JIIT CONNECT
LEARNING MANAGEMENT SYSTEM

A
MINOR PROJECT REPORT

Submitted for the partial fulfillment of

BACHELOR OF TECHNOLOGY
IN
COMPUTER SCIENCE AND ENGINEERING

Submitted by

GAURAV DUBEY(9911103459)
SHUBHAM GUPTA(9911103564)
UPAANG SAXENA(9911103586)
VIKRAM KHURANA(9911103595)

Under the Guidance
of
Prof. VARTIKA SRIVASTAVA
(Deptt of CSE/IT)

DECEMBER 2013

Department of Computer Science and Engineering/IT
Jaypee Institute of Information Technology, Noida

TABLE OF CONTENTS

ACKNOWLEDGEMENT

The satisfaction that accompanies the successful completion of any task would be incomplete without the mention of the people whose ceaseless cooperation made it possible, whose constant guidance and encouragement crown all efforts with success.

We are grateful to our project mentor Miss. Vartika Srivastava for her guidance, inspiration and constructive suggestions that helps us in the preparation of this project.

We also thank our colleagues who have helped in successful completion of the project.

Signature(s) of Students-

GAURAV DUBEY(9911103459)
SHUBHAM GUPTA(9911103564)
UPAANG SAXENA(9911103586)
VIKRAM KHURANA(9911103595)

ABSTRACT:

The project titled Jiit Connect is a combination of learning management system and social networking for the students and faculty of jiit. The goal of jiit connect is to provide a web-based Learning Management System solution which will support faculty in their teaching and enrich the student educational experience at jiit. JIIT CONNECT will allow jiit to remain competitive in the higher education marketplace. The motive behind this system is to increase the interaction between students and teacher which will enable the students to solve their problem on web. This system provides a broad medium for interaction between students where a student can ask his query on the discussion forum and other students or teachers can solve his query by posting possible solutions of the problem. Students can subscribe to particular courses and can be connected to any update . Jiit connect also contains a News Feed column where all students can see what all other updates are there in studymaterial. Students can take quiz uploaded by teachers and can test how much they are prepared. In case of any postponing of class or any other problem teachers can upload a notice containing the information and they can send it to a particular batch of a particular year. Overall the system provides a smooth user experience to all the users.

Other than the personal computer, students can access some of the features of jiit connect on their Smart phones too. Our project also contains an Android app which is very user friendly , simple UI, fast to access, enabling the students to ask their queries on discussion forum, thus fulfilling every need that a student or teacher wants.

STATEMENT ABOUT THE PROBLEMS:

The project entitled jiit connect is developed as part of the Vth semester minor(Web Technology) project. JIIT CONNECT is a web-based learning management system to enhance the interaction between the students and the teacher through a common platform and focus on their study. JIIT CONECT also have its mobile application (Android).

PROBLEM DEFINATION:

1. Our college JIIT needed a system through which we can access the study material at home also.
2. Earlier interaction between students and teachers was limited to the classrooms.
3. Need for discussion forum was always there but due to non availability of the platforms like jiit connect, this facility could not be used.
4. Earlier no system was there to segregate all the notices and information to the concerned students.
5. Hesitation in asking doubts by students.

INSPIRATION OF THE PROJECT:

The document is developed after a number of consultations from students and teachers , considering the complete requirement specifications of the given project. With this project we are trying to make our college learning management system more convenient and helpful for both students as well as teachers.

Problem 1: Absence of online study System
Solution: we are providing a web based and mobile application based study material system and providing subscriptions to a particular subjects as per the users choice.

Problem 2: Interactions between student and teachers was limited to classrooms.
Solution: we are providing a discussion forum where student/faculty can post their query to get their query solved.

Problem 3: If a faculty reschedules or cancel a particular class.
Solution: Provision for mail alert if there any change.

Problem 4: If admin wants to notify students about any changes made to college calendar
Solution: Provision for mail alert if there any change and also there is a android app to show these changes.

PRODUCT FEATURES:

Features available for students are:

1. In this project we have also implemented automatic web crawling and indexing algorithm for faster searches were every subjects important links on web are tracked and provided.
2. Discussion Forum.
3. To view / update their profile.
4. News feed.
5. Search other profile.
6. Access Study Material.
7. Quiz.
8. Android app integrated to the above mentioned features.

Features available for teachers are:

1. Can see what students are doing.
2. Upload notice for a particular batch.
3. Providing the course content to the students.
4. Conducting tests of multiple choice questions to the students of a course.

Features available for admin are:

1. Add students, courses and teachers.
2. Delete students, courses and teachers.
3. Edit students, courses and teachers.

LIST OF FIGURES

ABBREVIATIONS

- SRS – SOFTWARE REQUIREMENT SPECIFICATION
- PHP – PHP HYPERTEXT PREPROCESSOR
- API – ABSTRACT PROGRAMMING INTERFACE
- UI – USER INTERFACE
- APP - APPLICATION

INTRODUCTION

Purposes:

The purpose of this document is to present a detailed description of the college learning management system. It will explain the purpose and features of the system, the interfaces of the system will do, the constraints under which it must operate and how the system will react to external stimuli.

Document Convention:

There is no standard document convention requirement for this document.

Project Scope:

The purpose of this PROJECT is to provide a common platform for students and faculty in college. The main goal of the study is to determine if the implementation of social networking would strengthen the relationship between faculty and student, and increase student participation and dialogue outside of the group's formal meeting time. Users also sought to understand how students use social networking outside the traditional meeting and learning space and how they perceive the use of social networking for educational purposes. An extension to this website will be its mobile app which will help its users to get notified for any recent update. The mobile app will cover all the aspects of this Educational Network. There is also a web crawler defined on this site which collects user preference and shows the result corresponding to that.

1.4 Audience Definitions, Acronyms and Abbreviations

1.4.1 Audience Definitions

The intended readers of this document are the developers of the software, testers, library owners and managers and coordinators.
Any suggested changes on the requirements listed on this document should be included in the last version of it so it can be a reference to developing and validating teams.

1.4.2 Acronyms and Abbreviations Acronym	Meaning
MySQL	My Structured Query Language
WAMP	Windows Apache Mysql Php
PHP	Php Hypertext Preprocessor

The rest of this SRS contains the details and specifications of the system. It is organized according to the modules that the system is using.

BACKGROUND STUDY

A lot of study was done in the background of this project. Many research papers was analyzed which gave us the idea of implementing this system. Also many existing LMS system does not provide all the features required to abridge gap between student and teachers.

OPEN SOURCE LEADERS IN LEARNING MANAGEMENT SYSTEM

1. Moodle (2002) – http://moodle.org/sites/
2. Sakai (2004) – http://sakaiproject.org/organization-list
3. Canvas by Instructure (2008) – Auburn University, BYU, James Madison, Rider University,
4. LoudCloud (2010) – Stanford, CA Community Colleges, Harvard University Medical School, Grand.

REQUIREMENT ANALYSIS

SOFTWARE & HARDWARE REQUIREMENTS

RAM	1GB
Hard Disk	300GB
Operating System	Compatible to all(windows, linux , I OS etc)
Processor	Intel core i3@2.20GHz.
Mobile version	Android (Api level greater than 9)

SOFTWARES REQUIREMENTS
WAMP SERVER(latest)-windows XAMPP Server-for any OS
ECLIPSE(indigo)
DREAMWEAVER 8

So,basically this model is Operating System independent and can be used on any OS. It just requires PHP and MYSQL installed in the computer and can be very easily used. Also when used in windows platform- it need wamp server and for others it require xampp. It requires APACHE as its Web Server.

SYSTEM REQUIREMENTS

Functional requirements

1.Login Page

Functional Requirements

REQ-1: The user shall be able to view and click on Login Link.

REQ-2: The database shall be able to validate username and password.

2.Attempt Quiz Activity

Functional Requirements

REQ-1: The user shall be able to view and answer the quiz questions.

3.View Profile

Functional Requirements

REQ-1: The user shall be able to view his/her profile

4.Access Discussion Forum

Functional Requirements

REQ-1: the user shall be able to post his query.

REQ-2: The user shall be able to view queries posted by other students.

REQ-3: The user can answer on any post.

5.Search Profile

Functional Requirements

REQ-1: the user shall be able to search for the tags and others profile.

6.Edit Profile

Functional Requirements

REQ-1: the user shall be able to update his profile successfully.

7.Logout

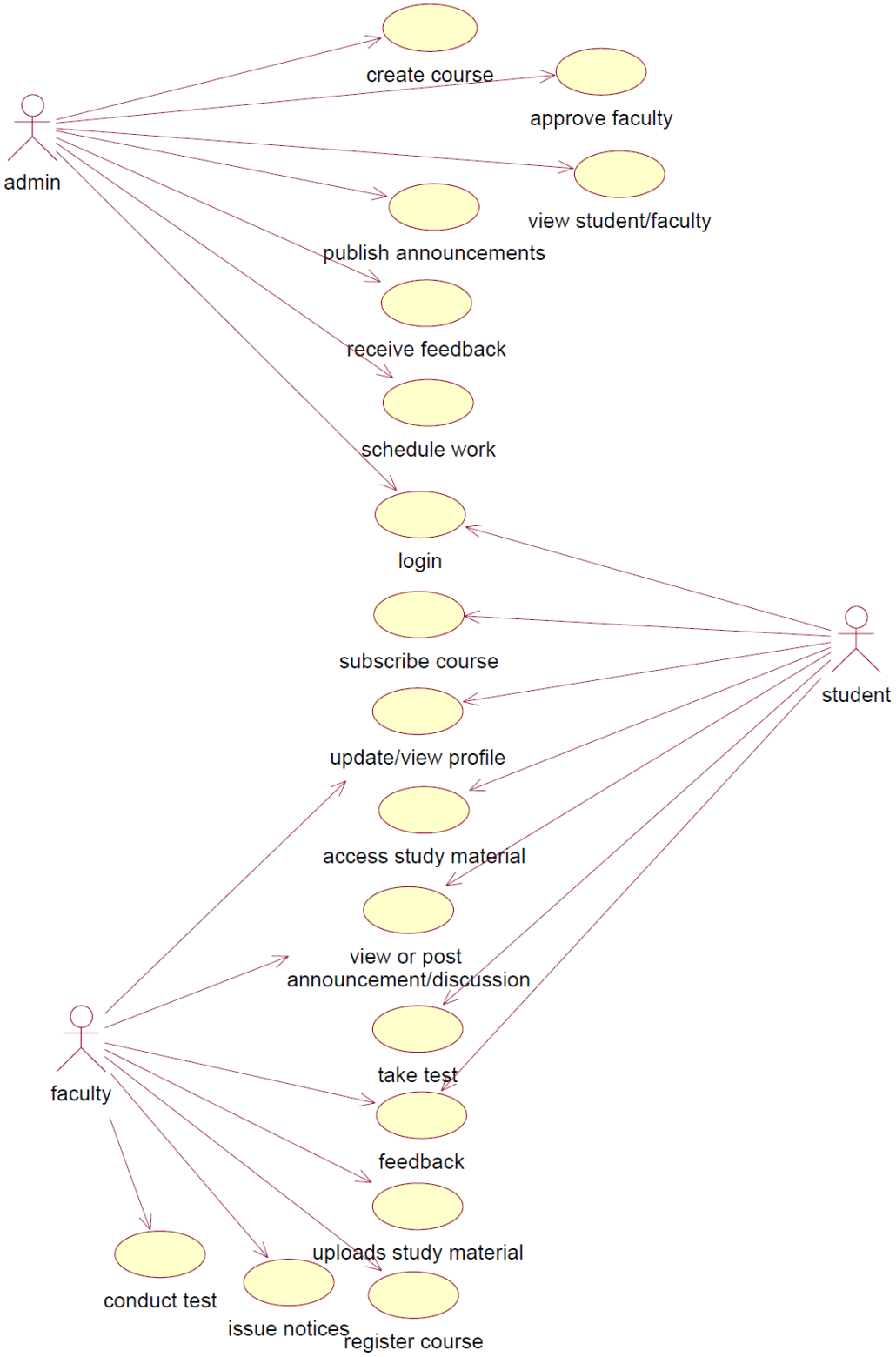
Functional Requirements

REQ-1: the user shall be able to log out from his profile any time.

Non Functional Requirements

1. The system is reliable.
2. Performance of the system is checked, high performance.the system cannot accommodate large amount of data without any loss.
3. Speed of the system is checked and it is working fine and fast.
4. Accuracy
5. Responsiveness
6. Error handling – Jiit Connect shall handle expected and non-expected errors in ways that prevent loss in information and long downtime period

USECASE DIAGRAM



SCHEMA DIAGRAM

Student_details

Uname	name	mname	lname	email	contactNum	dob	Branch	Year	image	gender

Login

Uname	Utype	pswrd

Admin_details

A_id	A_name	A_middlename	A_lastname	Emailid	Contact	gender	Img_url

Department

Dept_id	Dept_name

Faculty_details

F_id	F_name	F_mname	F_lname	D_id	Email	Contactnum	Dob	Gender	description	Designation

Course

C_id	C_name	Description	D_id	img

Course_faculty

Course_id	Faculty_id

Course_student

Course_id	Student_id

Assignment

C_id	A_id	F_id	Date_of_upload	Last_date_submission	url

Tutorial

T_id	C_id	F_id	Date_of_upld	url

Forum_question

Id	Topic	Detail	Name	Enroll	Datetime	View	reply

Forum_answer

Question_id	A_id	A_name	A_enroll	A_answer	A_datetime

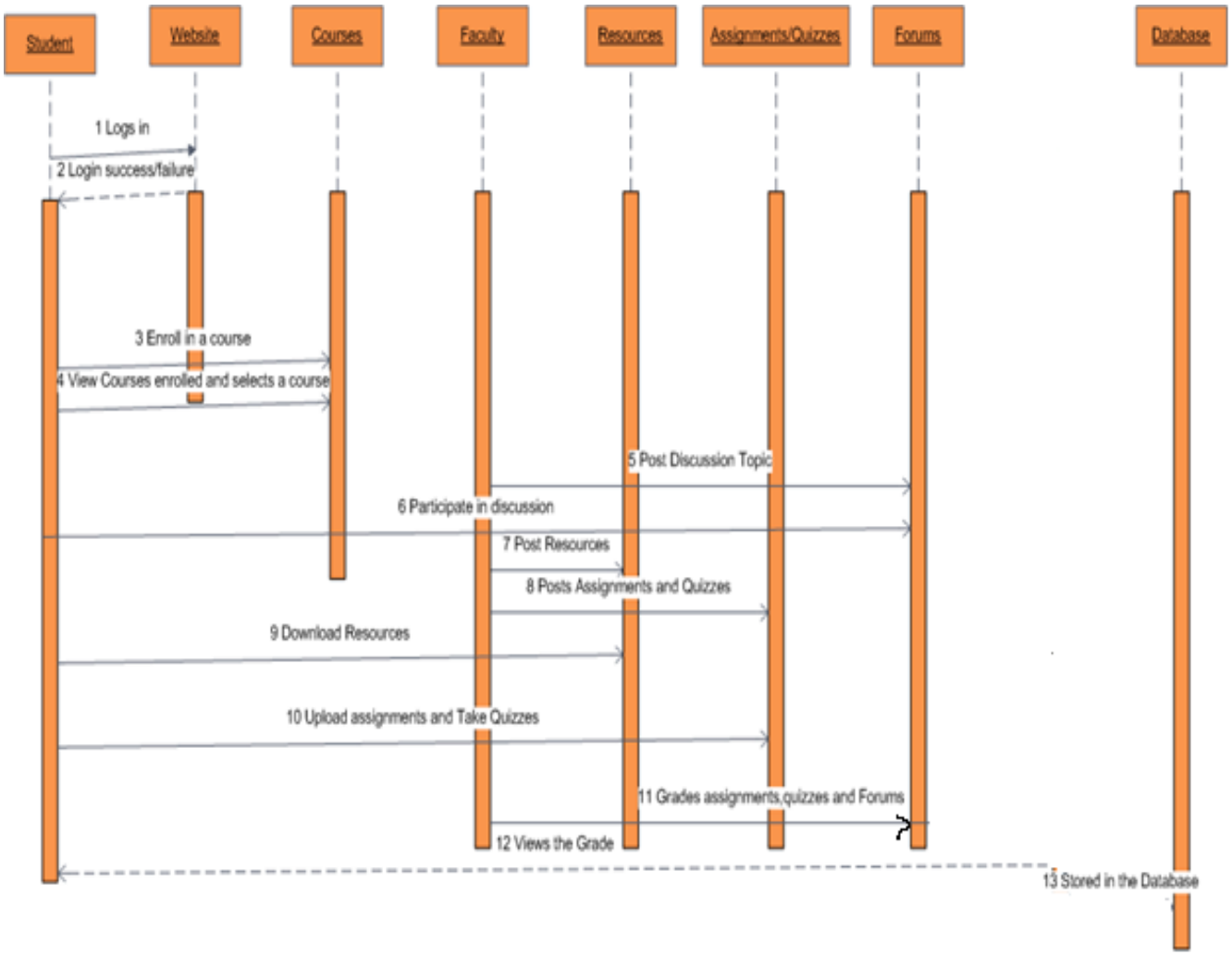
quizz

Quiz_id	Id	Name	Faculty_id	Course_id	Question	Choice1	Choice2	Choice3	Choice4	answer

Quiz_result

Number	Q_id	Course_id	Score	Enrolment_num

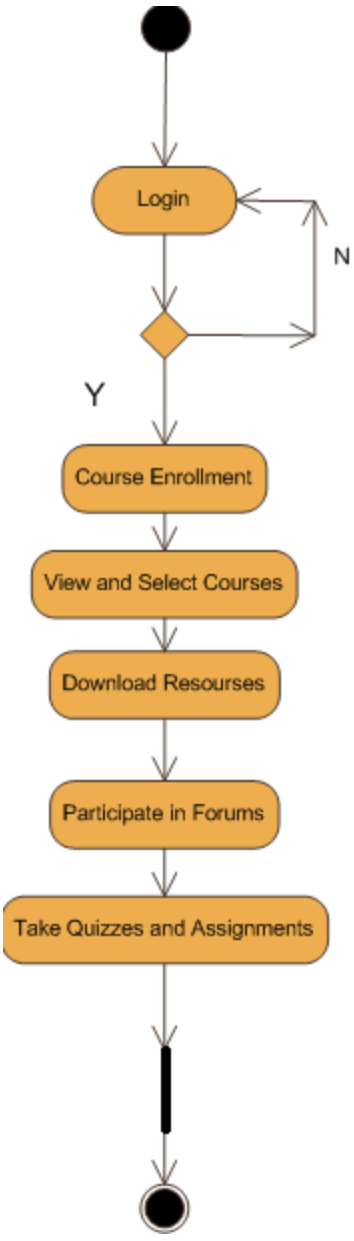
SEQUENCE DIAGRAM



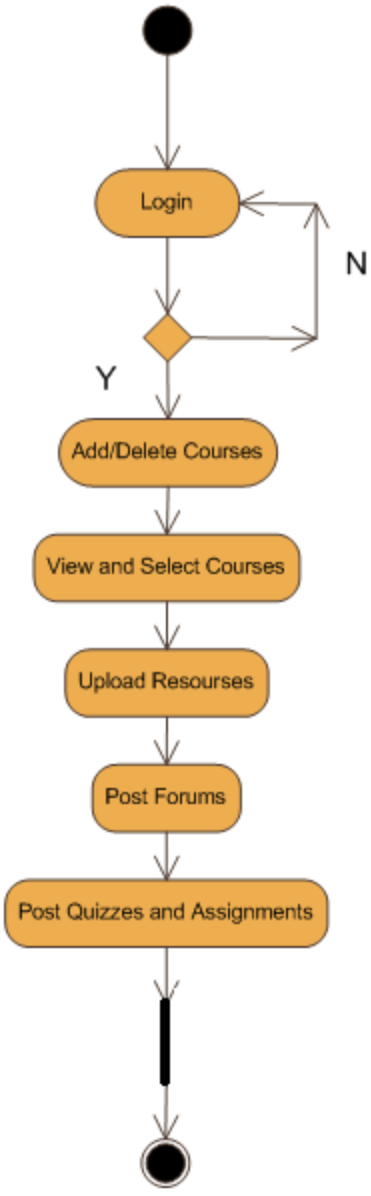
ACTIVITY DIAGRAM

(FOR FACULTY AND STUDENT)

For student



For Faculty



FEASIBILITY STUDY

Feasibility study is an important phase in the software development process. It enables the developer to have an assessment of the product being developed It refers to the feasibility study of the product in terms of outcomes of the product, operational use and technical support required for implementing it.

Feasibility study should be performed on the basis of various criteria and parameters. The various feasibility studies are:

- Economic Feasibility
- Operational Feasibility
- Technical Feasibility

ECONOMIC FEASIBILITY

It refers to the benefits or outcomes we are deriving from the product compared to the total cost we are spending for developing the product. If the benefits are more or less the same as the older system, then it is not feasible to develop the product.

In the present system, the development of the new product greatly enhances the accuracy of the system and abridge all the gaps between faculty and students. Also the mobile app provides a great medium for solving queries over discussion forum.

The errors can be greatly reduced and at the same time providing a great level of security. Here we don't need any additional equipment except memory of required capacity. No need for spending money on client for maintenance because the database used is web enabled database. And the app is highly secured because we are using android SDK which provides higher security and has been verified by Google developers.

OPERATIONAL FEASIBILITY

It refers to the feasibility of the product to be operational. Some products may work very well at design and implementation but may fail in the real time environment. It includes the study of additional human resource required and their technical expertise.

In the present system, all the operations can be performed easily compared to existing system and supports for the backlog data. Hence there is need for additional analysis. It was found that the additional modules added are isolated modules as far as the operational is concerned, so the Developed system is operationally feasible. The database tables for all modules are different thus none module is hindering effect of other.

TECHNICAL FEASIBILITY

It refers to whether the software that is available in the market fully supports the present application. It studies the pros and cons of using particular software for the development and its feasibility. It also studies the additional training needed to be given to the people to make the application work.

In the past system, the UI was very complex ,most of them does not contain discussion forum and also all the features of that system cannot be provided in an mobile application.

In the present system, the user interface is user friendly and does not require much expertise and training. It just needs a mouse click to do any sort of application. The software that is used for developing is server pages fully are highly suitable for the present application since the users require fast access to the web pages and with a high degree of security. This is achieved through integration of web server and database server in the same environment

DETAILED DESIGN

Design of software involves conceiving, planning out and specifying the externally observable characteristics of the software product. We have data design, architectural design and user interface design in the design process. These are explained in the following section. The goal of design process is to provide a blue print for implementation, testing and maintenance activities.

The primary activity during data design is to select logical representations of data objects identified during requirement analysis and software analysis. A data dictionary I,e a database explicitly represents the relationships among data objects and constraints on the elements of the data structure. A database should be created and used to define both data and program design.

Design process is in between the analysis and implementation process. The following design diagrams (Data Flow Diagrams, E-R Diagrams, Sequence Diagrams, Use Case Diagram) make it easy to understand and implement.

The design process for software system has two levels.

1. System Design or Top Level Design.
2. Detailed Design or Logical Design.

System Design or Top Level Design-

In the system design the focus is on deciding which modules are needed for the system, the specification of these modules and how these modules should be interconnected.

Detailed Design or Logical Design-

In detailed design the interconnection of the modules or how the specifications of the modules can be satisfied is decided. Some properties for a software system design are-

- Verifiability.
- Completeness.
- Consistency.
- Trace ability.
- Simplicity/Understandability.

IMPLEMENTATION

The general methodology in developing a system in involved in different phases, which describe the system's life cycle model for developing software project. The concept includes not only forward motion but also have the possibility to return that is cycle back to an activity previously completed. This cycle back or feedback may occur as a result of the failure with the system to meet a performance objective or as a result of changes in redefinition of system activities. Like most systems that life cycle of the computer-based system also exhibits distinct phases.

Those are,

1. Requirement Analysis Phase
2. Design Phase
3. Development Phase
4. Coding Phase
5. Testing Phase

* Requirement analysis & design phase are covered in previous pages.

DEVELOPMENT PHASE

The development phase includes choosing of suitable software to solve the particular problem given. The various facilities and the sophistication in the selected software give a better development of the problem. This project is implemented using WAMP SERVER, ANDROID SDK, ECLIPSE. Thus enabling us to develop that system which reduces all the overhead that users were getting before the implementation of this system.

CODING PHASE

The coding phase is for translating the design of the system-produced during the design phase into code in a given programming language, which can be executed by a computer and which performs the computation specified by the design. Programming languages like JAVA, PHP, SQL, SQLITE, JSON are used in developing jiit connect.

WEB CRAWLER

Algorithm for Searching-

We are making JIIT CONNECT keeping our college in mind. So, basically we know in advance the courses offered in our college curriculum.

1. **Define sites-** define some sites for all the courses separately and store it in database. Like we have defined sites like- ocw.mit.edu, www.coursera.org for Algorithm.
2. **Define Keyword-** for all the course names, define some keywords. Like for FOA(Fundamental of Algorithm) we have keywords- Algorithm, Introduction, Fundamental.
3. **Keyword waitage-** assign waitage for all the keywords made for course names. Like for FOA, algorithm got waitage 5. This waitage is basically defined as per rules of GOOGLE PAGE RANK SYSTEM.
4. **Site waitage-** all the defined sites also get there respective waitages. It make sure more important site gets more waitage.

5. **Searching-** whenever searching is made, it moves to the highest preference or higher waitage site and traverse all the links in the sites till level 4. That means it searches for all the keywords for the course name searched and if it gets anything related to that keyword, it keeps the search waitage into an array.
6. **Multiply with site waitage-** Now when we have found an array for searching, we now multiply site waitage for all the search waitages respectively and gets it stored in an array.
7. Repeat this for all the predefined sites.
8. **Define array-** now array is defined which contains all the search results with their corresponding waitages.
9. **Sort the array-** Now the array is sorted with highest preference or higher waitage result in 1^{st} place.

By this all the courses are searched and we get the proper result keeping in mind the importance of the keywords as well as the site we are searching in.
Site waitage or preference depends on the user respond and it is according to the google results.

FILE MANAGEMENT SYSTEM

We have made file management system to make actors access the study material properly and it contains all the material. It also have a MAZE View to make sure that student can subscribe the course according to the stream as it sorts the courses according to streams.

File management system also contains proper arrangement of courses with folders. It may also contain pdf files and when user clicks on it, it gets open on the next page and can be viewed or downloaded from there.

FMS also gives you the opportunity to download all the files. It is just like any windows pc and have well arranged folders for all the subjects with just No Size Limit.

TESTING PHASE

Testing is done in various ways such as testing the algorithm, programming code; sample data debugging is also one of following the above testing. Testing algorithms that we have implemented on our system are-

1. Unit testing
2. Integration testing
3. System testing

TESTING REPORT

UNIT TESTING REPORT-

Proper form handling is done for all forms in the system. Following are some restrictions-

1. Unless an actor is logged in,one cannot access the information related to him/others.
2. In login page,Enrollment number should only be in numbers.
3. Enrollment number length should be 10.
4. None text field should be left empty. All are mandatory except middle name.
5. Student or faculty name and last name should not be a numeric character.
6. Contact number must be a number of length 10.
7. Email address is also validated.
8. For discussion forum topic and detail text field are mandatory.
9. For quiz student have to answer all the questions in the quiz. They cannot left any question not answered.

For android application all of the restrictions listed above are applied.

INTEGRATION TESTING

We can do integration testing in a variety of ways but the following are three common strategies:

- **Top down approach** – It requires the highest-level modules be test and integrated first. This allows high-level logic and data flow to be tested early in the process and it tends to minimize the need for drivers.
- **Bottom up approach** – It requires the lowest-level units be tested and integrated first. These units are frequently referred to as utility modules. By using this approach, utility modules are tested early in the development process and the need for stubs is minimized.
- **Umbrella approach** – It requires testing along functional data and control-flow paths. First, the inputs for functions are integrated in the bottom-up pattern discussed above. The outputs for each function are then integrated in the top-down manner.

INTEGRATION TESTING RESULT USING TOP DOWN APPROACH-

The highest module in the system is first tested and then we examine the flow of data in various other components. And our observations shows that after combining modules together the overall result is as it was expwcted.

SYSTEM TESTING RESULT

After the whole system was ready system testing was done in which all the components was working perfectly no bugs, no defects, no errors.

BLACK BOX TESTING

Registration:

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1	Registration of user as faculty, or student with username and password.	Registration successful	Registration Successful	Expected Is Same As Actual
2	Registration of user as faculty, or student is done with username already existing in database or password mismatch.	Error-: Registration Unsuccessful	Registration Unsuccessful	Error of unsuccessful registration occurred.

Login:

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1.	If user is trying to login with his/her username and password.	Login successful & particular session starts	Login successful	Expected Is Same As Actual
2.	If user is trying to login without his/her username and password	Login unsuccessful	Login unsuccessful	Error occurred if user is trying to login with incorrect id or password

Session Handling:

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1.	While a session is running and user wants to come back on home page, click on home page button	Reverts to home page.	Reverts to home page	Expected is same as actual. No Flaw

Viewing and downloading of Study Material :

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1.	Viewing of study content.	SM opened successfully and viewed by user	Notice is viewed successfully.	No Flaw. Expected is same as actual.
2.	If unregistered user tries to download a Notice	Error: Sorry, You Are Not Registered. You can only view them.	Error: Sorry, You Are Not Registered. You can only view them.	Flaw occurred. They can only view papers.

Viewing, uploading and downloading of Notices :

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1.	Uploading of notice	Notice uploaded successfully	Notice uploaded successfully	No Flaw. Expected is same as actual.

2.	Viewing of notice	Notice opened successfully and viewed by user	Notice is viewed successfully.	No Flaw. Expected is same as actual.
3.	If unregistered user tries to download a Notice	Error: Sorry, You Are Not Registered. You can only view them.	Error: Sorry, You Are Not Registered. You can only view them.	Flaw occurred. They can only view papers.

Forum Accessibility:

S. No.	Test Cases Description	Expected Output	Actual Output	Remark
1.	If unregistered user accesses Forums	Error: Sorry, You Are Not Registered.	Error: Sorry, You Are Not Registered.	Flaw occurred.
2.	If registered users accesses forums	Successfully entered and used.	Successfully entered and used.	No flaw.

Similarly all the conditions have been checked and it is seen that unless a user is logged in, he/she can not access the information related to him or it is not possible to avail benefits of an registered user from outside.

Also there is a check that faculty can see profile for faculty and admin but not other faculty members.

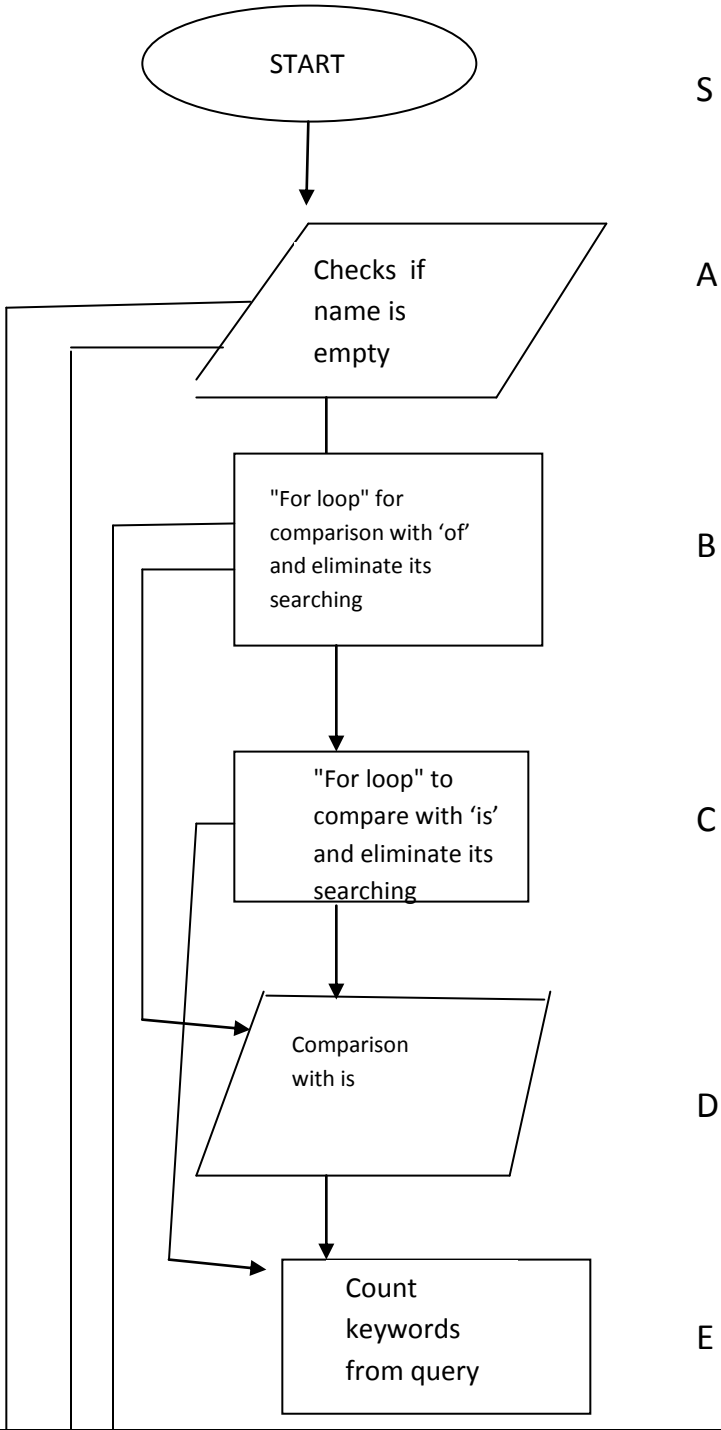
Similarly, admin can see only admin profile and not of others.

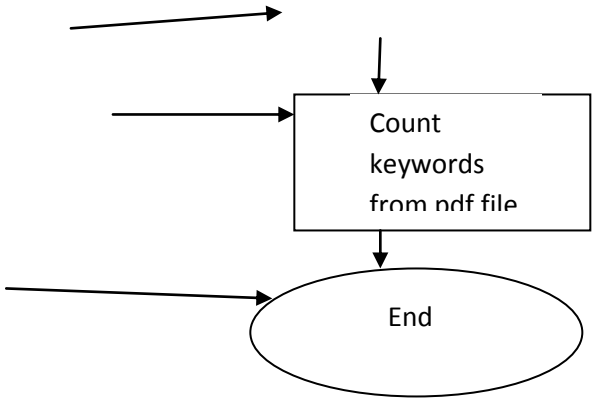
Discussion forums are available for both students and faculty members.

There is also a provision for newsfeed for faculty and student. Student can view all the uploads and notices related to him on the newsfeed and can get an alert.

WHITE BOX TESTING:

1. Comparison and counting of keywords:





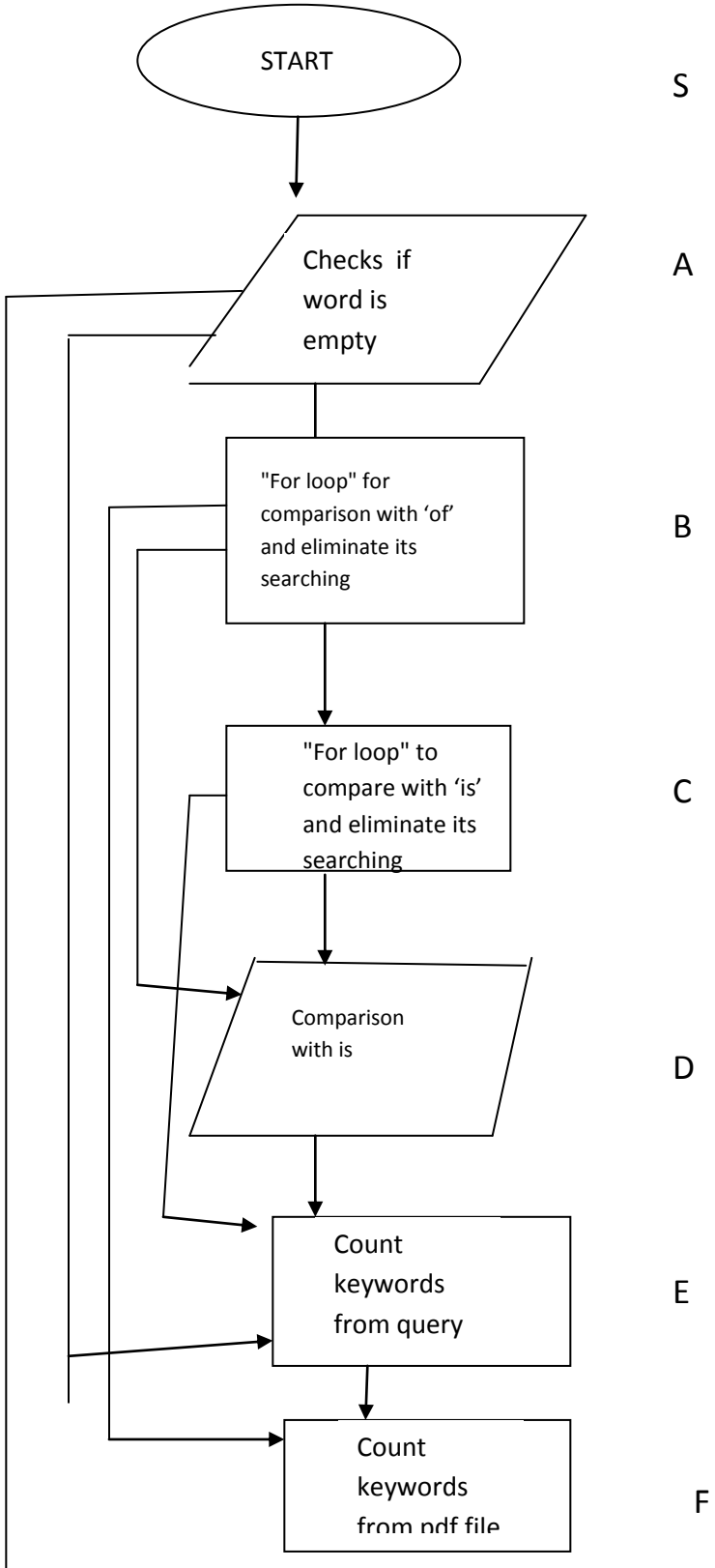
F

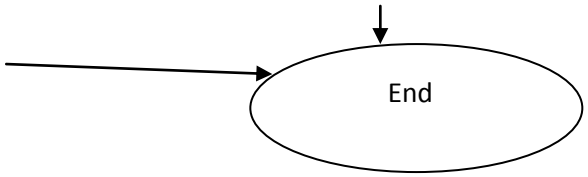
end

TEST PATHS:

(a) S,A,B,C,D,E ,F,END PASS
(b) S,A,E ND PASS
(c) S,A,B,D,E ,F,END PASS
(d) S,A,B,F,E ND PASS
(e) S,A,B,C,E,F,END PASS
(f) S,A,E,F,END PASS

3. Searching for a word(Crawler):





end

TEST PATHS:

(g) S,A,B,C,D,E ,F,END PASS
(h) S,A,E ND PASS
(i) S,A,B,D,E ,F,END PASS
(j) S,A,B,F,E ND PASS
(k) S,A,B,C,E,F,END PASS
(l) S,A,E,F,END PASS

CONCLUSION

JIIT CONNECT a web based Learning Management System provides all the features that are needed for a student learning. From accessing study material to notices,from discussion forum to quiz, from notification to notice, from android app to a pleasant user experience jiit connect provides all.

FUTURE SCOPE

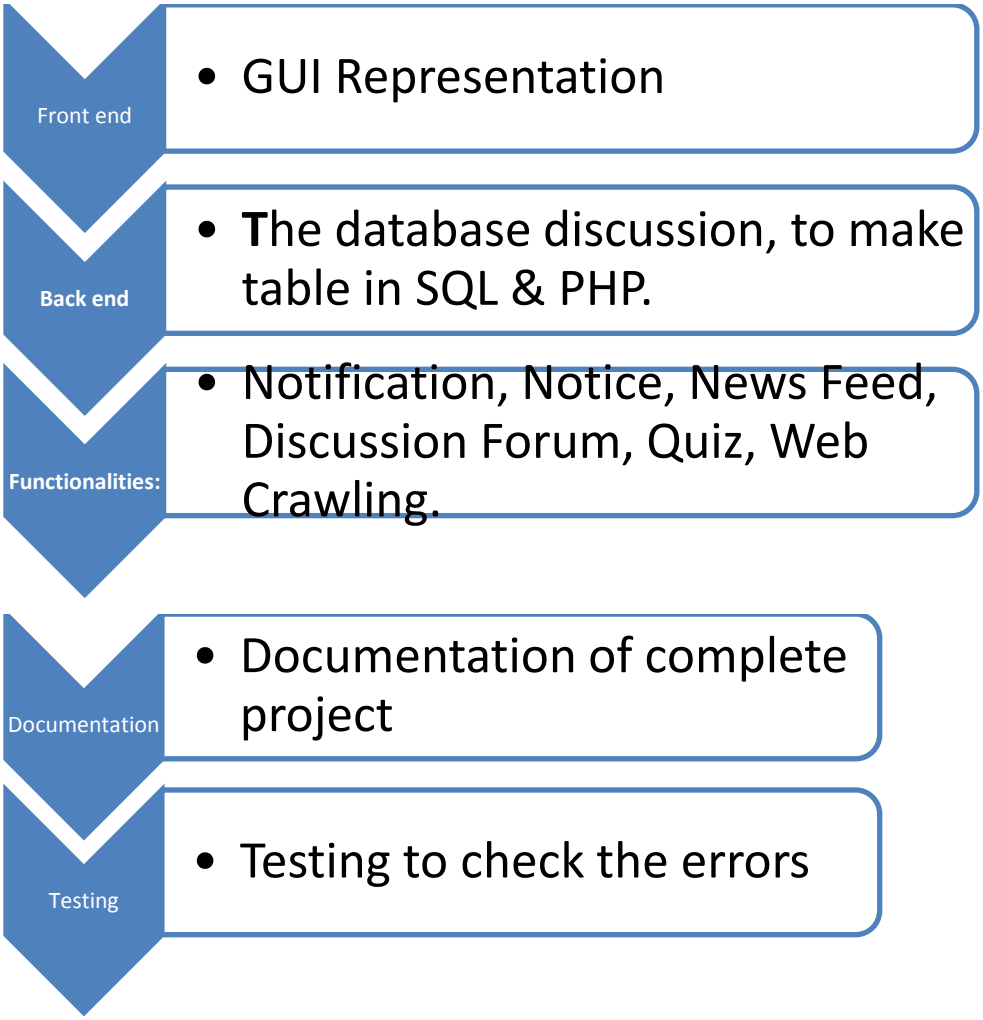
This project is specifically designed for jiit stundents .

We can extend our project in future to all aspirants who has dream to be a part of jiit.

We can provide a full fleged application of the system in all mobile operating system.

We can build a virtual blackboard which will prove very handy if students miss any lecture.

GANTT CHART


Front end
• GUI Representation
Back end
• The database discussion, to make table in SQL & PHP.
Functionalities:
• Notification, Notice, News Feed, Discussion Forum, Quiz, Web Crawling.
Documentation
• Documentation of complete project
Testing
• Testing to check the errors

REFERENCES

1. james stele & nelson to, the android developer's cookbook, Addison Wesley publications, 2011.
2. Ravi tamada, http://androidhive.com
3. ocw.mit.edu
4. www.facebook.com
5. www.coursera.com
6. www.academia.com
7. Ivan Byross-Learn Web Designing in 21 Days