INTRODUCTION

1.1 ABSTRACT

Sharing the information in knowledge based fields like IT has different developers to provide various learning systems with low cost. While a variety of e-learning advantages has been recognized for a long time and many advances in e-learning systems have been implemented, the needs for effective information sharing in a secure manner have till date been largely ignored, especially for virtual university collaborative environments. Even though there is possibility to share information which is not secured. So, the information sharing of virtual universities usually occurs in broad, highly dynamic network-based environments and formally accessing the resources in secure manner posses a difficult and vital challenge. This project aims to build a new regulation-based framework to recognize and tackle issues of distributed in virtual university environments through role-based access control management. The framework includes a role-based group delegation granting model, group delegation revocation model, authorization granting and authorization revocation.

We have different modules in this application, they are

1) Management
2) Students
3) Role Delegation
4) Role Revocation
5) Uploading and Downloading materials

Module 1: Management:

Management module consists of Universities that are in collaboration with each other. Management of a particular university can add professors from their university, can view other universities and can also view professors of other universities. Management has access to view students who are registered and can view queries that are asked by the registered students. It can also view materials that are shared.

The admin can add Universities, and can delete universities which are not authenticated, admin also has the right to view materials, students, queries and has the right to answer the queries and assign the Job requested and can generate status of the status requested for the registration and professors requested for role revocation.

Module 2: Students:

Students who are interested can enter their details to get registered into the site. They can check status whether they are registered or rejected. After becoming a valid user, they can view their profile, professors, universities and professors of other virtual universities. They can also update their profile. They can download materials that are shared by different universities. If they have any doubts regarding the subjects they can post the queries and view answers that are posted by the professors. They can also add feedback regarding any improvements that have to be done.

Module 3: Role Delegation:

Professors who are not available at a particular period of time can assign his/her role to a person with same qualification or bellowed qualification, can request to accept his role as a professor or lecture and can view the response if he has accepted or not. Where the admin of the application can delete the request made to delegate his/her role and can assign the respected professors who have requested the job and updates the response status.

Module 4: Role Revocation:

A professor can request admin to revoke his/her role. Admin accepts the request and adds response. They are not able to delegate his/her role to senior authorities.

Module 5: Upload and downloading materials:

Students of the virtual university can download the materials provided in the application from various universities. Whereas professors can upload the required material and can also download the material from different universities.

• ORGANIZATION PROFILE

ECIL was setup under the department of Atomic Energy in the year 1967 with a view to generate a strong indigenous capability in the field of professional grade electronic. The initial accent was on self-reliance and ECIL was engaged in the Design Development Manufacture of several products emphasis on three technology lines viz. Computers, control systems and communications. ECIL thus evolved as a multi-product company serving multiple sectors of Indian economy with emphasis on import of country substitution and development of products and services that are of economic and strategic significance to the country.

Electronic Corporation of India Limited (ECIL) entered into collaboration with OSI systems Inc. (www.osi-systems.com) and setup a joint venture "ECIL_RAPSICAN LIMITED". This joint Venture manufacture the equipment's manufactured by RAPSICAN, U.K, U.S.A with the same state of art Technology, Requisite Technology is supplied by RAPSICAN and the final product is manufactured at ECIL facility.

Recognizing the need for generating the quality IT professional and to meet the growing demand of IT industry, a separate division namely CED has been established to impart quality and professional IT training under the brand name of ECIT. ECIT, the prestigious offshoot of ECIL is an emerging winner and is the fore front of IT education in the country.

MISSION:

ECIL's mission is to consolidate its status as a valued national asset in the area of strategic electronics with specific focus on Atomic Energy, Defense, Security and such critical sectors of strategic national importance.

OBJECTIVES:

To continue services to the country's needs for the peaceful uses Atomic Energy. Special and Strategic requirements of Defense and Space, Electronics Security and Support for Civil aviation sector.

To establish newer Technology products such as Container Scanning Systems and Explosive Detectors.

To re-engineer the company to become nationality and internationality competitive by paying particular attention to delivery, cost and quality on all its activities.

To explore new avenues of business and work for growth in strategic sectors in addition to working realizing technological solutions for the benefits of society in areas like Agriculture, Education, Health, Power, Transportation, Food, Disaster Management etc.

DIVISIONS:

The company is organized into divisions serving various sectors, national and commercial importance. They are Divisions serving nuclear sector like Control And Automation(CAD), Instruments and Systems Divisions(ISD), Divisions Serving defense sector like Communications Division(CND), Antenna Products Division(APD), Servo Systems Division(SSD) etc., Divisions handling Commercial Products are Telecom Division(TCD), Customer Support Division(CSD), Computer Education Division(CED).

EXPORTS:

ECIL is currently operating in major business EXPORT segments like instruments and systems design, Industrial/Nuclear, Server Systems, Antenna Products, Communication, Control and Automation and several other components.

SERVICES:

The company played a very significant role in the training and growth of high caliber technical and managerial manpower especially in the fields of Computers and Information technology. Though the initial thrust was in meeting the Controls and Instrumentation requirements of the Nuclear Power Program, the expanded scope of self-reliance pursued by ECIL enabled the company to develop various products to cater to the needs of Defense, Civil Aviation, Information and Broadcasting, Telecommunications, etc.

• PROBLEM DEFINITION

The project will be used by the universities to share the information among the students and staff of the universities. Here different universities will get collaborated. Previously the information that is being shared is not secured. Though the members have unique id and password, the authentication is not secured. As anyone can access the shared information, sharing of large amount of information is difficult and not secured. When students ask queries regarding any subject there may be a delay to get the reply from the staff and they can ask any staff of a particular university to which they belong to. This may also delay their planned schedule.

Sometimes the absence of staff may also delay in providing the information or the material that is required by the student. The staff cannot assign their work to other staff member in their absence. The searching, downloading and uploading of materials is also difficult due to storage of excess amount of information in the records.

Hence to overcome the above problems a system is being developed. This system is based on Role Based Access Control. The admin has full access to the database and manages the information. The university that has been registered is checked whether it is valid or not by the admin. Here every user is provided with a unique login id and password. The staff can assign their work to other staff of the same university or to the other university that is involved in the collaboration and hence they can reduce their burden of work. The staff can revoke their work once they are available. The students will not face any delay in getting the information or the material required by them and they can go according to their planned schedule. Hence large amount of information can be shared. Searching, downloading and uploading of materials is easy.

- **SYSTEM ANALYSIS**

4.1 EXISTING SYSTEM:

In the previous system we used to have a single university due to which the students had to wait for the availability of the professor incase of his absence which results in the delay of acquiring the required information. The disadvantage of the existing system is that the student receives only a single answer, if we collaborate multiple universities the student can get multiple answers from which he can choose the best. The students face difficulty in viewing the professors details, sometimes the student may not be provided with downloading the materials option.

Disadvantages:

Sharing of large amount of information is difficult.

Though the members have unique id and password the authentication is not secured as anyone can access the shared information.

Absence of staff may delay in providing the required information to the students.

Searching, uploading and downloading of materials is difficult.

The staff cannot assign work to another staff member.

4.2 PROPOSED SYSTEM:

The effective collaboration with information sharing in virtual universities is based on role-based access control management. There are four users- admin, management, student and staff. Each user has respective unique id and password. Admin is responsible for adding or deleting universities, viewing the universities, their respective staff and students.

Advantages:

Large amount of information can be shared easily.

As only authenticated persons can access the system, information is more secure.

There is no delay in providing updates and replying to the queries of the students.

The staff can assign work to another staff member, hence reducing their work.

Searching of information, uploading and downloading of materials is easy.

• **FEASIBILITY STUDY**

A feasibility study is an evaluation of the proposal which is used to determine the difficulty in carrying out a task. Generally a feasibility study preceeds technical development and project implementation in other words, a feasibility study is an evaluation (or) analysis of the potential impact of the proposed project.

5.1 TYPES OF FEABILITY:

- • **TECHNOLOGY FEASIBILITY:**

    The assessment is based on the outline design of the system required in terms of input processes, output, fields, programs and procedures. This can be quantified in terms of volumes of data trends, frequency of updating etc in order to estimate whether the new system will perform adequately or not. Technology feasibility is carried to determine whether the company has capability in terms of software, hardware, personal and expertise the completion of project.

- • **ECONOMIC FEASIBILITY:**

    Economic feasibility analysis is the most frequently used method for evaluating the effectiveness of new system, commonly cost of benefit analysis. The procedure is to determine the benefits outweigh cost then the decision is made to design and implemented the system entrepreneur must accurately weigh the cost is a benefit before taking an action.

- • **LEGAL FEASIBILITY:**

    Determines whether the proposed system conflicts with legal requirements eg-a data processing system comply with a local protection acts.

- **OPERATING FEASIBILITY:**

    It is a measure how we are proposed system solves the problems and takes advantages of the opportunity identify during scope definition and how it satisfies the requirements identified the requirements analysis phase of system development.

- **SCHEDULE FEASIBILITY:**

A project will fail if it takes too long to be completion before it is used. Typically this means estimating how long the system will take to develop and if it can be completed in a given time period using so many methods like payback period. Schedule feasibility is a measure how the responsible the project timetable is.

PROJECT OVERVIEW

6.1 PROJECT MODULES:

Sharing the information in knowledge based fields like IT has different developers to provide various learning systems with low cost. While a variety of e-learning advantages has been recognized for a long time and many advances in e-learning systems have been implemented, the needs for effective information sharing in a secure manner have to date been largely ignored, especially for virtual university collaborative environments. Even though there is possibility to share information which is not secured. So, the information sharing of virtual universities usually occurs in broad, highly dynamic network-based environments and formally accessing the resources in secure manner posses a difficult and vital challenge. This project aims to build a new regulation-based framework to recognize and tackle issues of distributed in virtual university environments through role-based access control management. The framework includes a role-based group delegation granting model, group delegation revocation model, authorization granting and authorization revocation.

This application consists of following modules:

- Management
- Students
- Role Delegation
- Role Revocation
- Upload and Download Materials

Module 1: Management Module:

The valid user (Professor, Lecturer, and Staff) can login to send data or information to any person in the virtual university (collaboration of 3 universities). Here each and every one will have their own user-id and password where they can login to any other university which is in collaboration with the virtual universities. They have three responsibilities of delegation, revocation and uploading of new materials.

Module 2: Student Module:

Students get registered by the management into the site. They can download materials by their provided student-id and they can ask queries related to subject to any staff working in virtual university.

Module 3: Role Delegation Module:

The member of the virtual university can delegate his/her role and also bellowed role to other member in virtual university. So, he/she can't delegate the role to the senior authorities.

Module 4: Role Revocation Module:

The member of the virtual university can revoke his/her role assigned to other person in the virtual university.

Module 5: Upload and Download Materials:

Staff can upload and download materials but students can download the materials but don't have right to upload any files and moodily/delete any file.

- # DEFINITION, ACRONYMS AND ABBREVATIONS

ABBREVATIONS:

JSP   :   JAVA Server Pages

SQL   :   Structured Query Language

RBAC   :   Role Based Access Control

DEFINITIONS:

JSP:

JSP (Java Server Pages) is a Web application framework developed and marketed by Microsoft to allow programmers to build dynamic Websites, Web applications and Web services.

SQL SERVER:

It is a software product whose primary function is to store and retrieve data as requested by other software applications, be it those on same computer or those running on another computer across network (including the Internet).

ROLE BASED ACCESS CONTROL:

Role Based Access Control is a database through which the data is accessed according the roles of the users who are accessing the database to retrieve the data.

- **SYSTEM REQUIREMENTS**

SOFTWARE REQUIREMENTS:

Operating system   :   Windows XP Service Pack2

Technology   :   JSP

Web Server   :   IIS

Database   :   SQL Server

Software's   :   Microsoft Visual Studio 2008

HARDWARE REQUIREMENTS:

Hardware   :   Pentium based systems with a minimum of P4

RAM   :   256MB (minimum)

9. TECHNOLOGIES

9.1 INTRODUCTION TO JSP

JSP (Java Server Pages) is a standard for developing interactive Web applications (pages containing dynamic content). A JSP web page (recognizable by the *.jsp*extension) may display different content based on certain parameters (information stored in a database, the user preferences, ..), while a classic webpage (with the .htm or .html extension) will continuously display the same information.

- JSP is actually a powerful scripting language (interpreted language) *executed on the server side*(like CGI, PHP, ASP, ...) and not on the client side (unlike scripts written in JavaScript or Java applets which run in the browser of the user connected to a site).

- JSPs are integrated in a web page in HTML using special tags which will notify the Web server that the code included within these tags are to be interpreted. The result (HTML codes) will be returned to the client browser .

- Java Server Pages are part of a **3-tier architecture**: where a server supporting the Java Server Pages (generally referred to as **application server**) will act as a mediatior between the client browser and a database (generally referred to as **data server**). JSP provides the necessary elements for the connection to the database management system and allow the manipulation of data through SQL.

9.1.1 HOW JAVA SERVER PAGES WORKS?

A page using Java Server Pages is executed during the query, by a JSP engine (generally running with a Web server or an application server). The JSP model is derived from the one used for Java servlets (JSP are indeed a way to write servlets). It is a Java class derived from HttpServlet class, making use of using *doGet()* and *doPost()* to return an HTTP response.

When a user calls a JSP page, the Web server calls the JSP engine which creates a Java source code from the JSP script and compile the class to provide a compiled file (with the *.class* extension).

Note that: the JSP engine checks if the date of the *.jsp* file corresponds to the .class file. The JSP engine will convert and compile the class, only if the JSP script has been updated. Thus, the fact that the compilation only takes place when the JSP script is updated, makes JSP, one of the fastest technologies to create dynamic pages.

9.1.2 CHARACTERISTICS OF JAVA SERVER PAGES

JSPs can be used to create servlets, by including specific tags in the JSP code. In this way, they provide a fast technology to create dynamic pages.

In addition, JSP has all the characteristics of Java:

- JSPs are multithreaded.

- JSPs are portable.

- JSPs are object-oriented.

- JSPs are secure.

9. 2 INTRODUCTION TO SQL SERVER

Microsoft SQL server is a relational data base server, developed by Microsoft: It is a software product whose primary function to store and retrieve data a s requested by other software applications, be it those on the same computer or those on running on other computers across the network (including the internet). These are at least a dozen different editions of Microsoft SQL server aimed at different audiences and for different workloads (ranging from small applications that store and retrieve data on the same computer, to the millions of users and computers that access huge amount of data from the internet at the same time).

9.3 DATA STORAGE

The main unit of data storage is a data base, which is a collection of tables with typed columns. SQL server supports different data types, including primary types such as integer, float, decimal, char (including characters strings), Varchar (variable character strings), binary (for unstructured blobs of data), text (for textual data) among others. The rounding of floats to integers uses either symmetric arithmetic rounding or symmetric round down (fix) depending on arguments: SELECT Round (2.5,0) gives 3.

Microsoft SQL server also allows user define composite types to be defined and used. It also makes server statistics available as virtual cables and views. In addition to tables, a data base can also contain other objects including views, stored procedures, indexes and constraints along with transaction log.
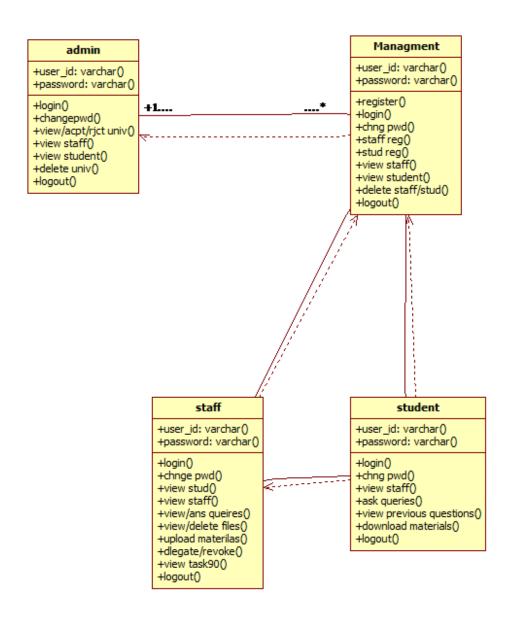
9.4 DATA RETRIEVAL

The main mode of retrieving data from an SQL Server database is querying for it. He query is expressed using a variant of SQL called T-SQL, a dialect Microsoft SQL Server share with with Sybase SQL Server due to its legacy. The query declaratively specifies what is to be retrieved. It is processed by the by the query processor, which figures out the sequence of steps that will be necessary to retrieve the requested data. The sequence of actions necessary to execute a query is called a query plan. There might be multiple ways to process the same query. For example, for a query that contains a join statement and a select statement, executing join on both the tables and then executing select on the results would give the same result as selecting from each table and then executing the join, but result in different execution plans. In such case, SQL Server chooses the plan that is expected to yeeld the results in the shortest possible time. This is called query optimization and is performed by the query processor itself.
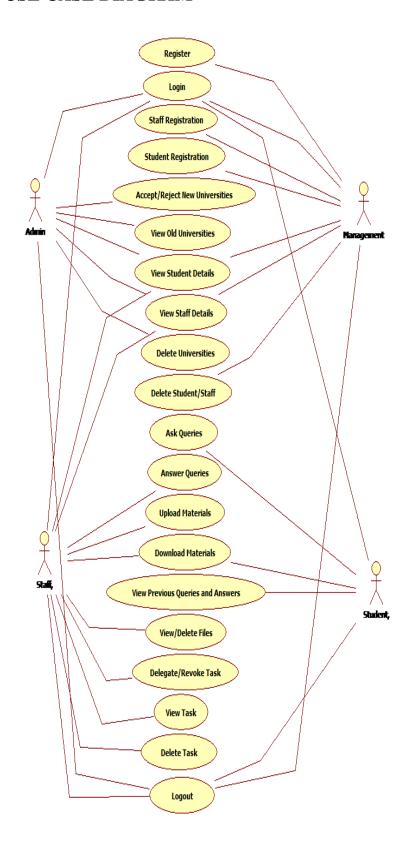
SQL Server also allows stored procedures to be defined. Stored procedures are parameterized T-SQL queries, that are stored in the serve itself (and not issued by the client application as is the case with general queries). Stored procedures can accept values sent by the client as input parameters, and send back results as output parameters. They can call defined function, and other stored procedures, including the same stored procedure (up to a set number of times). They can be selectively provided access to. Unlike other queries, stored procedures have an associate nam, which is used at runtime to resolve into the actual queries. Also because the code need not be sent from the client every time (as it can be accessed by name), it reduces network traffic and some what improves performance. Execution plans for stored procedures are also cached as necessary.
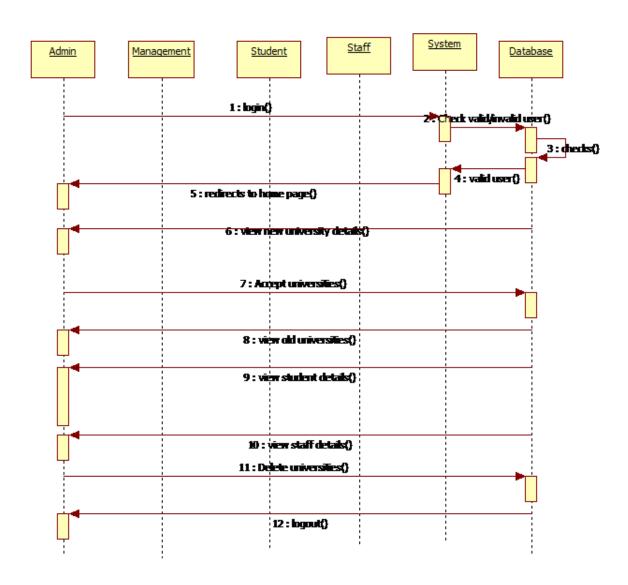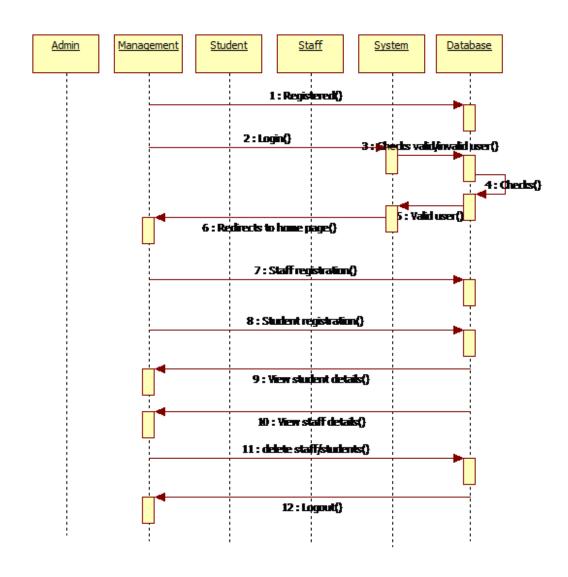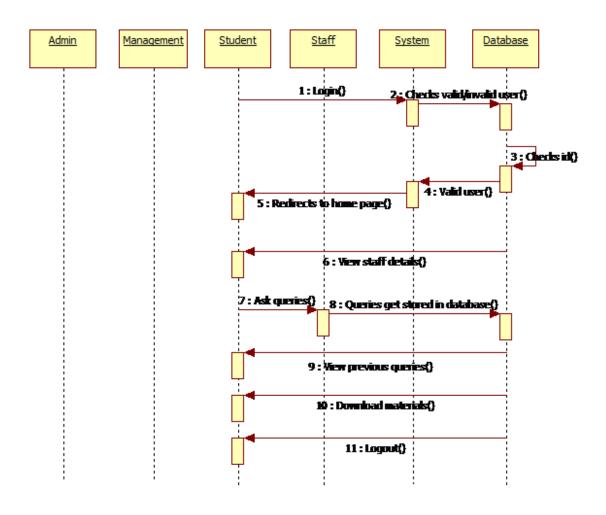
- **SYSTEM DESIGN**

- **CLASS DIAGRAM**

admin
+user_id: varchar()
+password: varchar()
+login()
+changepwd()
+view/acpt/rjct univ()
+view staff()
+view student()
+delete univ()
+logout()

Managment
+user_id: varchar()
+password: varchar()
+register()
+login()
+chng pwd()
+staff reg()
+stud reg()
+view staff()
+view student()
+delete staff/stud()
+logout()

+1....   ....*

staff
+user_id: varchar()
+password: varchar()
+login()
+chnge pwd()
+view stud()
+view staff()
+view/ans queires()
+view/delete files()
+upload materilas()
+dlegate/revoke()
+view task90()
+logout()

student
+user_id: varchar()
+password: varchar()
+login()
+chng pwd()
+view staff()
+ask queries()
+view previous questions()
+download materials()
+logout()

- **USE CASE DIAGRAM**

• A) SEQUENCE DIAGRAM OF ADMIN

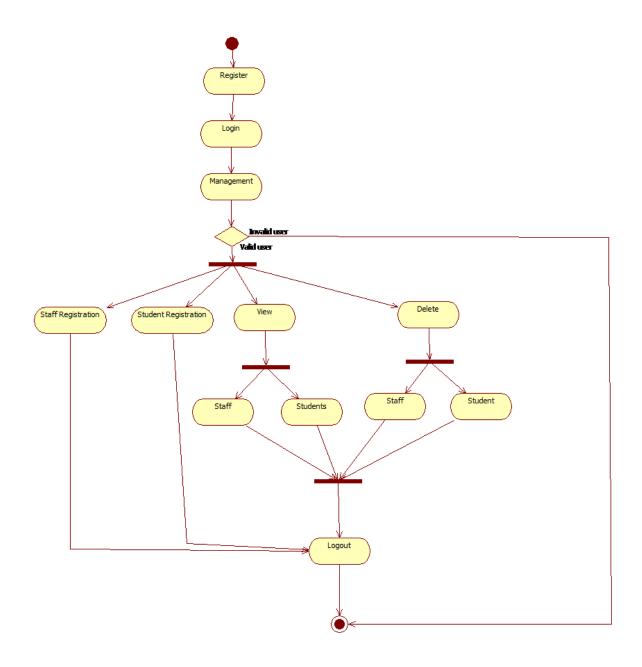## B) SEQUENCE DIAGRAM OF MANAGEMENT
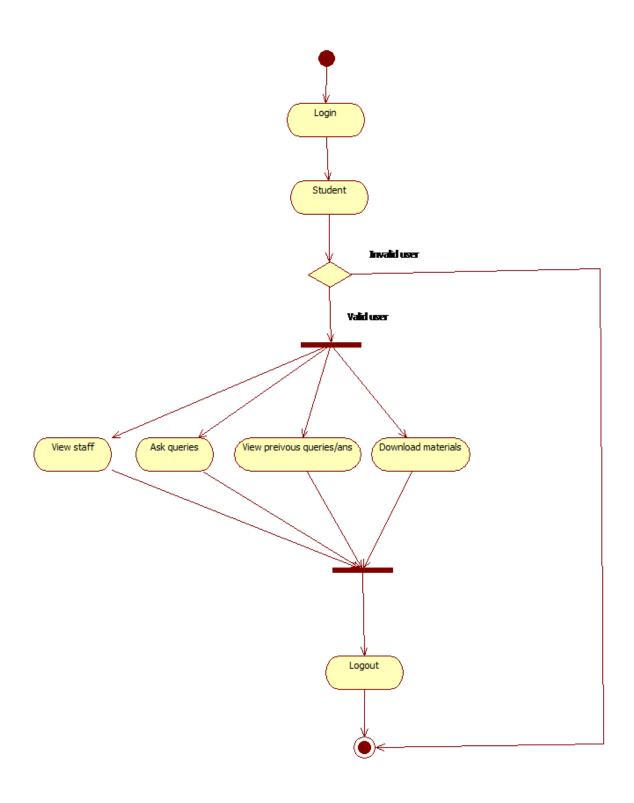
C) SEQUENCE DIAGRAM FOR STUDENT

Admin	Management	Student	Staff	System	Database

1 : Login()

2 : Checks valid/invalid user()

3 : Checks id()

4 : Valid user()

5 : Redirects to home page()

6 : View staff details()

7 : Ask queries()   8 : Queries get stored in database()

9 : View previous queries()

10 : Download materials()

11 : Logout()

D) SEQUENCE DIAGRAM FOR STAFF

- **ACTIVITY DIAGRAM FOR ADMIN**

B) ACTIVITY DIAGRAM FOR MANAGEMENT

C) ACTIVITY DUAGRAM FOR STUDENT
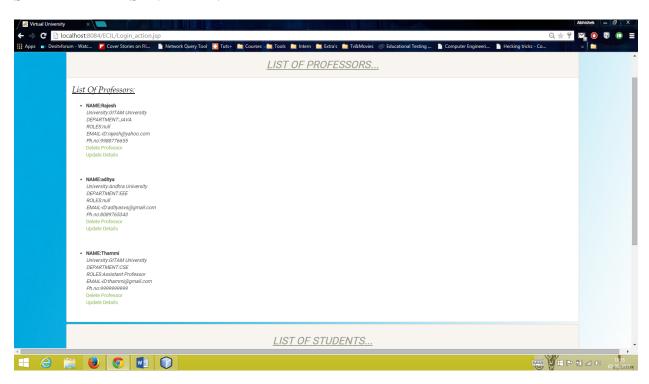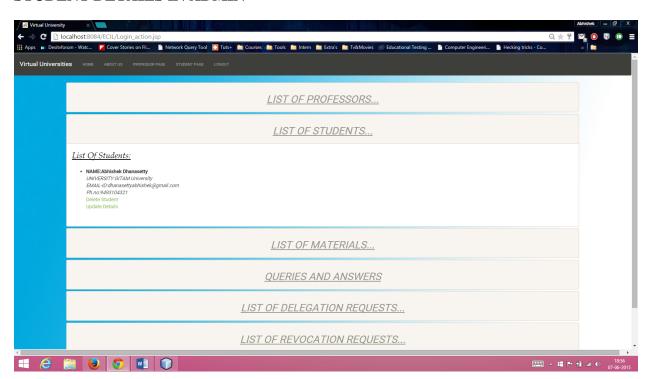
D) ACTIVITY DIAGRAM FOR STAFF

• SCREENS

LOGIN PAGE
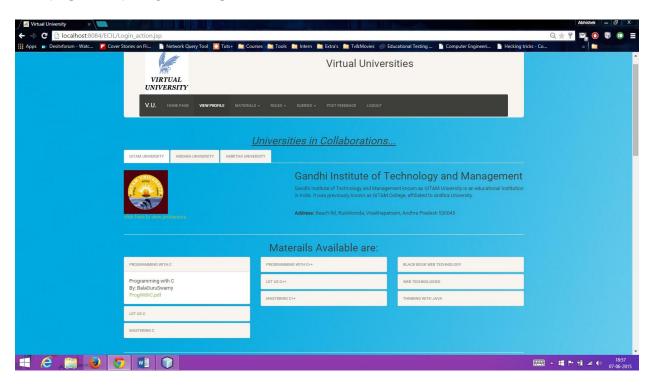

ADMIN HOME PAGE
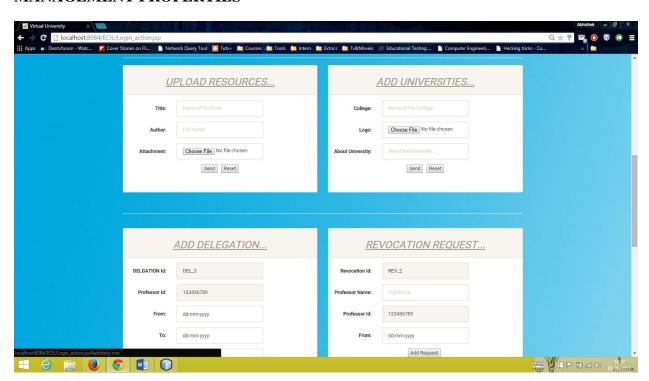
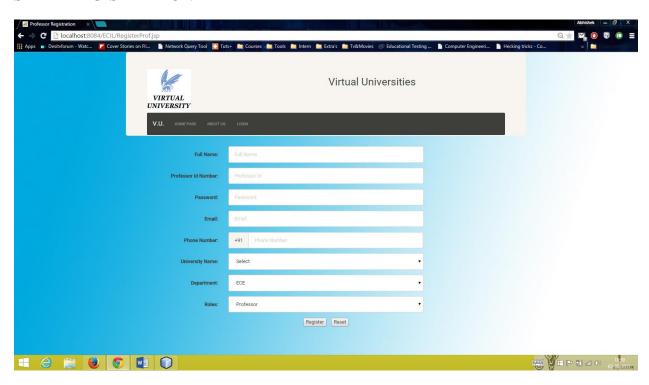## STAFF DETAILS IN ADMIN

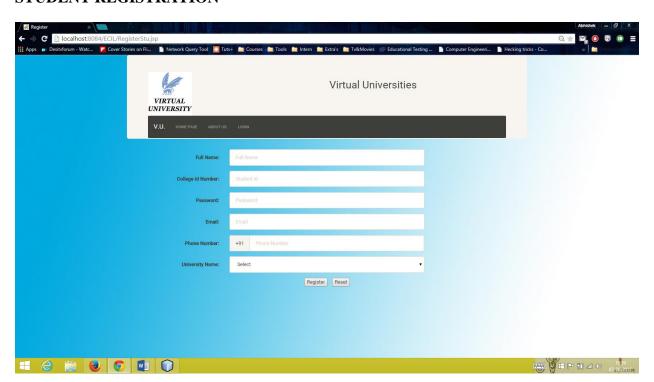## STUDENT DETAILS IN ADMIN

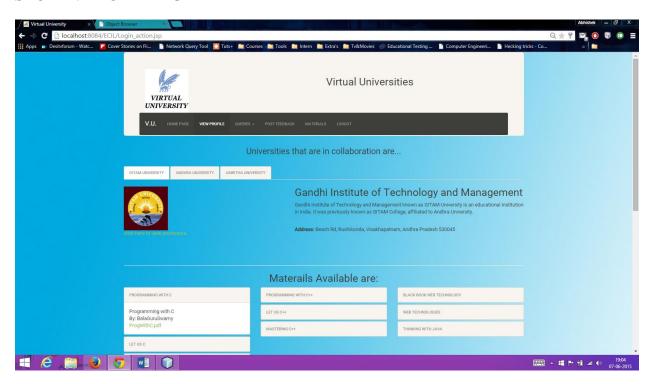# MANAGEMENT HOME PAGE

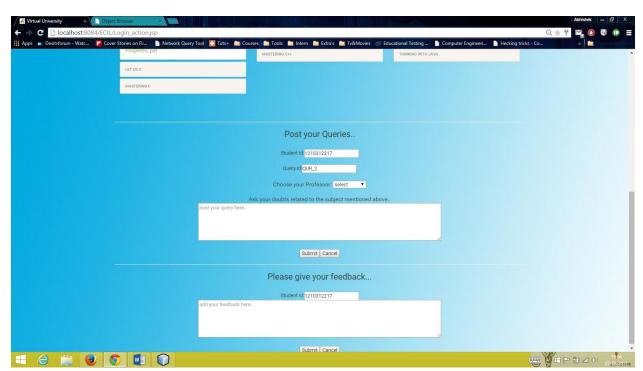# MANAGEMENT PROPERTIES

STAFF REGISTRATION
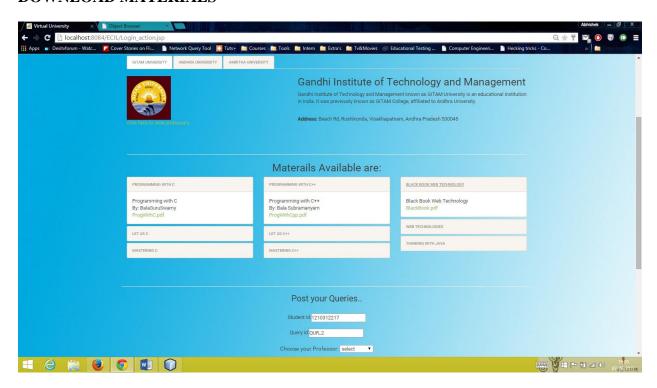

STUDENT REGISTRATION
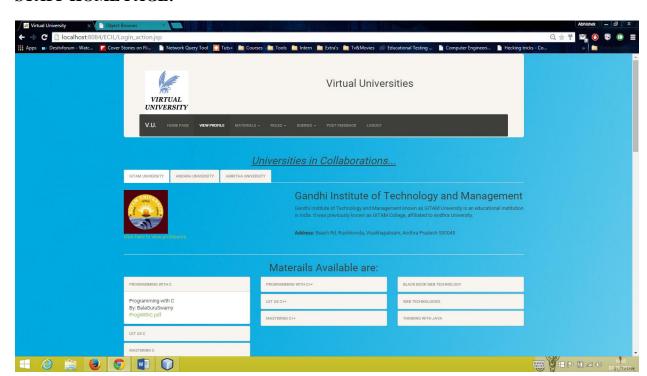
STUDENT HOME PAGE

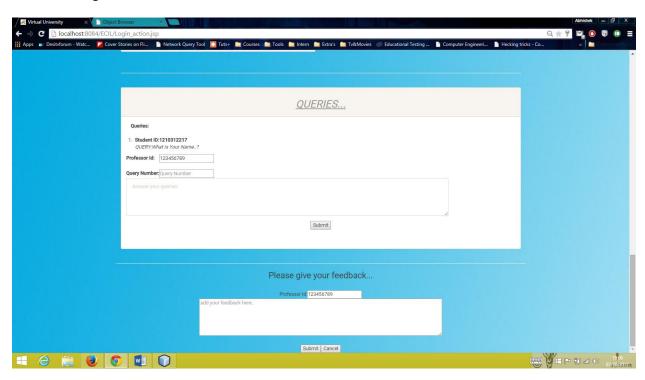

ASK QUERIES IN STUDENT

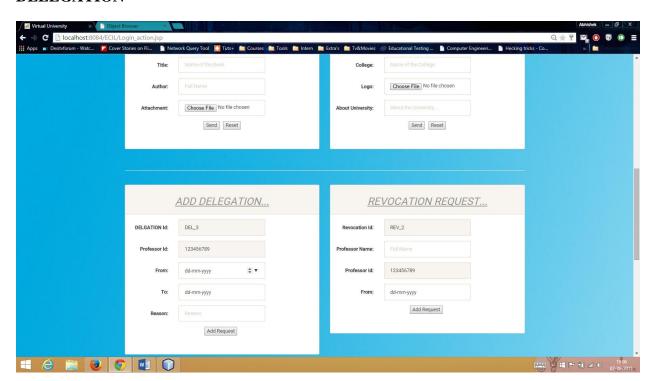# DOWNLOAD MATERIALS

STAFF HOME PAGE:

ANSWER QUERIES IN STAFF

DELEGATION

REVOKE

- **DATABASE DESIGN**

University Registration:

Field name	Data type	Constraint
unicode	varchar(50)	
Uniname	varchar(50)	
Uniid	varchar(50)	Primary key
Pwd	varchar(50)	
Confirmpwd	varchar(50)	
Hou	varchar(50)	
Yoe	varchar(50)	
Emailid	varchar(50)	
Website	varchar(50)	
Noofstaff	varchar(50)	
Noofstudents	varchar(50)	
Address	varchar(50)	
City	varchar(50)	
State	varchar(50)	
Country	varchar(50)	
Pincode	varchar(50)	
Telphno	varchar(50)	
Mobile	varchar(50)	
Status	varchar(50)	

Staff Registration:

Field Name	Data Type	Constraint
Staffid	Varchar(50)	Primary key
Fname	Varchar(50)	
Lname	Varchar(50)	
Pwd	Varchar(50)	
Cfpwd	Varchar(50)	
Fathername	Varchar(50)	
Dob	Varchar(50)	
Gender	Varchar(50)	
Marital	Varchar(50)	
Qualifictn	Varchar(50)	
Experi	Varchar(50)	
Designatn	Varchar(50)	
Dept	Varchar(50)	
Subject	Varchar(50)	

Emailid	Varchar(50)	
Address	Varchar(50)	
City	Varchar(50)	
State	Varchar(50)	
Country	Varchar(50)	
Pincode	Varchar(50)	
Telph	Varchar(50)	
Mobile	Varchar(50)	

Student Registration:

Field name	Data Type	Constraint
Studentid	Varchar(50)	Primary key
Fname	Varchar(50)	
Lname	Varchar(50)	
Pwd	Varchar(50)	
Cfpwd	Varchar(50)	
Fathername	Varchar(50)	
Fatheroccuptn	Varchar(50)	
Dob	Varchar(50)	
Gender	Varchar(50)	
Emailed	Varchar(50)	
Branch	Varchar(50)	
Batch	Varchar(50)	
Address	Varchar(50)	
City	Varchar(50)	
State	Varchar(50)	
Country	Varchar(50)	
Pincode	Varchar(50)	
Telph	Varchar(50)	
Mobile	Varchar(50)	
Yopgradu	Varchar(50)	
Yopinter	Varchar(50)	
Yopschl	Varchar(50)	
Specilgradu	Varchar(50)	
Specilinter	Varchar(50)	
Specilschl	Varchar(50)	
Aggregradu	Varchar(50)	
Aggreinter	Varchar(50)	
aggreschl	Varchar(50)	

Delegation:

Field name	Data type	Constraint
staff_id	Varchar(50)	Foreign Key
staff_name	Varchar(50)	
uni_id	Varchar(50)	Foreign Key
select_professor	Varchar(50)	
Task	Varchar(50)	
assign_date	Varchar(50)	

Ask Queries:

Field Name	Data Type	Constraint
SelectProfessor	Varchar(50)	
Studentid	Varchar(50)	Foreign Key
Studentname	Varchar(50)	
Universityname	Varchar(50)	
Enterquery	Varchar(50)	
Previousquery	Varchar(50)	
Answer	Varchar(50)	

File Upload:

Field Name	Data Type	Constraint
Staffid	Varchar(50)	Foreign Key
Staffname	Varchar(50)	
enter_answer	Varchar(50)	
file_name	Varchar(50)	
Fileid	Varchar(50)	
upload_date	Varchar(50)	

• TEST PROFILE, TEST PLAN

INTRODUCTION:

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

A strategy for software testing integrates software test case design methods into a well-planned series of steps that results in the successful construction of software. Testing is the ser of activities that can be planned in advanced and conducted simultaneously. The underlying motivation of program testing to affirm software quality with methods that can economically and effectively is applied to both strategic to both large and small-scale systems.

The following are the testing objectives:

- Testing is a process executing a program with the intent of finding an error.

- A good test has a high probability of finding an as yet undiscovered error.

- A successful test is one that uncovers an as yet undiscovered error.

DESIGN OF TEST CASES AND SCENARIOS:

The objective is to learn tests that systematically uncover different classes of errors and do so with a minimum amount of time and effort. Testing cannot show the absence of defects, it can only show that software defects are present.

Unit Testing:

- Interface

- Number of input characters should be equal to number of arguments.

- Parameters and arguments attributes must match.

- Parameters passed should be in correct order.

- Global variable definitions consistent across module.

- If module does I/O.

- File attribute should be correct.

- Open/Close statements must be correct.

- Format specifications should match I/O statements.

- Buffer size should match record size.

- Files should be opened before use.

- End of file condition should be handled.

- I/O errors should be handled.

- Any textual errors in output information must be checked.

- Local Data Structures (common source of errors).

- Improper or inconsistent typing.

- Erroneous initializing or default values.

- Incorrect variable names.

- Inconsistent data types.

- Overflow, underflow, address exception.

- Boundary conditions and independent paths.

- Error handling.

- Error description unintelligible.

- Error noted does not correspond to error encountered.

- Error condition handled by system run-time before error handler gets control.

- Exception condition processing incorrect.

Integration Testing:

Module integrated by moving down the program design hierarchy. Can use depth first or breadth first top down integration verifies major control and decision points early in design process. Top-level structure tested most. Depth first implementation allows a complete function to be implemented, tested and demonstrated and does depth first implementation of critical function early. Top down integration forced (to some extend) by some development tools in program with graphical user interfaces. Begin construction and testing with atomic modules (lowest level modules).

Bottom up integration testing as its name implies being construction and testing with atomic modules. Because modules are integrated from the bottom up, processing required for module subordinate to a given level is always available and the need for stubs is eliminated.

Top-Down Integration:

Top-Down Integration testing is an incremental approach to construction of program structure. Modules are integrated by moving download through the computer hierarchy, beginning with the main control module.

The Top-Down integration process is performed in the following five steps:

The main control module is used as a test driver and subs are substituted for all the components directly subordinate to the main control module.

Depending on the integration approach selected, subordinate stubs are replaced one at a time with actual components.

Tests are conducted as each component is integrated.

On completion of each of test, another stub is replaced with the real components.

Regression testing may be conducted to ensure that new errors have not been introduced.

Bottom-Up Integration:

Bottom-Up Integration testing as its name implies, being construction as testing with atomic modules because components are integrated from the bottom up, processing required for components subordinate to a given level is always available and for stuns is eliminated.

The Bottom-Up Integration is performed in the following four steps:

Low-Level components are combined into clusters that perform a specific software stub function.

Driver is written to coordinate test case input and output.

The cluster is tested.

TEST CASES AND SCENERIOS:

A TEST Plan is a systematic approach to test a system as a machine or software. The plane typically contains a detailed understanding of what the eventual work flow will be UINT LEVEL plan for JOB ad.

Test Report and Results:

TEST REPORT NO	1
PROJECT NAME	EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN VIRTUAL UNIVERSITIES
MODULE NAME	STUDENT REGISTRATION
FORM NAME	REGISTRATION
UNIT NAME	USER NAME & DETAILS OF STUDENTS
TEST RESULTS	ON CLICKING SUBMIT BUTTON AFTER PROVIDING YOUR PARTICULAR ACCOUNT WILL BE CREATED AND YOU

	CAN LOGIN TO THE SITE.

TEST PLAN 1:

Project Name: EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN

        VIRTUAL UNIVERSITIES.

Module Name: STUDENT Module.

Unit Name: User Name.

Test Result: The User Name Textbox is tested and verified.

Test Plan (Unit Module/Test Integration)

Test plan for EFFECTIVE COLLABORATION WITH INFORMATION SHARING IN VIRTUAL UNIVERSITIES.

Unit ID: LOGIN.

Test Case ID: Login Page.

Test Type: Unit Case.

Form Name: LOGIN.

Base Table: Registration.

PURPOSE:

     Registration table is used for store the details of registered members details and along with their Username and Password. By using these details the administrator can perform the operations.

TEST CASE DESCRIPTION:

USERNAME varchar (52), PRIMARY KEY

Test Data

SNO	INPUT SPECIFICATION	EXPECTED RESULT/OUTPUT
1.	Column Name: User Id Valid Input: If the User id	Valid Output: If the User Name and Password are

	valid along with password then the form will be navigated to allotted page. Invalid Input: If the User Name should be reentered.	correct then form navigation to home page. Invalid Output: If the User Name is incorrect error message is displayed as "User Invalid" and it will ask for enter of User Id and Password.

TEST COMPLETION CRITERIA:

When expected results match the actual results performing the test, the test is considered to be completed.

VALIDATION TESTING:

Validation succeeds when system functions in a manner that can be reasonably by the end-user. This is achieved through a series of black-test that demonstrate with requirements.

There are two tests for system conduction for the system validation:

- Alpha Testing.

  A customer conducts it at the developer's site. The software is used in a nature setting with the developer "looking over the shoulder" of the user and recording errors and usage problems.

- Beta Testing

  This test is conducted at one or more users sited by the end user of the software. Here the developer generally not presents. Therefore, the beta test in a "line" application of the software in an environment that can't be controlled by the developer.

System Testing:

Once the software product is developed, it is thoroughly tested and it is delivered to the users. Now, it has to be tested by developing it on the system i.e., to what the given software is comfortable to the environment. The software engineer should consider these issues during early stages of software development to release himself from the problems which are encountered after completion of the software. Hence, the tests conducted to ensure that the software is comfortable with the system, where it is deployed is referred as "System Testing".

- Recovery Testing

    It is often a nature fact that certain errors may corrupt the system or may make the system not to function properly to a stipulated period of time. Hence, recovery testing is the process which given software id exposed to failures and it is tested to see its recovery capabilities.

Usually the recovery can be of two types:

- Automatic through human intervention.

- Recovery through human intervention.

    During automatic recovery the software itself recovered. Sometimes requires certain addition support like system restart, reutilization, data recovery, etc., for tis normal execution when the system requires human intervention in order to recover from such recovery is referred as recovery through human intervention. Here, mean-time-to-repair is a value which is calculated to ensure that the software gets recovered within acceptable span of time.

- Security testing:

    Security plays a major role especially in that software. Which are made to deal with highly confidence data. For these systems, often several hackers try their to break the security of the system and acquire the confidential data for their foolish requirements. Hence, for these systems, security measures should be given vital importance. For this purpose, the testers themselves disguise into hackers and perform series of attempts to breaks the security of the given software can be truly judged.

- Stress Testing

    Stress testing is usually performance to check the limits of the system i.e., to what extend the system can resists the abnormal conditions. Hence, the system is tested by providing abnormal resources in different proportions. During stress testing a system can be.

- Providing the excess values of data in different proportions to check its memory management capabilities i.e., how efficiently the system manages the data which is more than its capability.

- Exposed to certain programs demanding large memory and resources not available with the current system.

- Providing too many interrupts during a specific period of time.

- Providing with too many inputs through it can survive only few inputs etc.

- Performance testing

  Performance testing is essential to ensure the given software performance to the execution when it is implemented on the system. Hence, in this case it is only the software considered but also the hardware in which it is deployed. Here, the performance testing is combined with the stress testing cases to check the internal aspects such as resources utilization and various other instances.

• **CONCLUSION**

The package was designed in such a way that future modifications can be done easily. The following conclusions can be deducted from the development of the project.

- Automation of the entire system improves the efficiency.

- It provides a friendly graphical user interface which proves to be better when compared to the existing system.

- It gives appropriate access to the authorized users depending on their permissions.

- It effectively overcomes the delay in communications.

- Updating of information becomes so easier.

- System security, data security and reliability are the striking features.

- The system has adequate scope for modifications in future if it is necessary.

This application avoids the manual work and the problems concern with it. It is an easy and fast way to access the updates information.

- **BIBILOGRAPHY**

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