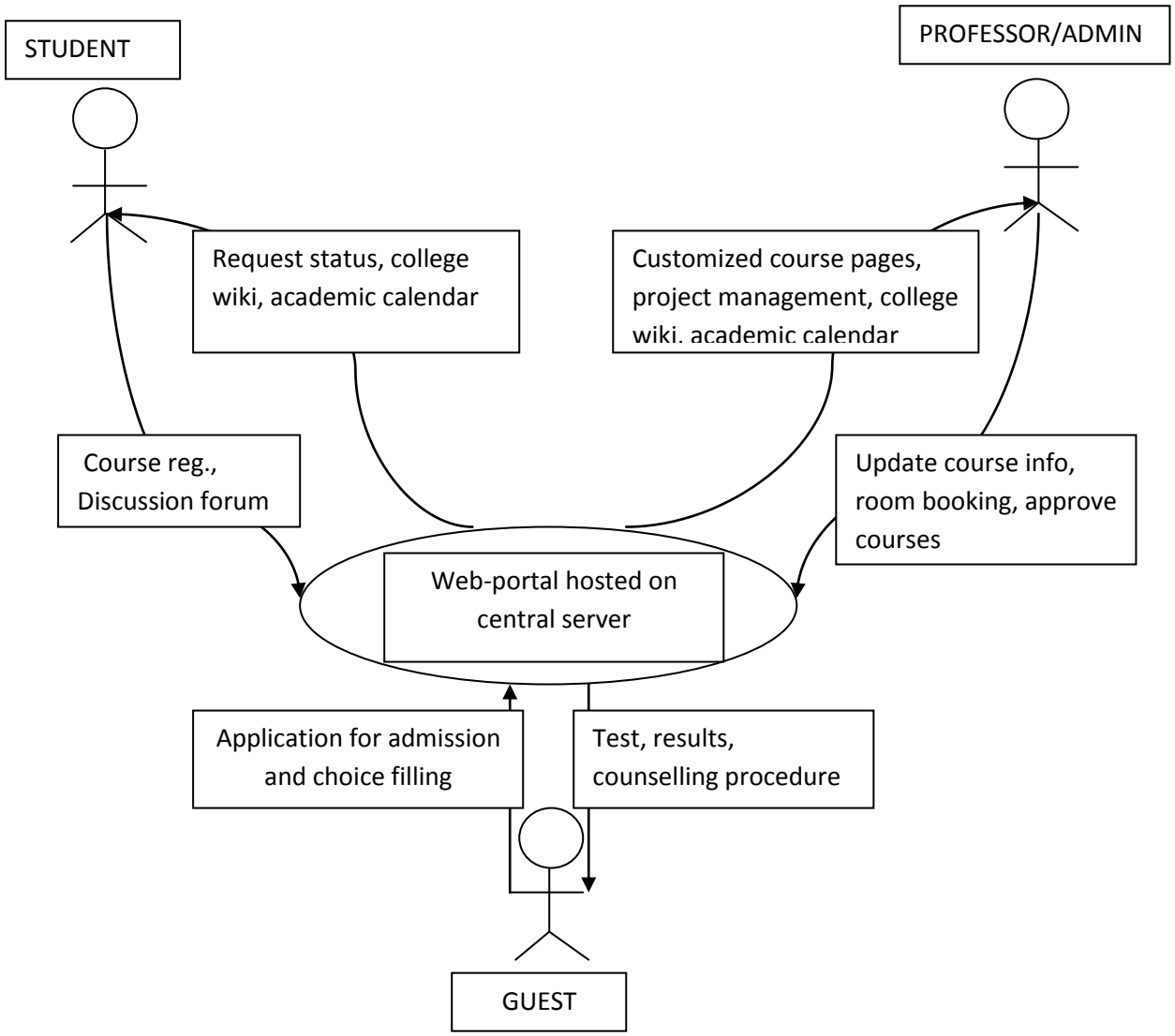
2.1.5 Communication Interface: Since the server is hosted over internet from the institute's LAN, the client should be connected over this LAN or the Internet in order to connect to the server. We will be using HTTP protocol (1.0 or 1.1) to facilitate communication between server and client.

2.1.6 Memory Constraints : Maintaining database records for users will use up considerable amount of memory. But for our project, where we will be using the already set and tested server, and with limited users we do not expect any shortcoming of memory resources.

2.1.7 Operations : The portal can be accessed by anyone but access to its various features will be governed by *different levels* of access rights. For instance, students can only view course information pages, professors can view as well as edit whereas a guest user can neither view nor edit course information pages. Same is the case with mailing system, college wiki etc.

2.2 Product functions:

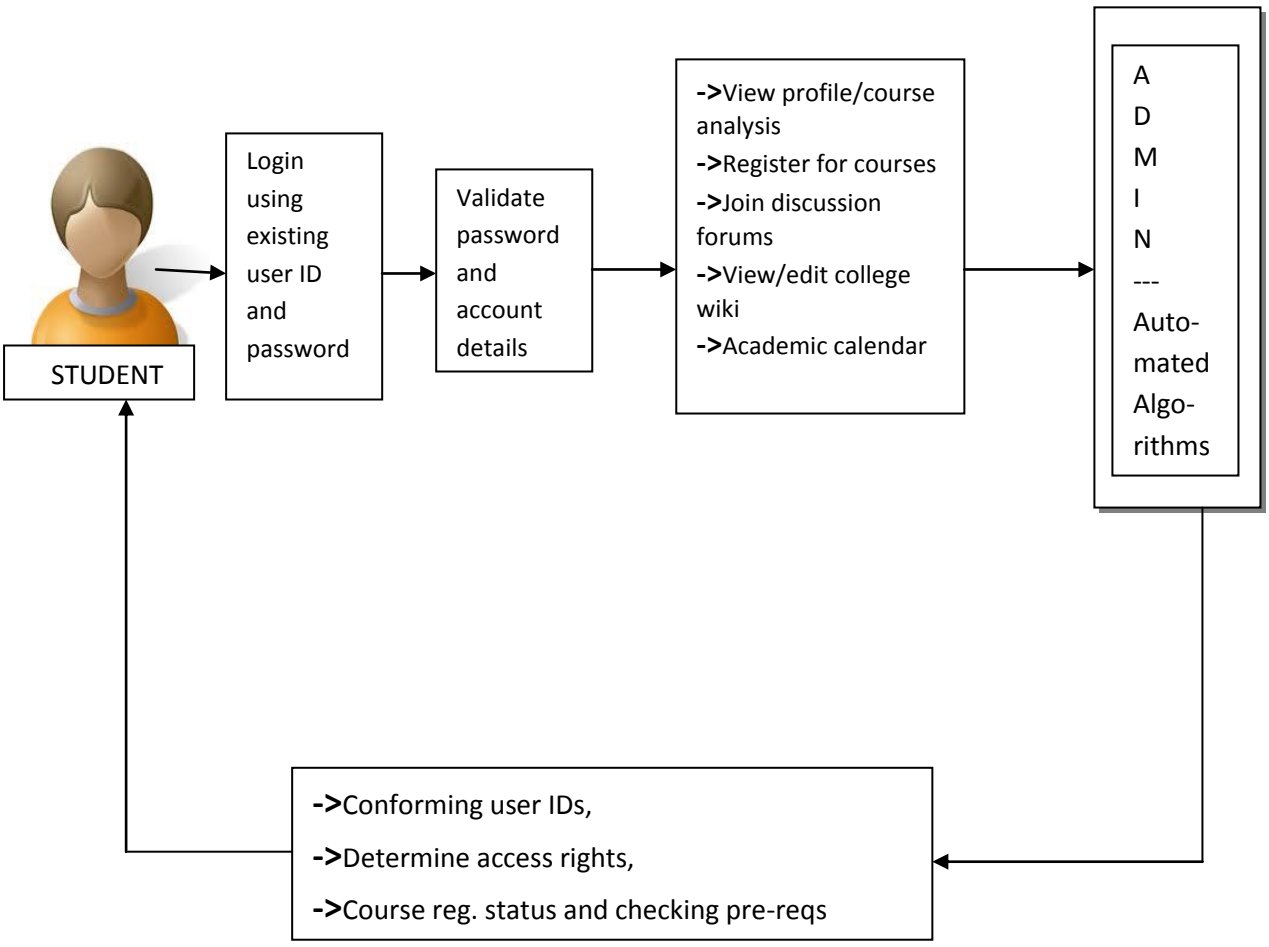
2.2.1 Context Digram



Context Diagram

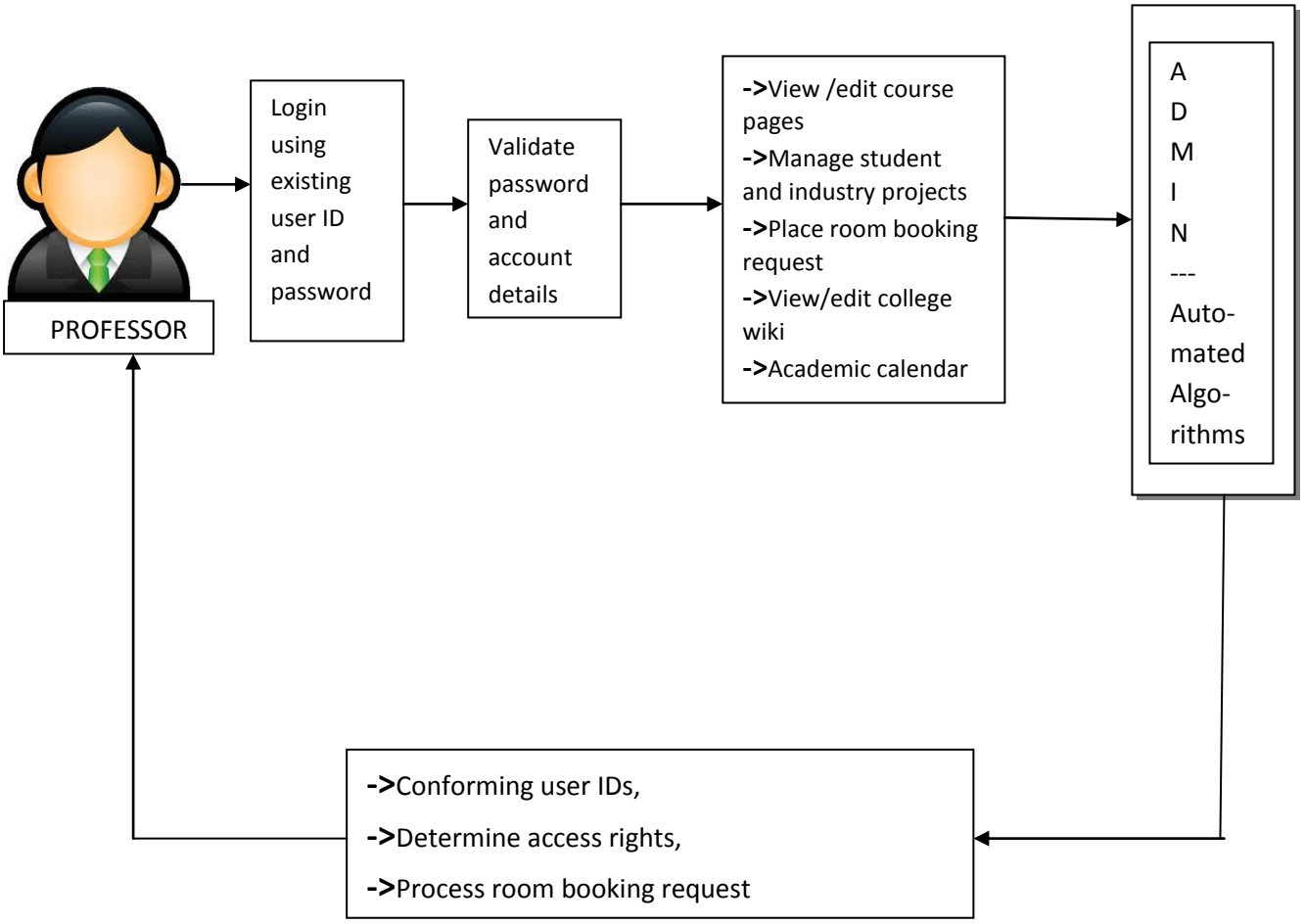
2.2.2 Use-case diagram

2.2.2.a) Students



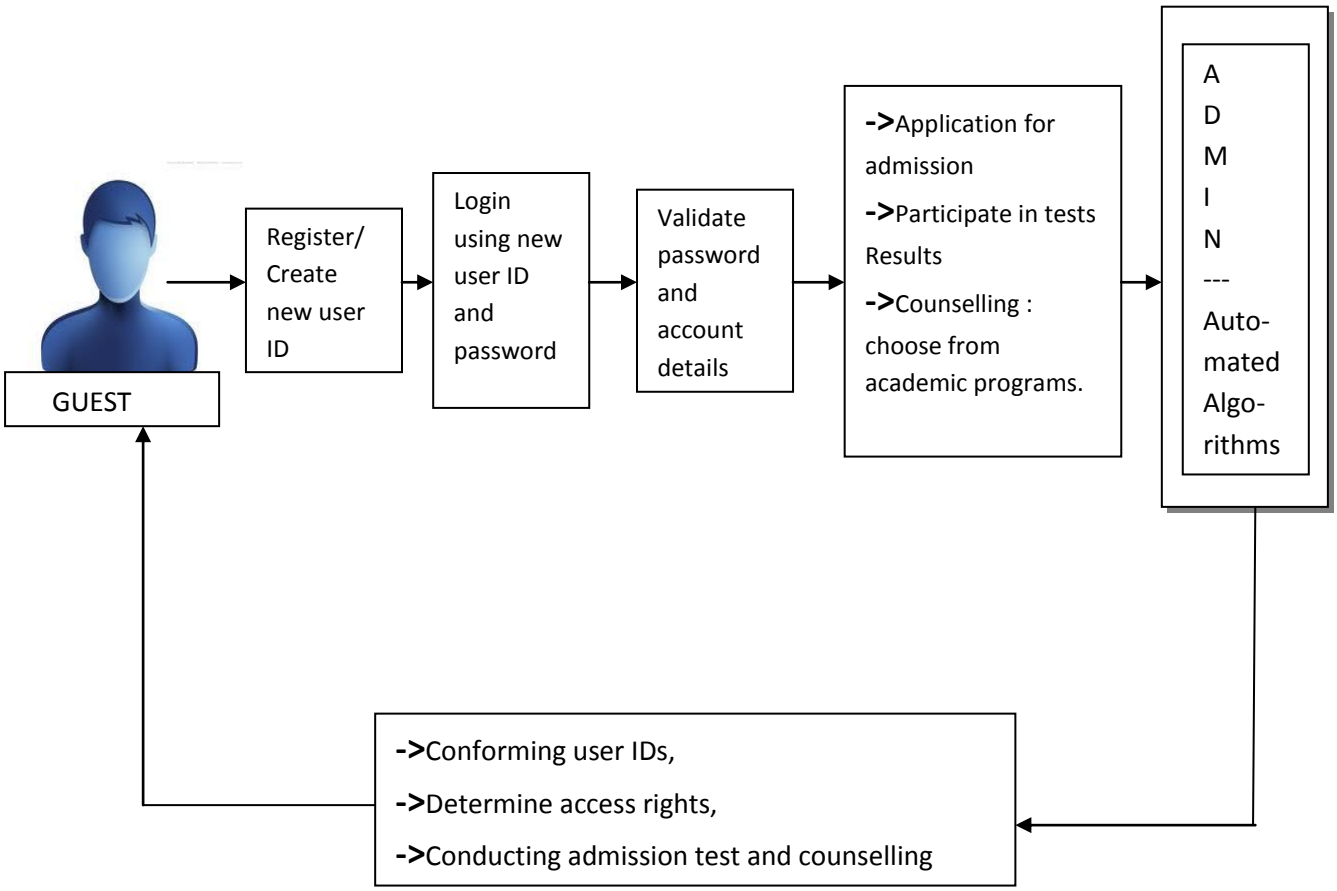
Use case diagram for student

2.2.2.b) Professors



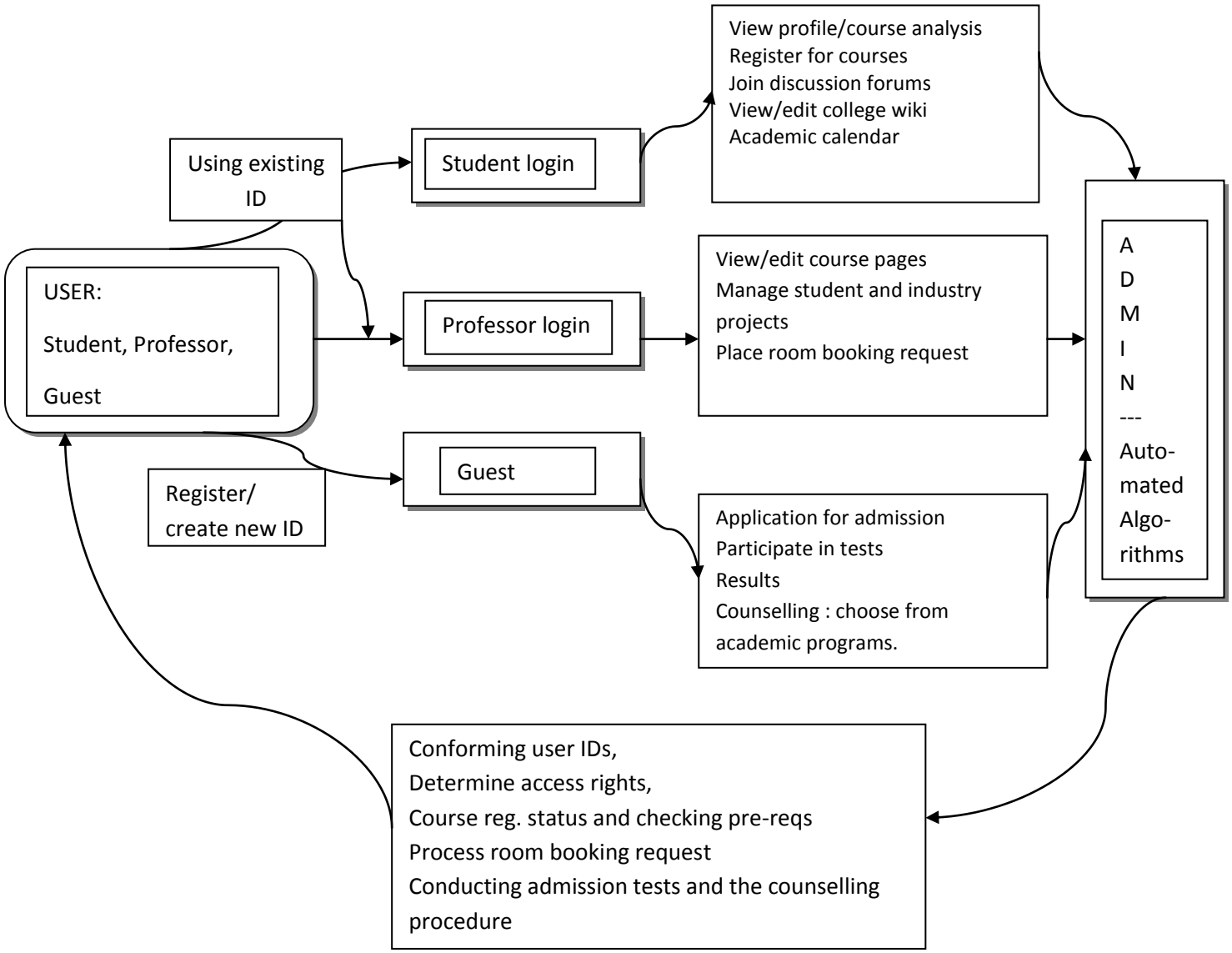
Use case diagram for Professor

2.2.2.c) Guest



Use case diagram for Guest

2.2.2.d) Integrated use case diagram

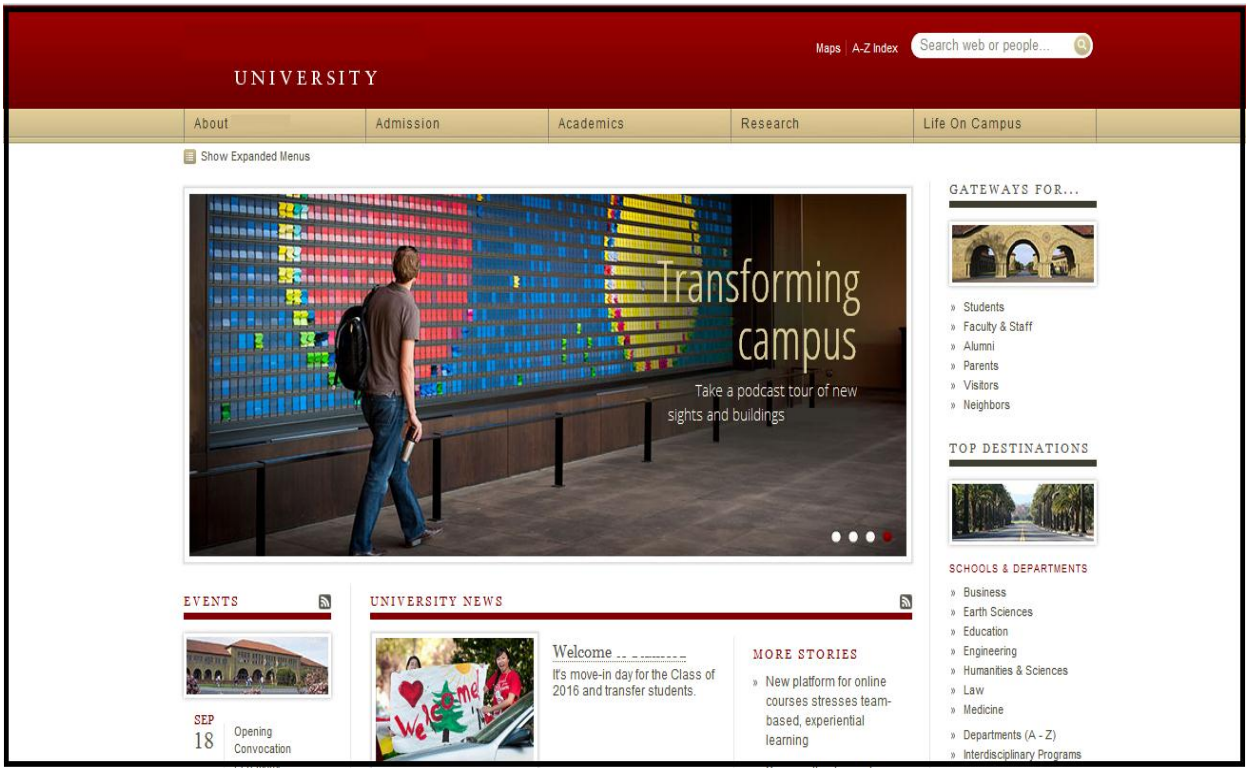


2.3 Constraints: The system takes into account different levels of access rights. Users are not allowed to remove/modify any content of the system until he has sufficient permissions**.** Some of special rights stays with admin. Admin can remove any user at any point of time.

2.4 Assumption: The existing users have already been designated unique user IDs and passwords. It not the job of system to generate account for existing users. It only generates account for guest users for admission/counselling purpose.

3 Specific Requirements

3.1 External Interface



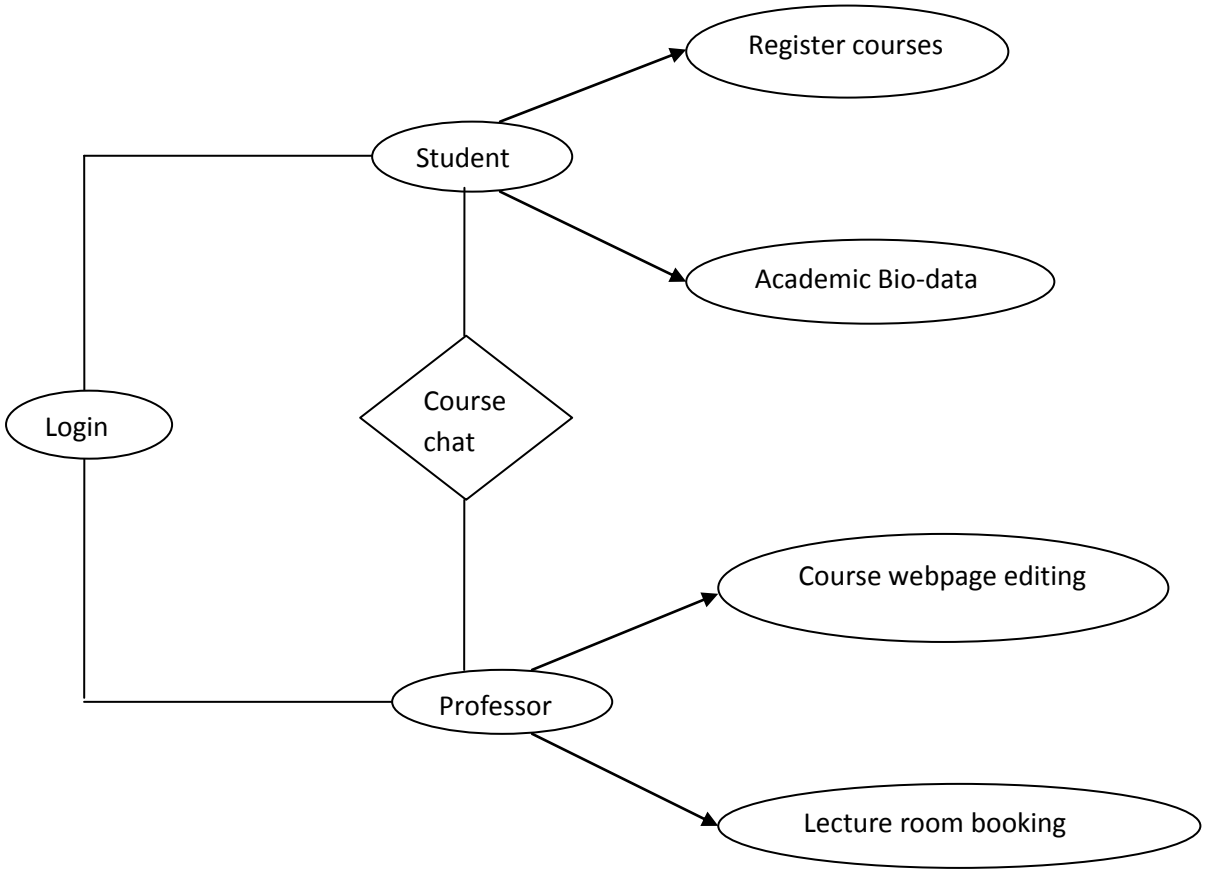
EXTERNAL INTERFACE OF WEB PORTAL

3.1.1 Login Information: If the user is a guest than he does not need to log in rather he can access all the public information from the homepage. Professors or students have to log in with their designated username and password.

3.1.2 Few Links: There will be few links which will be open for every user. Some of them are listed below:

- **College wiki**: It will be the collection of information pages related to the college. Every user will have freedom to edit a college wiki page which then needs to be approved by a certain number of authentic users.
- **Academic Calendar**: It will have the information about dates of all events in the institute throughout the academic semester/year.
- **Admission and counselling**: There will be a link for the students to register for the purpose of entrance and further counselling.

3.2 Functional Requirements



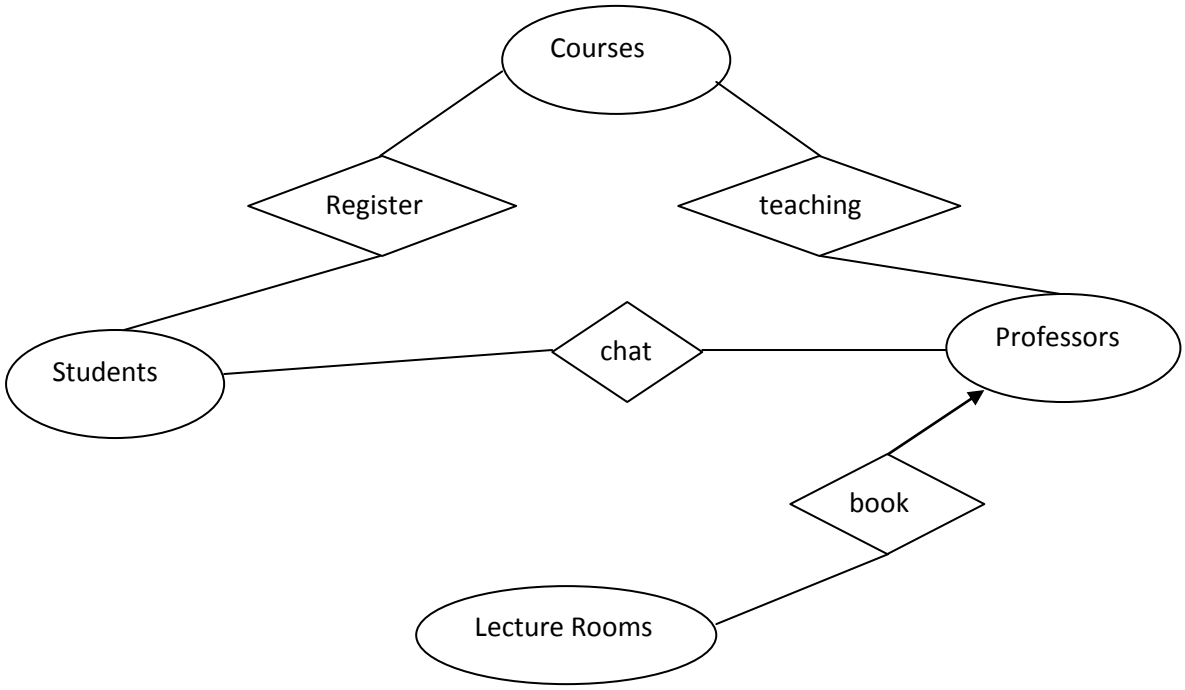
3.3 Performance requirements:

The portal should be able to accommodate a large number of users at a time. It should be fast enough to respond to queries, that is, processing should be fast.

3.4 Logical Database Requirements:

We will keep three databases viz database of users, courses and lecture rooms. We will further divide our user database into students and professors. Therefore, we will keep four

databases. We will follow integrity constraint i.e there should not be any discrepancy in data at any point of time. Following **E-R diagram** shows a logical picture of our database structure.



3.5 Design Constraint

There is a constraint on time as we are to spend around 30 hrs each.

The portal should not look very messy and should be user friendly.

We cannot include too much information about anything as it would require more time in processing and will use more database (as we are talking about a very large database).

3.6 Software System Attributes

3.6.1 Reliability

Our web portal should be highly reliable because it is concerned with student course registration and any discrepancy in courses may lead to serious issues with degree. Room allotment should be reliable as well because non-reliability may lead to conflicting lectures.

We will try to keep our portal very reliable by using reliable algorithms and by keeping out results cross checked if possible.

3.6.2 Availability

For the purpose of course it will be available on iit servers and anyone inside iit can browse it.

3.6.3 Security

The database should be and will be kept secure so that there is no leakage of private information.

3.6.4 Maintainability

The web portal needs to be maintained by an administrator to look at issues with course registration and room allotment(in case of conflicts).

3.6.5 Portability

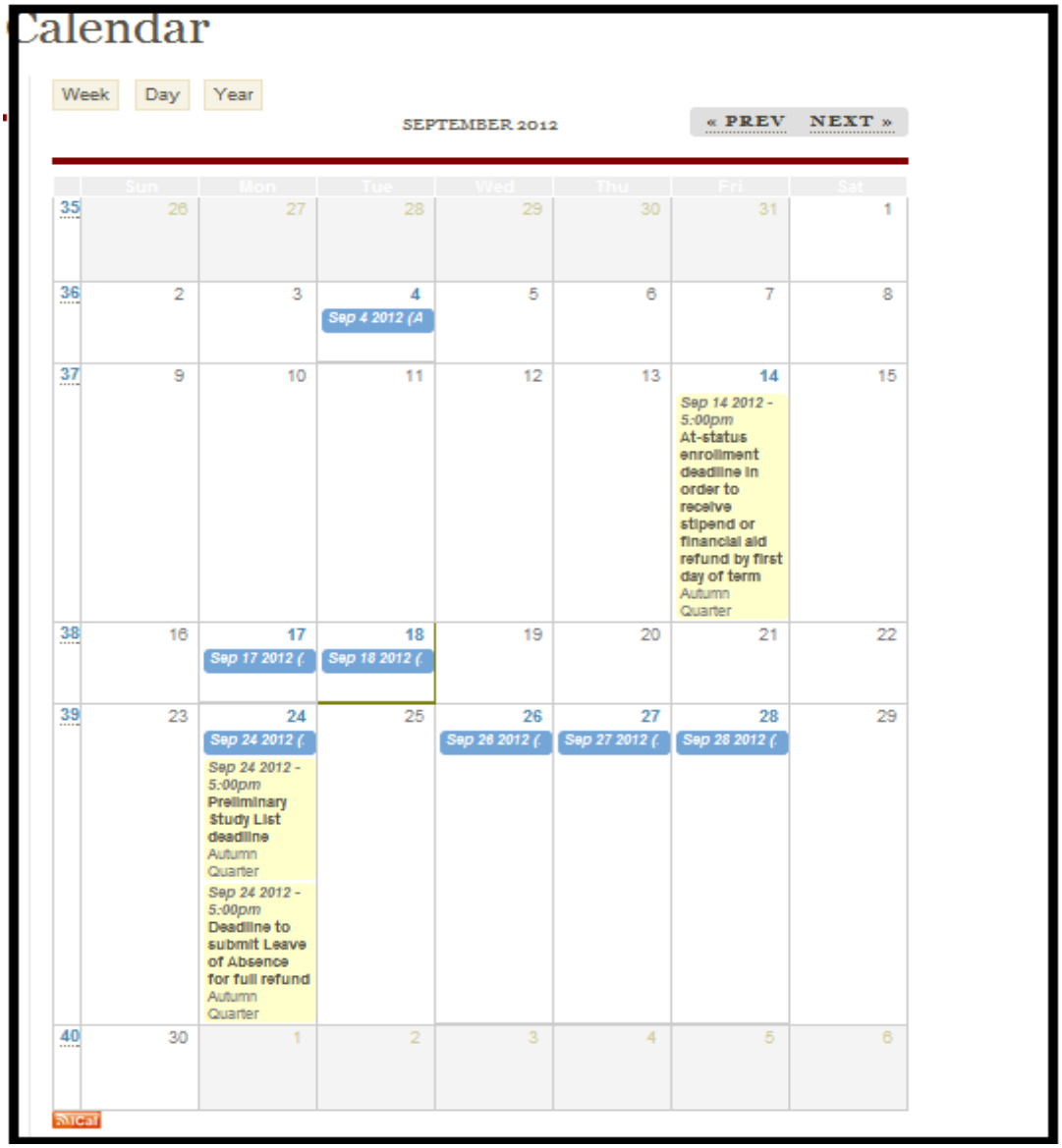
Clients can access the portal from anywhere they want, it is web based.

4 Supporting information

4.1 Screen layout:

4.1.1 User login screen

4.1.2 Academic calendar



4.1.3 College wiki