

V-Academics

**Review Report
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Prepared For

**SOFTWARE ENGINEERING (CSE3001) – PROJECT
COMPONENT**

Submitted to

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Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

Abstract

When it comes to learning and understanding concepts, visuals are typically proven to be more helpful. In addition to their learning effectiveness, videos make learning relatively quicker than text, which is another reason why they are so well-liked by both teachers and students when they are present in any website. Every student's learning experience has been inextricably linked to their college projects. Students frequently need the help of such college websites because, in contrast to earlier years, the frequency of college assignments has significantly increased. Besides this, digital libraries are digital repositories that provide instructional content in a variety of digital formats for easy learning, including videos, audio, text, photos, and books.

Benefits of educational websites include convenience of learning anywhere and anywhere, cost effectiveness, and encouragement of a thorough grasp of the subject matter through interactive learning approaches like films, audios, etc. These websites include frequently updated material. In addition, high-quality learning is provided as a result of expertly crafted high-quality information.

In this work, we propose a platform which can provide the students with all the necessary resources that can help them to decide which course to register for. Later this platform can also act as a medium for the students to find the best possible resource for a particular subject while preparing that subject for CAT or FAT exam. The platform will also support a chat application which can help the students to clear their doubts. The Chat App will also support formation of groups where discussions about any common topic related to any course can take place.

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1.Introduction

1.1 Motivation

Students at VIT must enroll in new courses each semester. These courses' content and curriculum have undergone a complete revision. The student's field of study may not even apply to some courses. As a result, students struggle to select the appropriate courses for their area of study as well as appropriate resources. A platform with all the tools students demand is needed to assist them in making the course enrollment decision. The website will also have a chat component to help students get their issues answered. The Chat App will also make it easier to create groups where conversations about any topic of interest related to any course can take place.

1.2 Aim of the proposed work

The aim of V-Academics is to provide an engaging student experience with a single point of access and hub to all applications, information, and content.

1.3 Objective(s) of the proposed work

By focusing on the following criteria, V-Academics seeks to provide students with the elements listed below for a convenient and dynamic learning environment:

- To create a website with information on course curricula, syllabi, the YouTube playlists most suitable for that course, course book PDFs, and PDFs of other suggested publications.
- Additionally, our website will give students access to lecture ppts from other faculties, class recordings for foundational subjects, git-hub connections for various projects for the J component of that course, and, last but not least, a collection of current research articles that can be used as a resource for project reviews.
- The website will also include an additional feature known as a chat tool that children can use to communicate with administrators for any necessary guidance.

1.4 Report Organisation

This report was created for an academic portal and discusses the project's primary goal before moving on to the Index, Survey, and Gaps identified, which is one of the factors that motivates project creation. We also specified requirement specifications along with SRS document, plus supported by Design methodology and Interface details, and at the end we presented Implementation and Testing is done to verify the design and objective of our project, to specify regarding its limitation.

2. Literature Survey

2.1 Survey of Existing Model

Assessment, design, development, implementation, and evaluation are all steps in the process of creating web-based online learning resources for students of the Department of Special Education, Faculty of Education, State University of Malang. A website-based online learning tool with the URL <http://www.myoiaa.com> is the end product. The website provides multimedia tools that combine text, photos, and videos with reference material in the form of e-books and journals. According to the results of the tests, the creation of website-based, online learning resources for everyone in terms of plug-in media, visual communication, and software engineering can be categorized as Very appropriate.

A learning resource website is created using Kern's curricular model. Peer-reviewed content, educational goals, library search pages to locate resources using evidence, and a faculty toolbox with teaching and assessment tools were all included on the website. To assess the website, pediatric clinician-educators were specifically selected from various clinic locations. Key website components for content and usability in clinical instruction were investigated using semi-structured interviews. To find themes and representative quotations in the grounded theory tradition, researchers employed the constant comparative approach and qualitative analysis software. A website for education may improve the way AOM is taught, allow for various teaching styles, increase teaching effectiveness, and expand the knowledge and abilities of clinician-educators.

To meet the demands of students, teachers, and school curriculum, we created a website for medical students to learn about radiography. We also conducted a poll of students to gauge their satisfaction with the website. The website was developed utilizing a name that is simple to remember, free institutional software, and free university hardware at the enterprise level. The main menu contains connections to the American College of Radiology Appropriateness Criteria, each radiology course page, the student formal didactic lecture calendar, the custom-built health sciences library e-resources in radiology, and teaching files. Each course tab features lectures, extra readings, and learning modules selected by the faculty. The expectations and needs of today's students, professors, and our medical school are taken into account on the radiology medical student website.

Open Educational Resources give researchers the chance to learn about freely accessible internet educational resources. OER are publicly available, open-source, and freely reusable electronic materials that provide a great opportunity for researchers worldwide. In order to improve study outcomes, researchers must use these resources. In this study, researchers from Tamil Nadu's state institutions will put their SWAYAM program's free educational resources to use. By using the proper methodological and statistical techniques, this study also makes an effort to ascertain the extent of open educational practices used by the research academics on their SWAYAM.

The last ten years have seen a substantial growth and variety of digital educational resource repositories, to the point where they are now a vital part of the transformation of higher education.

There have been few studies that attempted to identify the dimensions of academics' adoption of educational repositories, the overlaps between these adoptions and teaching practices, and the subjective, contextual, institutional, curricular, and instructional factors that influence the various types of use.

The COVID-19 epidemic generated a unique circumstance that had an impact on the whole university system halfway through the 2019–2020 academic year. To complete the course and achieve academic goals, online learning has been widely adopted for all degrees. Teachers and students had to put in a lot of work as a result of this unanticipated change in the way they were evaluated. Method applied was a survey conducted with 30 questions on a Likert-style scale included in the survey. The two key factors were the learning methodology (online or blended), which was an independent variable, and student happiness, which was an outcome variable, resulting as b-learning methodology was deemed the most valuable by the students.

The internet which came into existence in 1969 for military purposes, resulting in the establishment of a new universe of opportunities in the shape of new services, materials and formats. Web or www is one of the most widely used services in all spheres of life. There are many different types of users who can search and find information on the web, which is a very large scale hypertext information space. There is now access to a variety of freely available online educational resources in the educational and instructional arena. These tools can both be used by tutors to enhance their instruction and by students to supplement their learning. The combination of academic and commercial capabilities required to enable a learning paradigm must be supported by education portals. Educational portals can be used as a preparation aid in one of two ways: either to retrieve material or to share information and knowledge. The gateway is advantageous for teachers and students in both situations. Users are gravitating increasingly toward a certain interface of educational portals as a result of technological advancements and the expansion of information on the World Wide Web. The focus of the current study is to identify and evaluate the variety and collection of different online educational portals.

Due to India's rapid development of internet technology, e-learning is becoming a more common method of instruction at higher educational institutions. This paper primarily focuses on assessing the effectiveness of the online learning environment from the perspective of the students. A structured questionnaire was used to collect data from students who had registered for e-learning through the COURSERA website (www.coursera.org). The questionnaire was divided into two sections: the e-learning system and the effectiveness of e-learning. Items pertaining to system quality, information quality, and service quality were included in the e-learning system. User satisfaction and net benefits were incorporated in the e-learning effectiveness component. On a five-point Likert scale, from strongly disagrees to strongly agrees, the items in this section were scored. With the help of AMOS version 21.0 and SPSS version 17.0, the data was examined. Findings Results indicate that system quality and service quality

are more important to the effectiveness of an e-learning system than information quality. Students might believe that the website's material isn't very valuable because it just allows for one-way contact. The researcher also observed that the three characteristics (system quality, service quality and information quality) of an e-learning system leads to user satisfaction and net benefits. Students are happy with e-learning platforms and intend to keep using them in the future. They also saw its advantages in terms of advancing their careers and increasing their employability. In this paper, a second-order system model for e-learning and a second-order model for its efficacy were proposed. Three first-order constructs—system quality, service quality, and information quality—have been used to define e-learning systems. User satisfaction and net benefits are two first-order constructs that have been used to define the effectiveness of e-learning. The proposed model's ability to explain how an e-learning system affects its effectiveness is highly predictable.

Learning today is no longer limited to classrooms with lectures as the only mode of knowledge transfer; rather, an electronic technique of learning has continued to emerge due to the huge expansion of numerous technologies. Learning is now possible from anywhere at any time via the Internet, wide area networks, or local area networks thanks to electronic learning (e-Learning), which facilitates education utilizing communications networks. Notably, the development of large software programmes using proprietary programming tools is not only difficult but also expensive. This is because e-Learning apps, which are now essential to the learning process, can be created. Utilizing open source software platforms, which provide software engineers and institutions the freedom to reuse, research, distribute, and localize to meet user needs, is a feasible alternative. This paper gives an overview of e-Learning and the open source community and examines how open source can be utilized to quickly achieve the development of an adaptable eLearning application for the web. By modifying free PHP source code and a MySQL database to fit an electronic class bulletin board, the authors' preliminary experiment to construct an open source eLearning platform was specifically explained.

Websites are regarded as a crucial component of any organization's competitiveness in the current world. A website's usability, in addition to its aesthetics, has a significant impact on users' satisfaction. However, a website's utility may be limited if the right metrics and approaches aren't used to measure usability. Two types of usability evaluation techniques were involved in this study.

First one is Questionnaire-based evaluation and second one is performance-based evaluation. By examining the outcomes of the observed task success rates, task completion durations, post-task satisfaction ratings, and feedback, usability assessment was carried out. The probability that task completion times will have any effect on participants' satisfaction levels. It was noted that the outcomes of the performance-based evaluation and the findings of the questionnaire-based

evaluation were consistent. The WCAG 2.0 criteria were tested for compliance with the web sites to perform the accessibility evaluation.

Over the past few decades, usability engineering has come under more and more attention. Usability in the context of websites is a property that specifies how simple it is for a user to navigate the website. A website is not only a platform for the educational institution to interact with its users, but also helps to shape its image. Academic websites are designed to inform a broad range of users. Users of educational websites are primarily concerned with two key issues: easily and quickly accessing the content they are looking for. To do this, excellent usability levels must be attained.

According to the analysis, different tasks and websites showed different correlations between task completion timing and satisfaction levels.

Based on specific indicators that are measured when users complete tasks on the website, performance is assessed, and the results are further quantified using regression and correlation analysis. The outcome also demonstrates how task completion times affect participant satisfaction levels, which is crucial information for evaluating the usability of a website. Additionally, the websites' accessibility is assessed using WCAG tools, which also sets apart the current work from other works.

Retrieving information from websites and the internet requires organizing the material on the website. In order to arrange material on academic Websites, navigation and search systems must be established. This paper explores this process and covers important issues regarding information access and the application of these systems. This is accomplished through evaluating websites.

The results will help academic website designers and students who need to access and retrieve material. Users frequently have trouble accessing and finding information on websites. Users lose patience when they can't find the information they need and websites take a long time to load.

Numerous studies highlight the factors that might be involved in the inability to obtain information. These elements could result from user incompetence, poor website design, and poorly structured and organized information on Websites. The abilities are supported by websites that have well-designed navigation and search interfaces.

It's crucial to use information architecture while creating and arranging the information of academic websites. Finding information on websites can be challenging for users. Some of these problems are inherently brought on by the lack of information.

This research highlighted the advantages of incorporating search and navigational tools on academic websites. These systems are really helpful resources that let people find and navigate the website more easily. For students from all perspectives to use these Websites and find information on them, the navigation and search functions are crucial. The current study also demonstrated how these technologies are frequently employed by large websites to simplify information access for users and draw in substantial user bases. For academic websites concerned with quality control, this research is crucial. Websites should be designed with search and navigation technologies in mind to properly organize information and improve usability.

Customer demands have resulted in more complex software needs in the modern software industry. As it guarantees early software development and high-quality software solutions, agile based software development is being adopted by software practitioners more and more. Additionally, it provides responsiveness to changes in customer needs, enabling speedy incorporation of those requirements throughout software development. In light of today's complex and changing software requirements, the relevance, advantages, and rising use of Agile techniques are addressed. The paper's major goal is to carry out an empirical investigation into the selection of the most popular Agile techniques, Scrum, Extreme Programming, and Kanban. According to the results of the survey, Scrum-based development is used more frequently in the modern software industry than Extreme Programming and Kanban approaches.

Delivering high-quality software is the main goal of software engineers in the current software industry. If applied to complicated software needs, an unplanned and unsystematic approach to software development would undoubtedly lead to the creation of expensive and low-quality software. As a result, the method used for developing software has a big impact on the final product's quality. Many software development life cycle models were created and implemented as a result of the software practitioners' realization.

Agile-based software development provides an appropriate solution to the issues that the software industry is currently dealing with, such as rising software complexity, changing user needs, tight deadlines, and limited funding. In comparison to other Agile versions like Extreme Programming and Kanban, the results show a clear trend towards a larger adoption of Scrum-based development.

The sudden growth in using agile methods across the software industry proves their efficiency and usefulness. Agile processes guarantee regular communication between developers and clients, as well as value addition, an enhanced return on investment, along with quick adaptability to changing software requirements.

2.2. Summary/Gaps identified in the Survey

We studied around 10-15 papers which had many innovative ideas for the development of a student portal/ online education system. But the main drawback behind these papers is that they are very specific to what they offer.

Although the proposed systems in these papers are good and efficient, many vital features are absent from these systems which can be found in other proposed systems. Our project, VAcademics plans to provide more than just an online resource website.

With the presence of millions of resources for thousands of subjects, students and other personnel don't have much time on their hands to manually surf through all the available contents and categories just to find that one perfect study material. We found that most of these study portals didn't have a search feature. VAcademics, when developed, will let people search and explore content, which will be, precise,

A chatbot is a chat feature which can be integrated with student portals so that they can easily connect and share resources and experiences with each other. We marked that the studied papers didn't propose such a feature so that the learning could be easier. In our project, we plan to provide a chatbot feature so that the learning curve for students can potentially be smoothed.

3.Proposed System Requirements Analysis and Design

3.1 Introduction

The Creation of this application starts with the Requirements Gathering from the client and later on Requirement analysis is carried out, if it is feasible then we will start making the application. We will identify the stakeholders, Functional Requirements and Non Functional Requirements and also we will also identify the software and hardware requirements. We will choose the best software model to implement based on the Requirements. We will construct work breakdown structure and data flow diagrams. Finally we will construct the design, coding and testing. If the application works fine then Deployment and maintenance.

3.2 Requirement Analysis

3.2.1 Stakeholder Identification

People or organizations impacted by a software development project are referred to as stakeholders. Both internal and external stakeholders are present in an organization.

Due to the fact that our project is an academic-help based software that is being deployed at the university level, the stakeholders highlighted in our projects are: Students(End Users), Admin(Project-Lead), Software Development Team, Software Company Manager, VIT.

3.2.2. Functional Requirements

- Books & Course Notes for Every Course
- Internet resources relevant to all courses
- Research Papers and Journals Associated with All Courses
- You-tube Related lectures and online courses for all the courses
- Picking alternatives for each category, such as courses and their Resources
- Authentication of login information
- It's necessary to have a Google account or a portal account.
- Student basic information is required to access materials when logging in for the first time or when New Account Creation
- Automatic Session End and Logout if Session is Idle after 20 Minutes.
- Forming a community of pupils with similar backgrounds
- Receives chatbot notifications for critical academic events.

3.2.3. Non Functional Requirements

- "SUCCESS" is shown. After successful login, a message

- If login fails, a "ERROR" message will be displayed.
- Obtaining the student's consent before moving forward with the software after each category they have chosen
- Displaying frequent alerts after each choice so you can see what the pupil has made
- Automatic recommendations made to the learner by a chatbot using AI
- Minimum Response Time from Application Side Performance and Security of the Application
- All platforms compatible
- Works efficiently even with slow internet service.
- Adhering to International Standards for Security
- Application of Audio and Image Notifications Usability, Acceptability, and Upkeep.

3.2.4. System Requirements

3.2.4.1. H/W Requirements

- i-7 Processor with 16 GB RAM
- Monitors, Keyboards and Mouse
- Laptops
- Smartphones or Tablets

3.2.4.2. S/W Requirements

- IDE: VS CODE
- MS OFFICE Suite
- Browser
- Firebase
- Canva
- MongoDB with Compass
- ReactJS
- NodeJS
- System Modeling Tools:
 - yEd
 - Star UML

3.2.5 Software Requirement Specification Document

Software Requirements Specification

for

V-Academics

Version 1.0 approved

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Revision History

As it is the First iteration of the Software Requirement Specification Document, so no Revision history is required.

Name	Date	Reason For Changes	Version
-	-	-	-

1.Introduction

1.1 Purpose

The academic portal's functional and non-functional requirements, as well as all other requirement-related information, are included in this document. This is the first iteration of a requirement specification, and it will serve as a benchmark and a directive for upcoming design and development processes. A comprehensive knowledge of the portal is ensured by this document for all project stakeholders. The application was created specifically for college students who need senior-level advice on how to succeed academically.

1.2 Document Conventions

Times New Roman is the primary font throughout the entire documentation, with important words highlighted and numbering done as 1.1, 1.2.3 to show subheading and further subparts. An important acronym frequently used here is SRS: Software Requirement Specification, and the main stakeholder is VIT students, and seniors or developers who maintain resource databases and also introducing Chat bot Facility, which acts as FAQ platform and also medium to interact with seniors.

1.3 Intended Audience and Reading Suggestions

This application can be used by any stakeholder who is a student at VIT, particularly those studying computer science and engineering. Students can read section 4 of this paper to learn more about the portal. Sections 3, 4, and 5 can be used by developers. This document includes a full overview of the project in section 2 of the SRS. Details about the tools used to create this project are provided in Section 3. Sections 4 and 5 provide information on functional and nonfunctional requirements, while Sections 6 provides class information as well as use case and state chart diagrams.

1.4 Product Scope

A platform for academics designed for students' required sign-in page, after successful authentication, they are given options to browse through categories of courses provided, including University Core, Program Core, University Elective, and Program Elective. After selecting any one of these helps to land them on the course list page where either they can search through a search bar or can slide through courses to explore their required course, leading towards resource page, they can access, they are also provided with chat bot page to clear their enquiries, and also can seek guidance from seniors, regarding their academic life in college.

1.5 References

<https://docs.google.com/document/d/1Voe9xfMWBuKoOwms5HeLCPEj90ndA7nPtDob4m usIBc/edit>

https://web.cs.dal.ca/~hawkey/3130/srs_template-ieee.doc

2. Overall Description

2.1 Product perspective

V – Academics is a user friendly Application. It is equivalent to Academic Portals. All the menus and functions are easily accessible. It follows standard protocols and quality of service.

2.2 Product Functions

Students can easily Login with their credentials, If the user is logging for the first time then the user has to sign up by giving their valid details.

After logging in, users can choose the category of particular course that the user requires.

Then the user can choose the particular course.

After choosing a particular course, users can access the resources that they want like books, Reference materials, Research papers, notes, and online lecture links.

- Users can directly read and can download if required.
- Users can use the chatbot feature to ask their doubts.
- Users can form a group with a similar set of students.
- Users can logout after the completion of their work.

2.3 User classes and characteristics

This application can be used by all groups of students.

It is a user-friendly application.

Users can access all the menus and functions.

This application is feasible to use by all sets of students.

2.4 Operational Environment

This Software will run on all the major browsers including chrome, edge, Firefox and opera. This Application runs on all types of operating systems like windows, Linux and mac. The Application runs on the android devices and IOS devices.

2.5 Design and Implementation Constraints

The relation between the modules should be less as there are similar resources there might be possible dependency between modules. Dependency should be least so that it can be the best design.

The Response given by the chatbot may be delayed and sometimes automated messages or replies might be inaccurate. The time for manual replying to the messages can not be determined. The traffic cannot be handled and load is not equally distributed.

The Forming of groups with similar sets of students is also difficult and there are some issues in identifying and after formation of group messages encryption and decryption and also access of messages will create some problems.

2.6 User Documentation

The User manual is provided for the students after logging into the application which gives a detailed description of the application.

The Chatbot feature is provided for the students to resolve and clear their doubts. The messages may be automatic if the query is general or previously defined, otherwise if the query is new then manual reply messages will be sent to the students and the query will be resolved.

2.7 Assumptions and Dependencies

The application will follow all the international standard protocols and guidelines. Quality of service is maintained. The resources provided in the application are accurate and well maintained.

3. External Interface Requirements

3.1 User Interfaces

The Graphical User Interface of the Application is user Friendly. All the menus and Functions are accessible. Different colors are used to represent different tabs. The acknowledgements and informative feedback is given to the students by the application.

Strive for consistency in position, size, color and name.

Easy reversal of action is permitted.

Short term memory load is reduced.

Support Internal locus of control.

This application offers simple error handling and error prevention.

If the process is in execution it will tell how many more steps are remaining if the process gets completed the Application gives the acknowledgement.

Usage of shortcuts is permitted.

3.2 Hardware Interfaces

This application requires an I7 Processor with 16 Gb RAM, Monitor, Laptops, Keyboards and Mouse. A Meeting Room is required for developers and the team to discuss and share their Ideas.

3.3 Software Interfaces

The database of the software is MongoDB. The system modeling tools are used to Represent the

Activities and Dataflow and work breakdown structure. Star UML and yEd are used. ReactJS and NodeJS are also required to make the Application. The IDE, VS CODE and MS OFFICE are also required. The Browser, Firebase, Compass and Canva are also required to make the Application.

3.4 Communication Interfaces

The database of the software is MongoDB. HTML, CSS and ReactJS are used for front – end development.

PHP and NodeJS are used on the server side. Bootstrap is used to make it Responsive. NodeJS is used to send emails to the users. The data is transferred to the database and the data is retrieved from the database.

4. System Features

4.1. Login page

4.1.1 Description and Priority

Login page will be an initial step or the first step of the website with the sole purpose of taking the credentials of the user and allowing the user to go to the next page.

Priority : High

Specific priority component :

- Cost : Backend cost of storing the credentials
- Benefit : Authorization and security of the system

4.1.2 Stimulus/Response Sequences

User action : username and password entered

System response :

- Login verification with database
- User verified or wrong credentials message display
- Change window to next page that is home page

4.1.3 Functional Requirements

REQ-1 : The system must allow users to log into their account by entering their email and password

REQ-2 : The system must allow users to log in with their Google accounts

4.2. Home Page

4.2.1 Description and Priority

Home page will be “a select and proceed further” page where the user will just select the “type” of course he wants and proceed further to see a list of all the courses of that type ex-Program Core , Program Elective etc.

Priority : Low

Specific priority component :

- Benefit : Segregation

4.2.2 Stimulus/Response Sequence

User action : Click on type of course

System response : Window change and course page loaded

4.2.3 Functional Requirements

REQ-1 : The system must allow users to select out of four options available on the screen

REQ-2 : The system must proceed to the next page when an option is clicked.

4.3. Course Page

4.3.1 Description and Priority

Course page will be a list of all the courses of a particular type which can be searched through and finally one selected course can be proceeded with ex- Software development can be chosen out of all program core courses.

Priority : Medium

Specific priority component :

- Benefit : links courses to respective resources
- Risk : Improper or inefficient search can be a risk

Resource page will be

4.3.2 Stimulus/Response Sequences

User action : Search and/or select course of choice

System response : Window change and resource page loaded for that course

4.3.3 Functional Requirements

REQ-1 : The system must show divisions of courses that are listed

REQ-2 : The system must allow users to search for any course with a dynamic search functionality where course name , course code, anything can be searched for and results will be shown.

REQ-3 : The system must move to the next page if a course is clicked on after search

4.4. Resource Page

4.4.1 Description and Priority

The most crucial page of the entire project is the Resource page where users can look for all the resources of a particular course and utilize them according to his/her needs.

Priority : High

Specific priority component :

- Benefit : Asset availability for the user
- Risk : Absence of resource for a particular course
- Cost : Backend cost of storing the resources
- Penalty : Excess data can lead to budget overflow

4.4.2 Stimulus/Response Sequences

User action : Click on resource links

System response : Redirect the links to the respective url.

4.4.3 Functional Requirements

REQ-1 : The system must fetch a database for all the resources of the course chosen and display results accordingly.

REQ-2 : The system must redirect the resource links using anchor tags to the respective url.

4.5. Chat Application

4.4.1 Description and Priority

Chat application is a supportive feature of the project which can be accessed from the Home page . It provides users with an interactive communication facility with other users on the portal.

Priority : Medium

Specific priority component :

- Benefit : Communication with admin
- Risk : Time delays in updation of messages
- Cost : Backend cost of chat database

4.4.2 Stimulus/Response Sequences

User action : Message typed and pressed enter button

System response :

- Display old messages for the chat server from database
- Store new messages entered if any into the database and also display it.

4.4.3 Functional Requirements

REQ-1 : The system should be able to create chat rooms using separate components of database

REQ-2 : The system should be able to store messages entered in a chat room to the respective table of the database

REQ-3 : The system should show all the messages by executing the query for getting them from the database.

5. Other Non Functional Requirements

5.1 Performance Requirements

At any given moment of the day, we might anticipate a sizable user base. In order to support the increased user base at that time, the portal must be able to. No concessions need to be made in terms of features because the site works with devices running earlier software versions as well.

5.2 Safety Requirements

Each and every piece of information a user provides when using the application is crucial, thus it is crucial to keep the data secure. To do this, we used Google Cloud Service to

encode the database programmes ,we utilized Firebase Interface to use this cloud database due to the large user base portal.

5.3 Security Requirements

It's critical to protect all of the personal information provided by the students that visit this portal, including their interests in particular courses and necessary resources as well as their email addresses, phone numbers, and Google accounts used to sign in. For the safe storage of a significant amount of data, appropriate security measures are implemented, including synchronization of Google accounts, contact and user-id verification, password details, and cloud data storage.

5.4 Software Quality Attributes

Online access to the software will be free. This programme is available to everyone who uses a Windows, Linux, or Mac OS. Due to its constant acceptance of user concerns via chat bots or request forums and its ongoing efforts to restructure them, this software is exceptionally adaptive. Due to constant oversight and regulation by the developing team, its degree of correctness is also high. Continual updates would enable problems to be examined and resolved.

5.5.Business Rules

- All the users must have a valid google account/ valid contact details such as mobile number and Email-id
- The details entered during signup must be valid for proper authentication to surf through the portal.

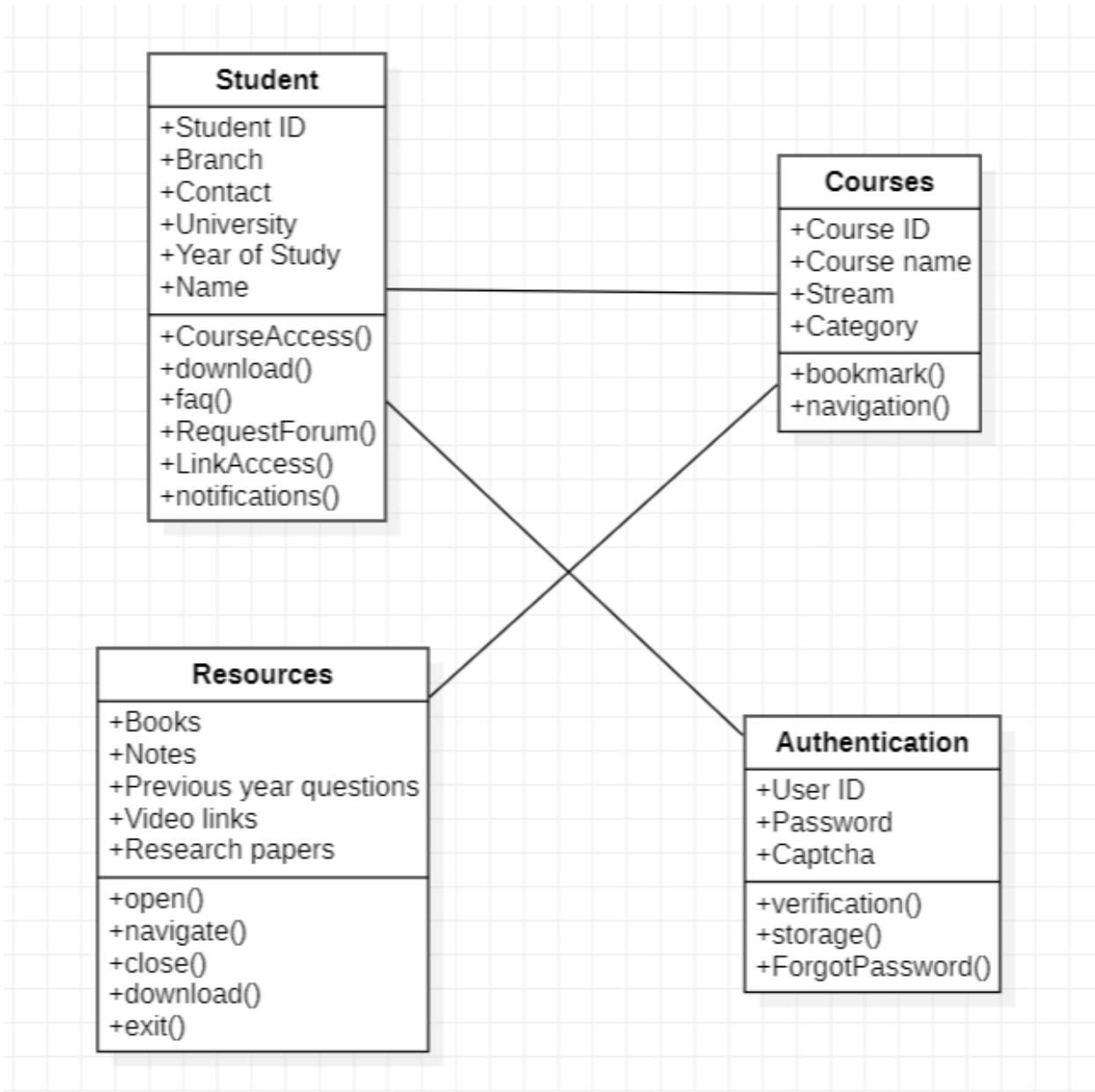
6. Other Requirements

6.1 Glossary

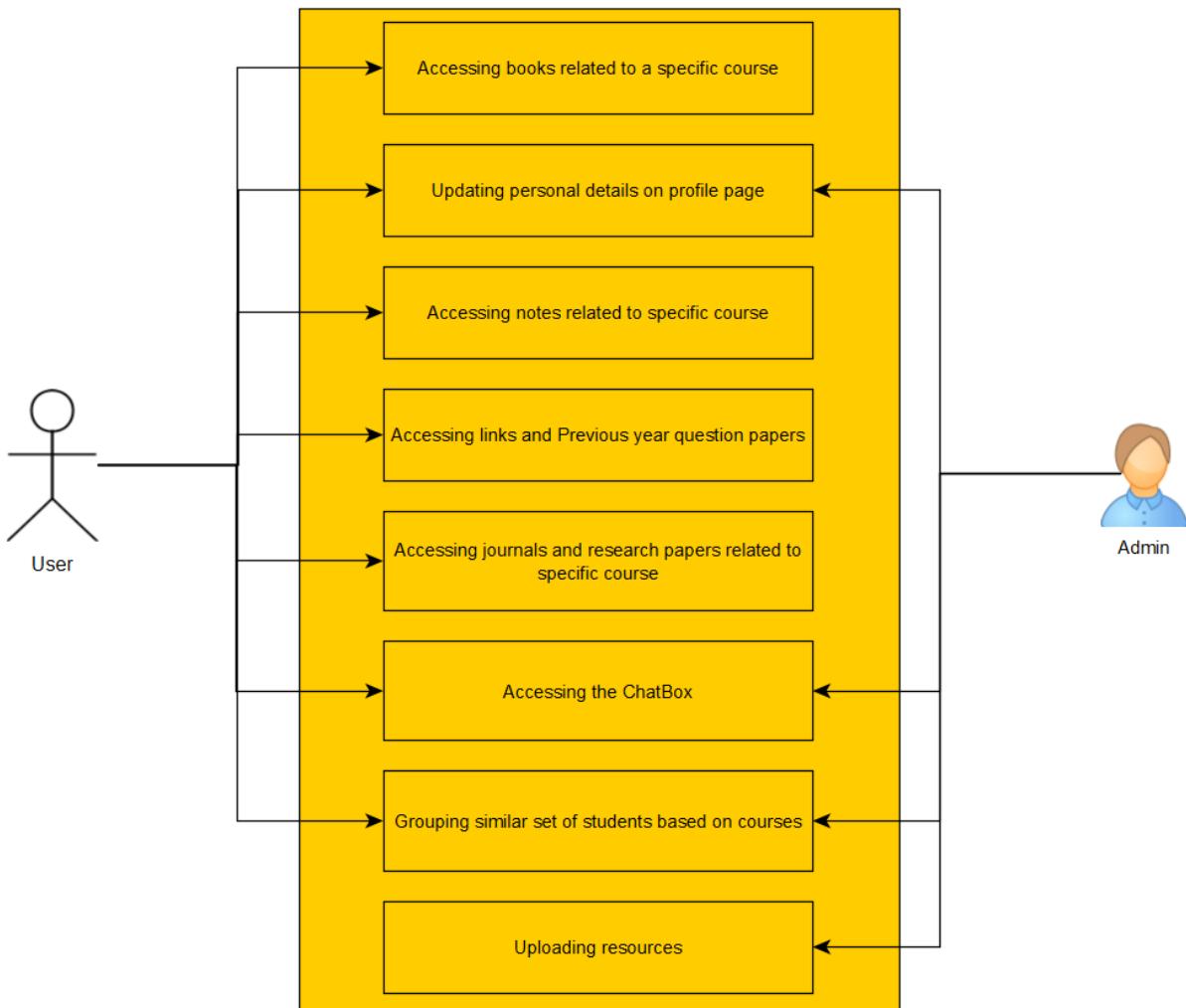
Windows, Linux, Android, iOS , Mac OS : These are names of operating systems that are widely used around the world. An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs.

6.2 Analysis Models

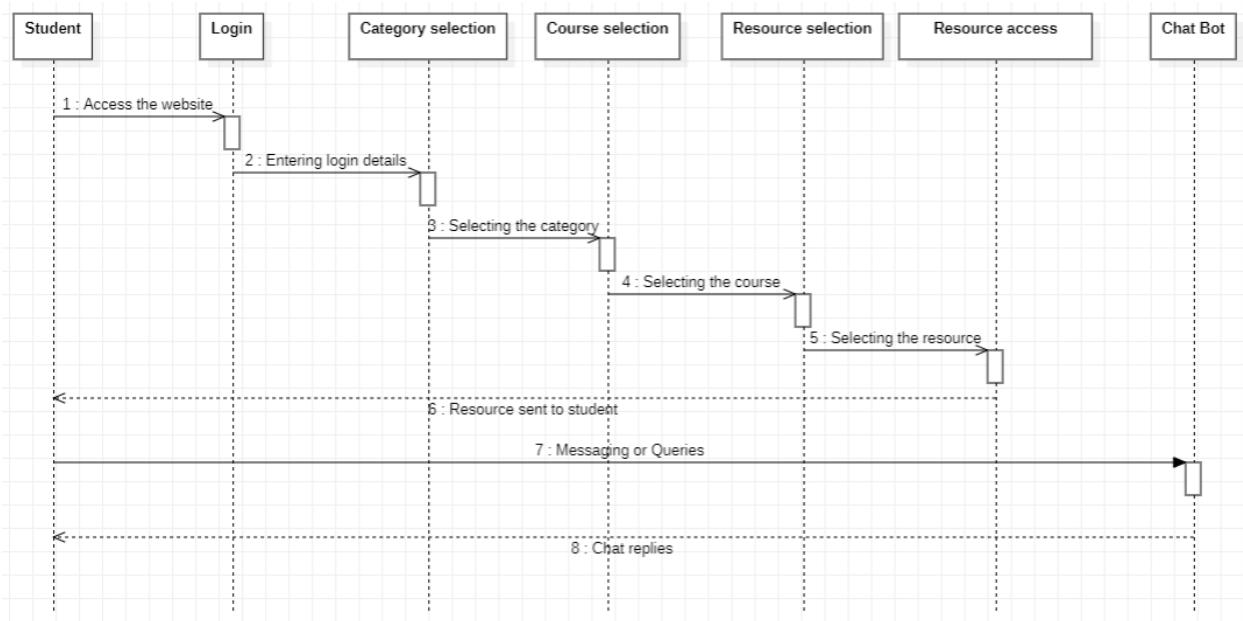
Class Diagram:-



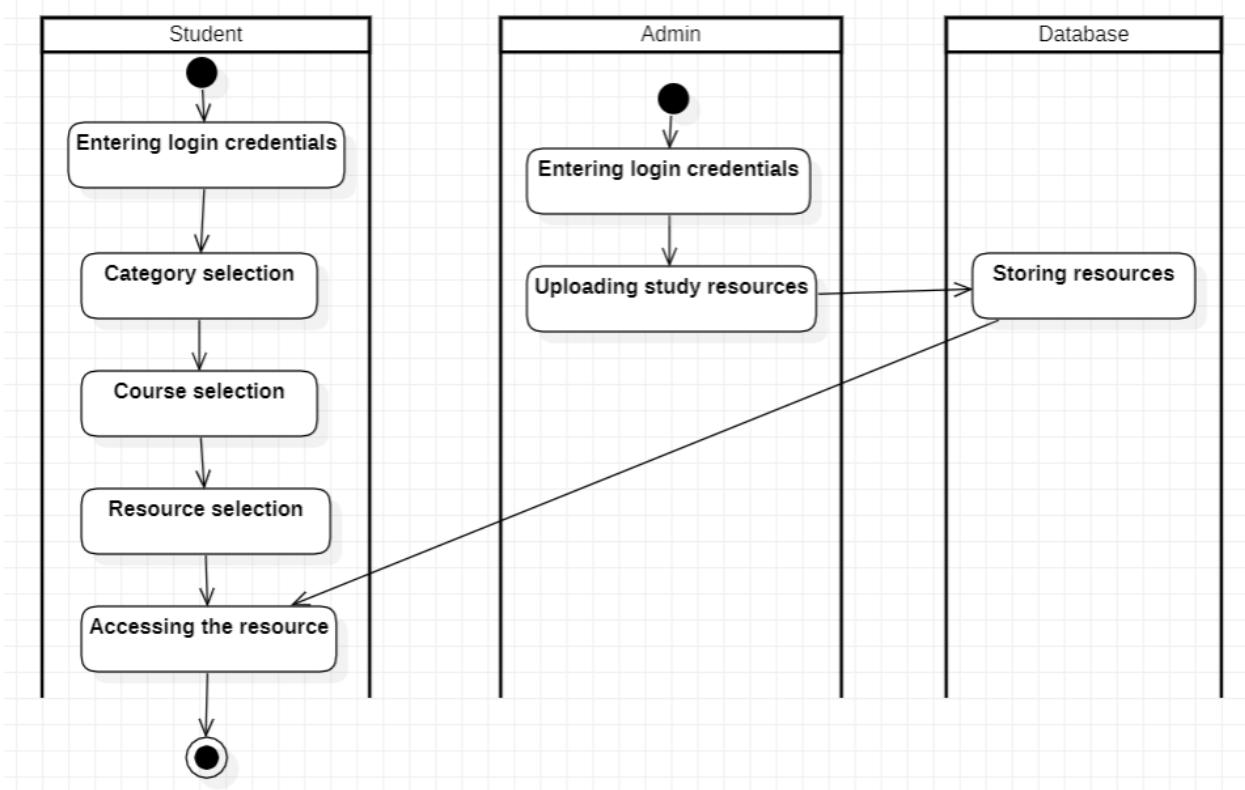
Use case Diagram:-



Sequence diagram:-

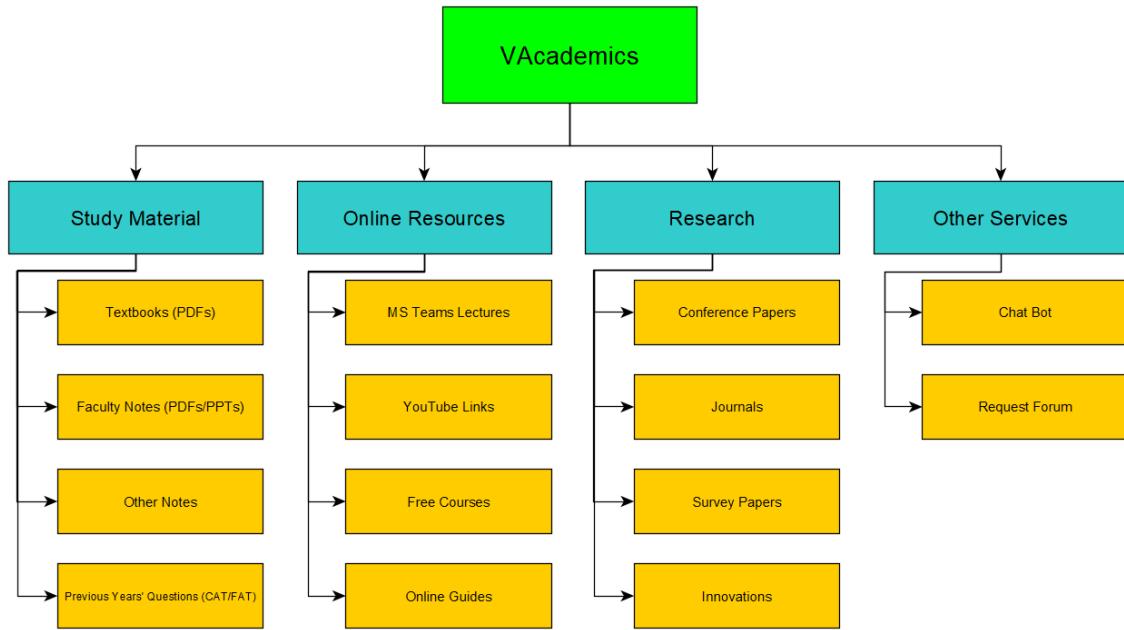


Activity diagram:-

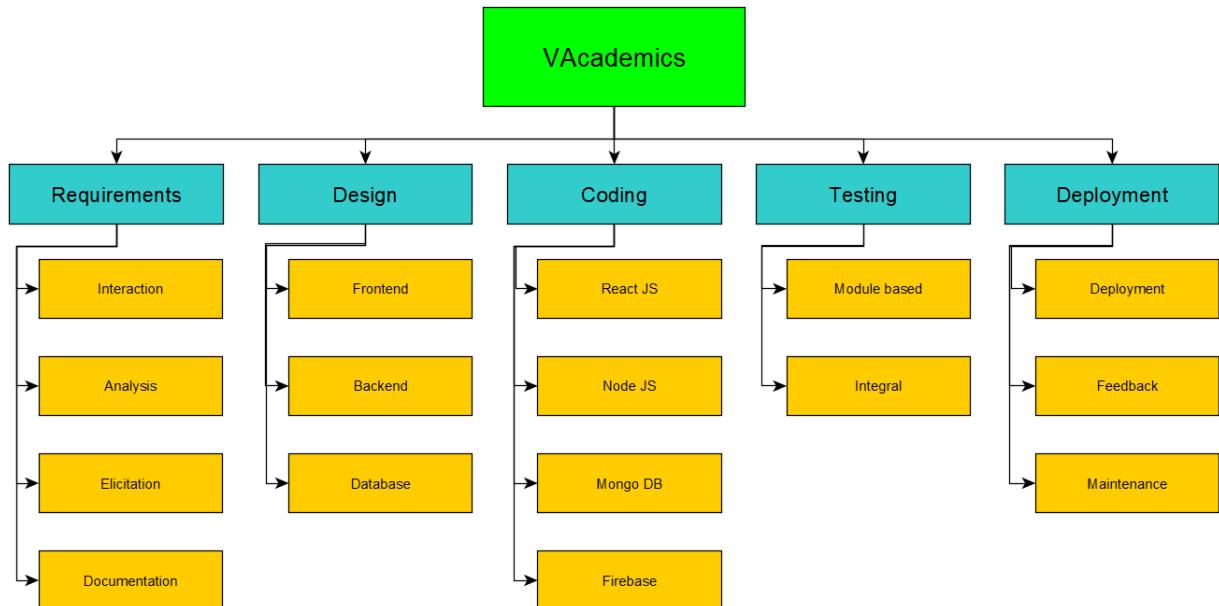


3.2.6 Work Breakdown Structure

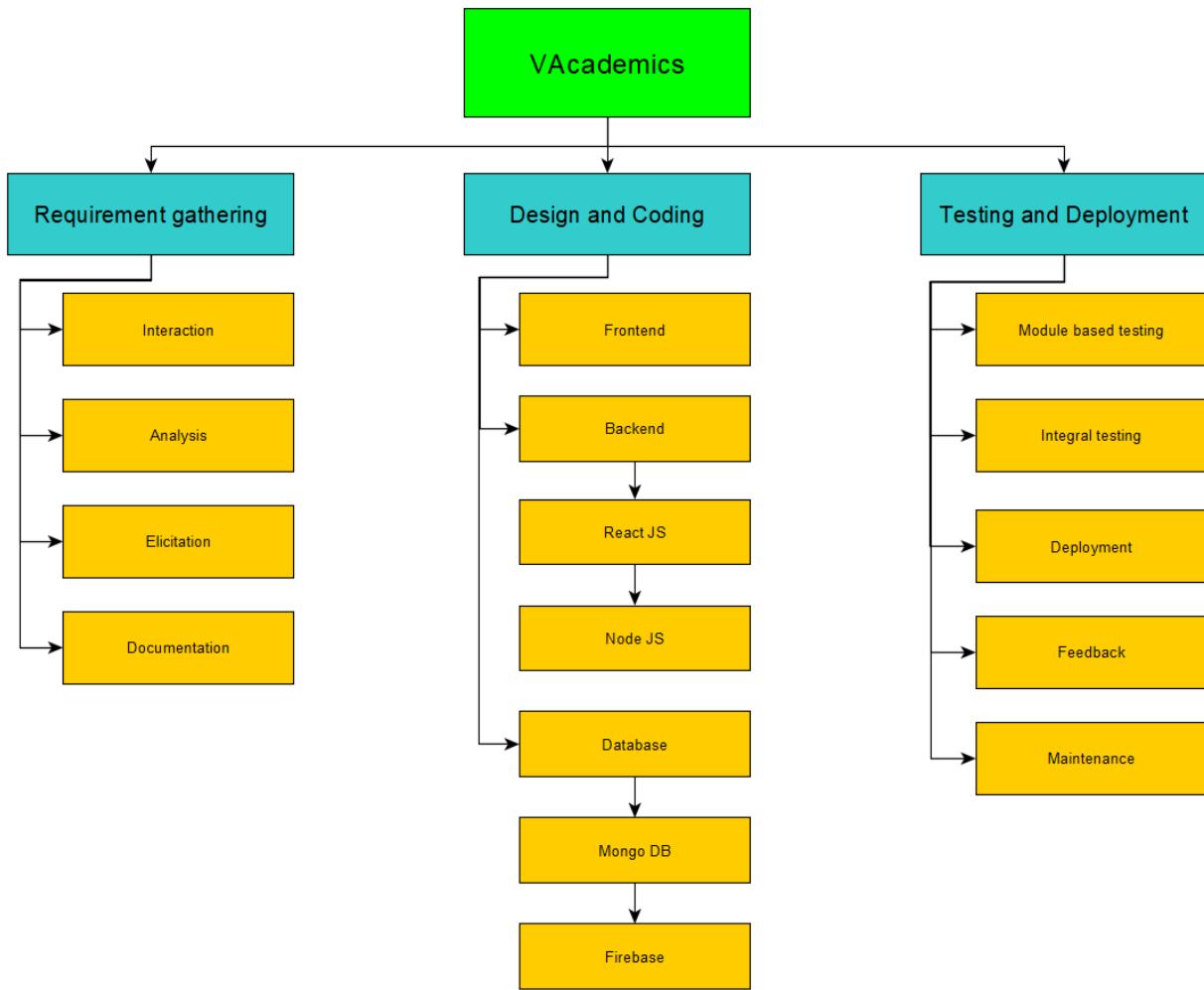
Deliverable based WBS:



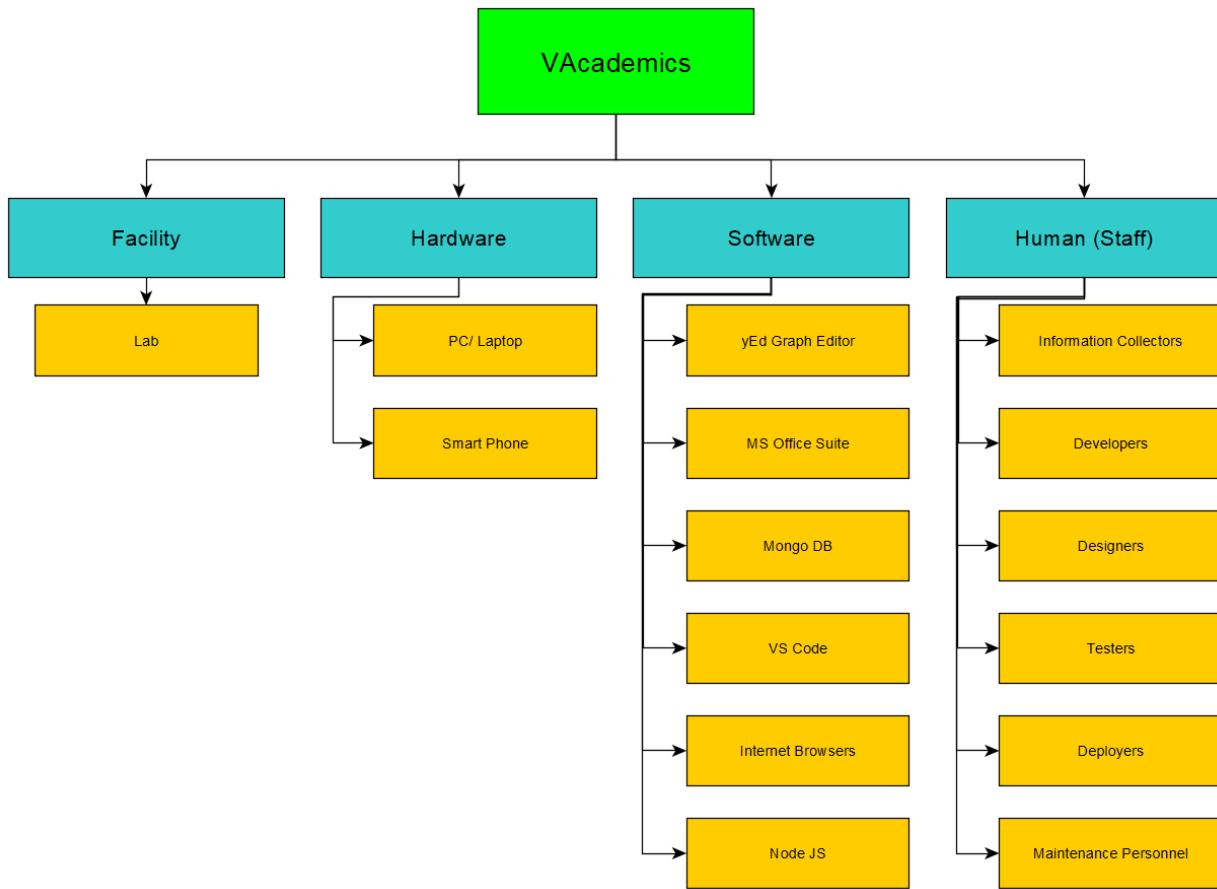
Phase Based WBS:



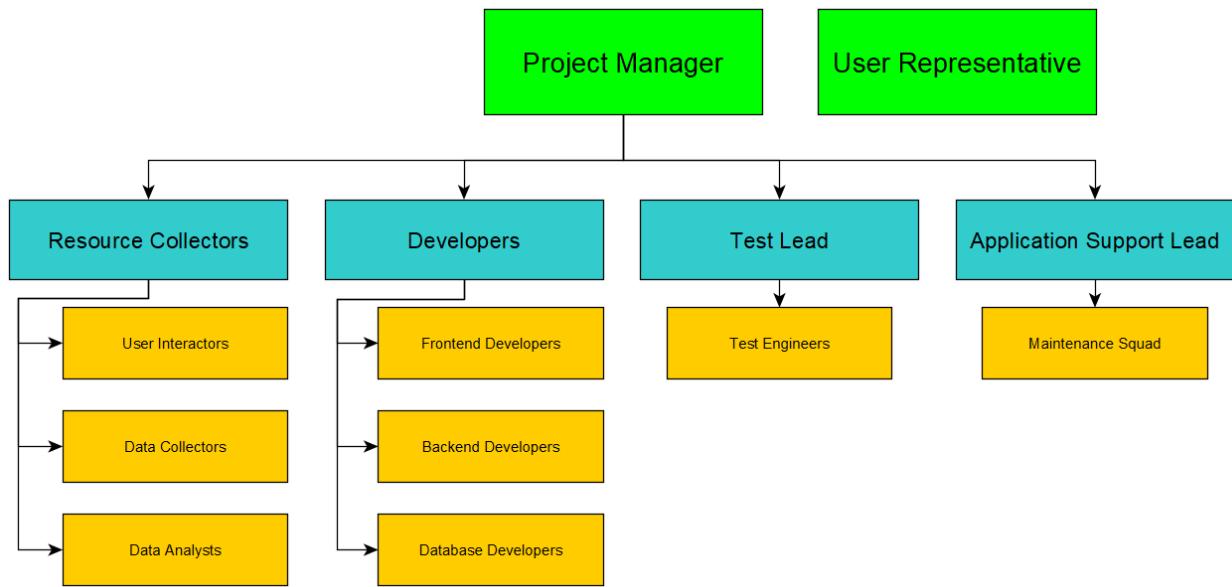
Responsibility Based WBS:



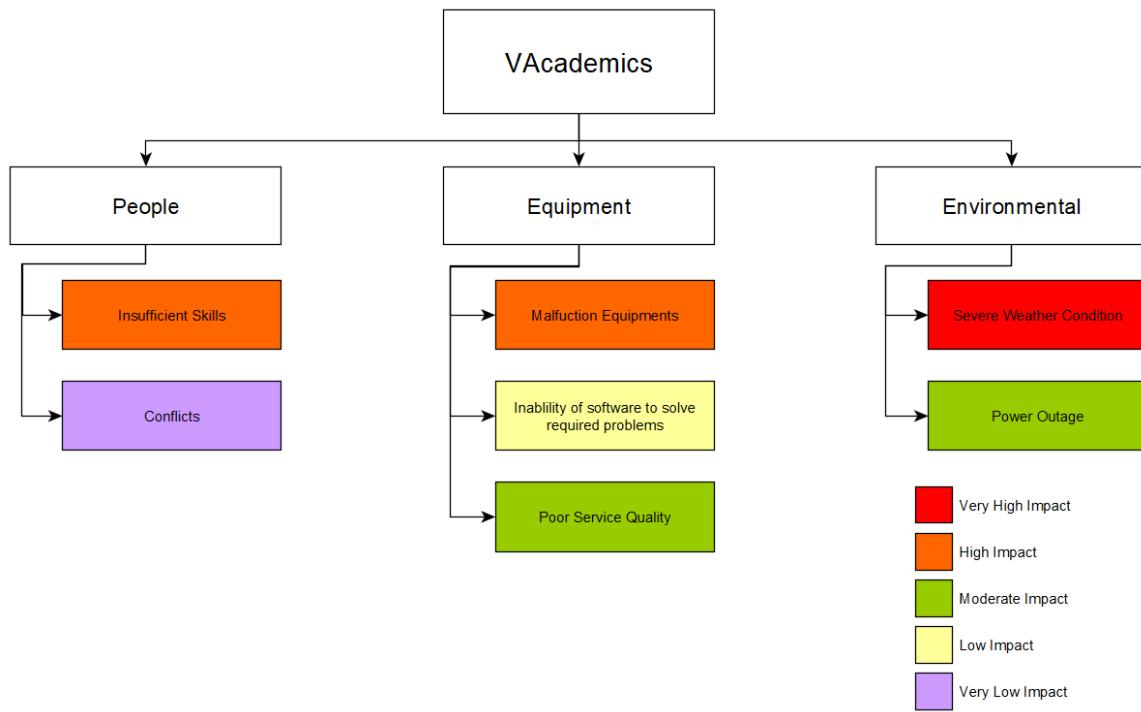
Resource based WBS:



Organizational WBS:



Risk based WBS:



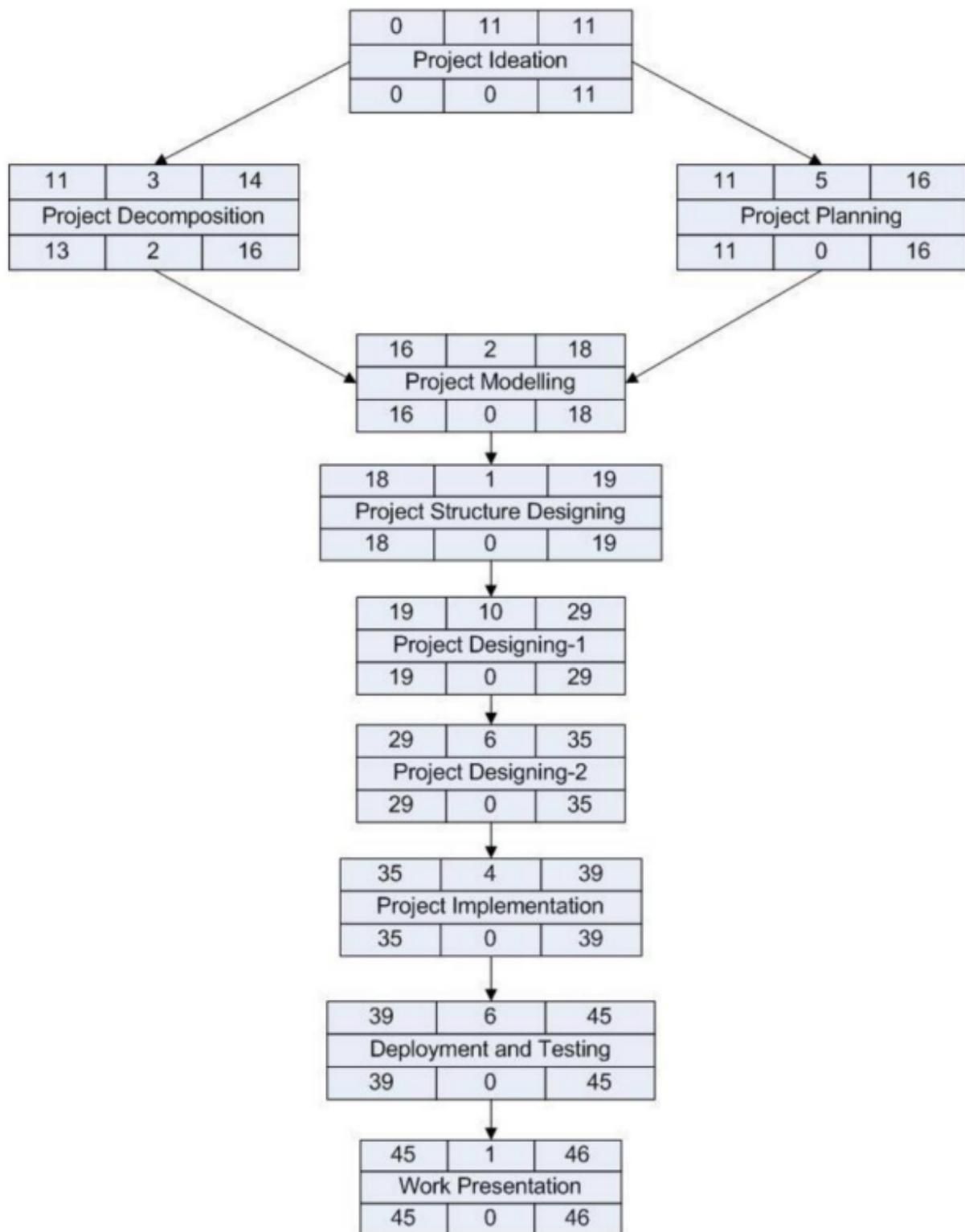
3.2.7 Pert Chart

Dependency Table:

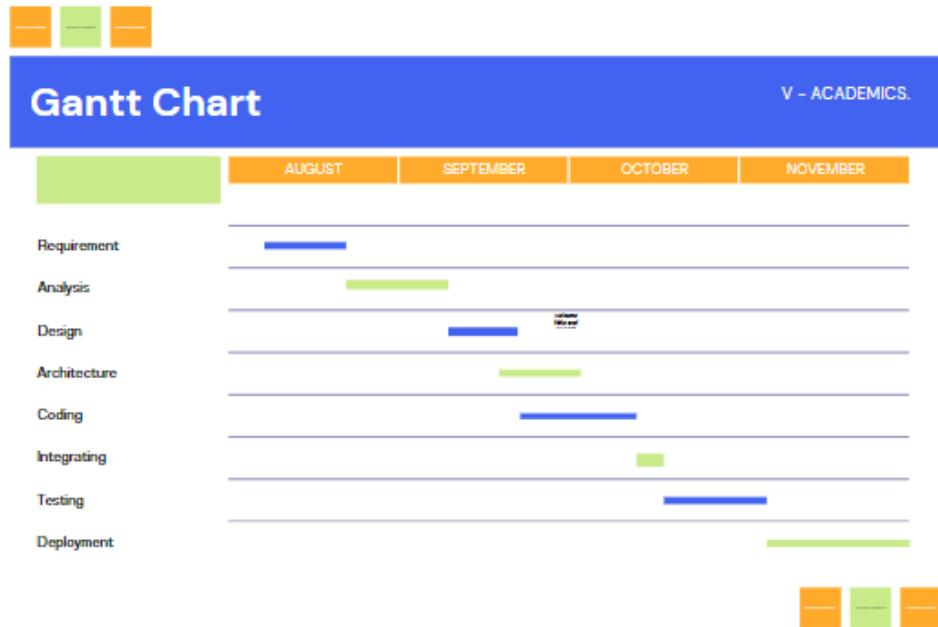
Tasks	Process Name	Immediate Predecessor	Time Estimate (Days)
Project Ideation	A	-	11
Project Decomposition	B	A	3
Project Planning	C	A	5
Project Modelling	D	B, C	2
Product Structure Designing (Software Interfaces)	E	D	1
Project Designing-1 (User Interactions)	F	E	10
Project Designing-2 (Logical constraints)	G	F	6
Project Implementation	H	G	4
Deployment and Testing	I	H	6
Presentation of work	J	I	1

Before constructing the PERT chart, we will consider the dependencies of the processes as mentioned above in the table along with their durations (weekends considered as non working days). Based on the dependencies the PERT chart is constructed as shown below. Each of the process consists six parameters:

Early Start	Duration	Early Finish
Task Name		
Late Start	Float	Late Finish



3.2.8 Gantt Chart



3.3 Project Estimation (Cost Time and Effort)

Heuristic Estimation Technique :

The V – ACADEMICS Portal comes under the category of Organic.

Generally all the Academic Portals come under this category.

The expected Lines of Code is 2 – 50 KLOC.

Basic COCOMO Model

Calculating the effort of the project it is

$$\text{Effort} = a_1 * (\text{KLOC})^{a_2} \text{ PM}$$

Here, a_1 is 2.4 and a_2 is 1.05 and b_1 is 2.5 and b_2 is 0.38 as our project is Organic.

Our Project contains 2500 Lines of Code.

Our project contains 2.5 KLOC

So $2.4 * (2.5)^{1.05}$ Person Month is the Effort

Effort = 6.28 PM = 6 PM

Calculating the Development time for the project it is

$$T_{dev} = b_1 * (\text{efforts})^{b^2} \text{ Months}$$

$$\text{So, } 2.5 * (6)^{0.38} \text{ Months}$$

The Development time for the Project is 4.938 Months means 5 Months

Average Staff Size:

This is equal to E/D Person

$$\text{Then, } 6/5 = 1.2 \text{ Person}$$

The Average Staff Size is 1.2 Person

Productivity

Productivity = KLOC/E

$$2.5/6 = 0.4167$$

The Productivity is 0.4167 KLOC/PM

Intermediate COCOMO

$$E = a_1 * (KLoC)^{a^2} (EAF)$$

Our Project comes under the category of Organic.

$$E = 2.4 * (2.5)^{1.05} * 1.17 = 7 \text{ PM}$$

$$D = 2.5 * (7)^{0.38} = 5 \text{ Months}$$

Putnam's Work

$$L = C_k K^{1/3} t_d^{4/3}$$

K is the total effort expended (in PM) in the product development and L is the product size in KLOC.

$C_k = 11$ for an excellent environment

$K = 7$

$t_d = 5$ Months

$$L = 11(7)^{1/3}(5)^{4/3}$$

$$L = 11(1.90)(8.50)$$

L=177.65 product size in KLOC

Software Metrics

TDI

- (1) Data Communications 3
- (2) Distributed Data Processing 3
- (3) Performance 4
- (4) Heavily Used Configuration 2
- (5) Transaction Rate 1
- (6) On-Line Data Entry 3
- (7) End-user Efficiency 4
- (8) Online Update 4
- (9) Complex Processing 1
- (10) Reusability 3
- (11) Installation Ease 2

(12) Operational Ease 2

(13) Multiple Sites 1

(14) Facilitate Change 2

TDI is 35

Then,

$$CAF = (TDI * 0.01) + 0.65$$

$$CAF = (35 * 0.01) + 0.65$$

$$CAF = 1$$

Here,

- User Input = 25 low
- User Output = 30 low
- User Inquiries = 30 low
- User Files = 5 Average
- External Interface = 2 Average

$$UAF = 25 \times 3 + 30 \times 4 + 30 \times 3 + 5 \times 10 + 2 \times 7$$

$$UAF = 349$$

$$FPC = UAF \times CAF$$

$$FPC = 349 * 1$$

$$FPC = 349$$

$$\text{feature point} = UAF \times CAF + \{12 \times 15 \times CAF\}$$

$$= 349 * 1 + (12 * 15 * 1)$$

$$= 529$$

4. Design of the Proposed System

4.1. Introduction

4.1.1 Purpose

The purpose of this design specification document is to describe the specifics of implementing the requirements as they are stated and defined in the software requirements specification document.

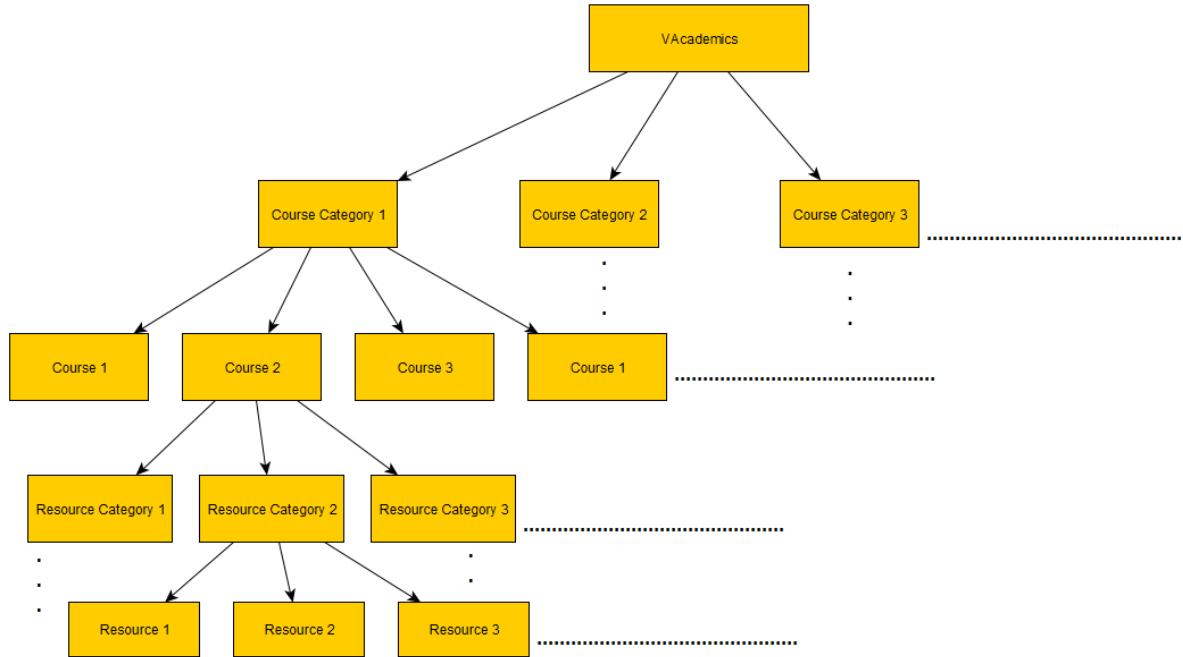
4.1.2 System Overview

A platform for academics designed for students' required sign-in page, after successful authentication, they are given options to browse through categories of courses provided, including University Core, Program Core, University Elective, and Program Elective and can access the resources they desire , they are also provided with chat bot page to clear their enquiries, and also can seek guidance from seniors, regarding their academic life in college.If a student proceeds with any one course type then he is offered a list of courses of that type and further he/she has to select from the list .Once selected and confirmed a particular course then all the resources like youtube playlists , books , class ppts , class recordings , github project links and many more are provided to the student on a single page to go through and access anyone he/she wants.The Home page is where the V-chat feature is placed but it can also be accessed through each resource page.The complete software is a utility based software where any user can explore depending on his/her needs and use cases.

4.1.3 Design Map

Welcoming all students of VIT, need to sign-in or register (if new-user), once they register through their google id successfully they can surf in future through their safe and secured logins. After successful login you will land to course category page, where you get to choose among 4 main categories namely Program Core, Program Elective, University Core and University Elective, which was designed keeping in mind our university's curriculum, to make easy surfing through ocean of courses, when we select a category, relevant course list is made available, from there you choose some specified course landing to a resource page of the same course, where you get option of different resource types varying from ppts, pdfs to online courses including research page, among these opted resource you get facility to either preview or download. Additionally it also has services of chat bot and request forums, to either provide feedback for suggestions or chat with batchmates studying the same course or get guidance through seniors to deal with subjects.

The website will search for resources and provide them to the students using a tree data structure. The design map can be visualized as the following diagram:-



4.1.4 Definitions and Acronyms

- UML – Unified Modeling Language
- SDS – Software Design Specification
- Process – One instance of a workflow
- Task – One step or piece of a workflow
- SRS – Software Requirements Specification

4.2. High level Design

4.2.1 Overview and User Interfaces

User experience (UX), which may encompass the device's aesthetic look, reaction time, and the content displayed to the user within the context of the user interface, is frequently discussed in connection with the UI.

High Level Design, or HLD for short, is the general system design, which refers to the design of the entire system.

4.2.2 High level design components

- The initial page will have a login button with the title of the website place above it in bold

- The next page will have cards flashing in the top which will scroll on a given time interval and below the cards will be sections placed such that you can choose any section and proceed
- The next page will have a search bar in the top to search out of all the divisions placed below which are the courses and each division will have an explore option to go to the next page for that particular course.
- Next is a resource page with links of all resources listed and each resource separated by a division with a click to open functionality. Resources are the high quality content and the credible information our website provides
- The chat app will have a center signup option and later the chat application will have a vertical navigation bar which will encompass the chat room and empty space after the nav bar will be the chat screen. Thus an intuitive navigation being shown by our website here.
- All the web pages are mobile compatible due to the media queries which are added to them
- All the webpages have an excellent visual design and follow a common dark theme which is supported through the elements of each web page as shown by the section 4.2.3.2

4.2.1. Architecture design

4.2.1.1 Overview

The V – ACADEMICS Application initially consists of the login page. After entering the valid credentials by the user, the user will move to the home page. The home page consists of 4 different options that users can select; those are Program core, Program elective, University core and University elective. The home page also consists of a chat box and the link for the group page where the similar set of students can form the group and discuss their academics.

The user will select one of the options among four, now the main module divides into 4 sub modules which show the list of courses under each category. Now again the user selects one of the courses among the list of courses. Now again this divides into many subcomponents such as each subcomponent represents each course.

The user will now see all kinds of resources which are available under the particular course. Now users can select a resource and can access the resource.

The chat box can also be accessed by the user and the user can access the group page in which there are multiple groups which are formed with the similar set of students.

4.2.1.2 Subsystem, Component, or Module 1 ...N

Module 1 :

The main module is the Home page which consists of 4 different options that users can select; those are Program core, Program elective, University core and University elective. The home page also consists of a chat box and the link for the group page where the similar set of students can form the group and discuss their academics.

This module is divided into four different sub modules based on the selection of the user one sub module will be accessed.

Module 1.1,1.2,1.3,1.4

This gives the list of the courses that are present under the particular category

Module 1.1.1

This Module will be accessed by the user when the user selects a particular course at the previous module.

At this Module, the user will now see all kinds of resources which are available under the particular course. Now users can select a resource and can access the resource.

Module 2 :

The Chat box feature can be accessed from the home page by the user which is helpful for user to interact with admin and clarify the doubts regarding the academic portal

Module 3 :

The user can access the group page in which there are multiple groups which are formed with the similar set of students.

This Module has many sub components such as Threads, Mentioned and Reactions, saved items, channel browser, people and user groups, apps, file browser and different channels and facility to add channels and different types of discussions which are named individually.

4.2.1.3 Strategy 1...N

Module 1

The decision made at the home page is to decide the one among 4 options. Here each option represents Program core, Program elective, University core and University elective.

The general strategy is used to design all 4 options and linking them to 4 different sub components.

Module 1.1,1.2,1.3,1.4

The decision made is selecting one particular course among the list of the courses that are present under the particular category

The course options are general buttons and each button will be linked to their respective sub component in which all types of resources are available for that particular course.

Module 1.1.1

The decision made is selecting one resource among the resources of the particular course.

Module 2

The chat box is for clarifying the doubts regarding the academic portal and the communication protocols are used and request response model also will be used and encryption and decryption of messages will also be done.

Module 3

The group is made of a similar set of students and the group has many sub components which are helpful for students. The components are general buttons which can be accessed by clicking the specified button by the user.

Coupling

Control Coupling

Control Coupling exists among two modules if data from one module is used to direct the structure of instruction execution in another.

Here initially the user will select the category so this selection of categories decides what category courses in the next module have to be displayed.

Same in selecting of course based on selection of course it decides what Course Resource page in the next module has to be displayed.

Cohesion

Logical Cohesion

A module is said to be logically cohesive if all the elements of the module perform a similar operation.

In the Application The course Category selection module all the elements in the module perform similar operation as they redirects to their respective Course list page

It is same with Remaining Modules

Chat module has Communicational cohesion as the tasks update the same data structure.

4.2.2. UI design

4.2.2.1 Application Controls

Menus :

Login page :

We have menus of Login, signup and forgot password

Home page :

The 4 menus describing each category and menu for chat box and a menu for group page

Module 1.1 :

The menus will be describing the course name of the particular category.

Module 1.1.1 :

The menus will be describing the different types of resources that are available under the particular course.

Chat box :

The menus of the chat box are Threads, Mentioned and Reactions, saved items, channel browser, people and user groups, apps, file browser and different channels and facility to add channels and different types of discussions which are named individually.

Group page :

The menus describe different types of groups that are present.

Notifications and Acknowledgements :

The notifications and acknowledgements will be displayed after the successful Login and after selecting the category of the course and selecting the course and after selecting the particular resource and after formation of groups with similar set of students

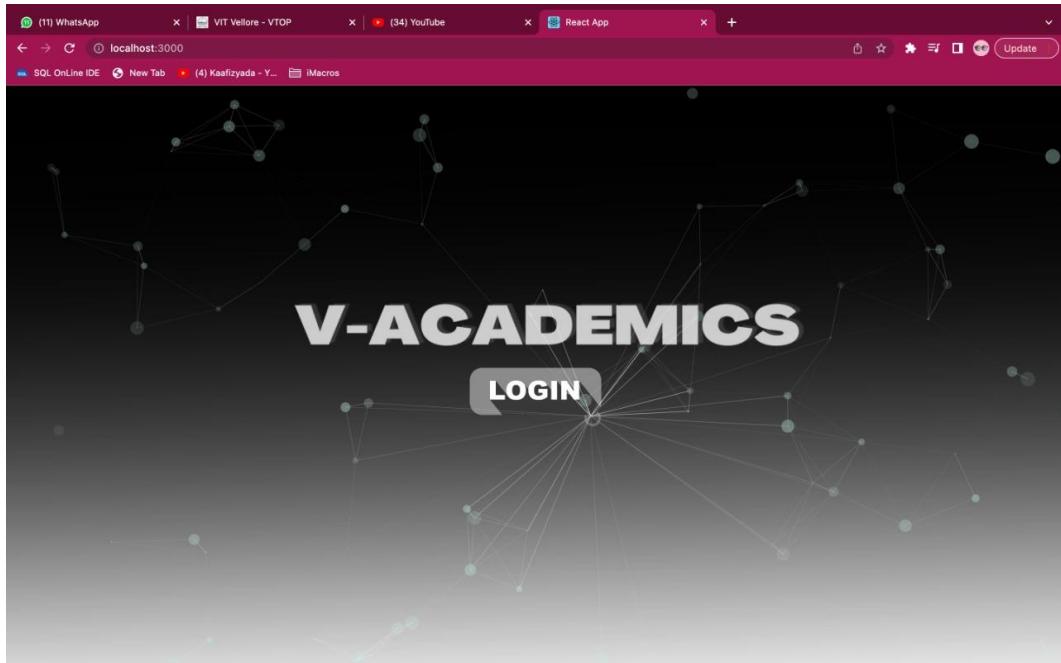
The notifications will be received by the user for the reply messages that user will get from the chat box and from the discussion group messages component.

Status Bar :

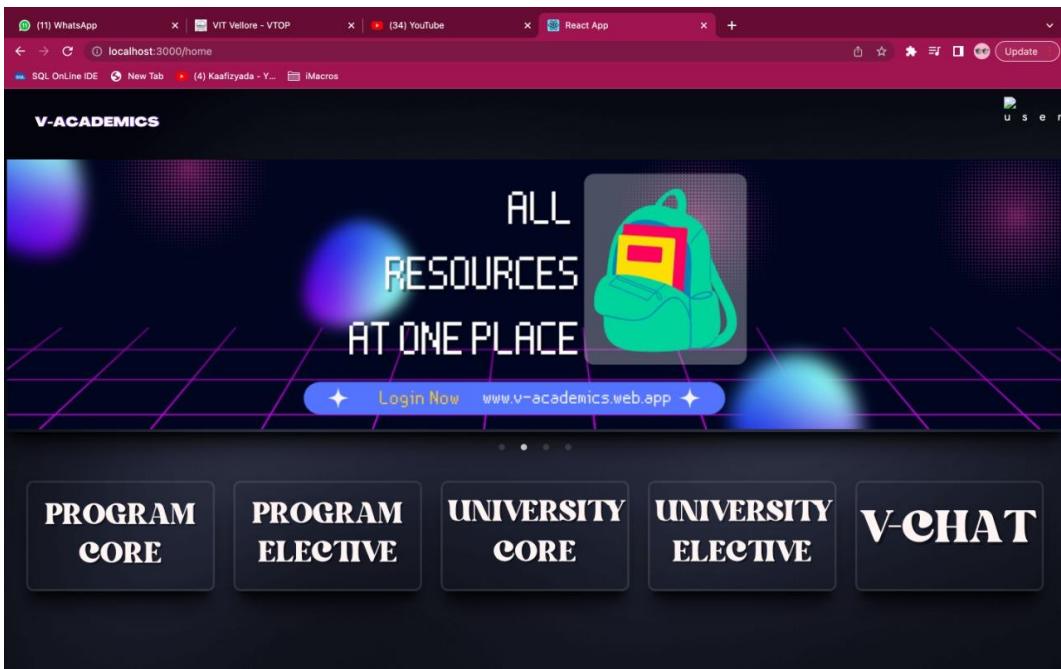
The status bar represents the status and locus of control of the user and it shows in which particular module the user is working currently.

4.2.2.2 Screens

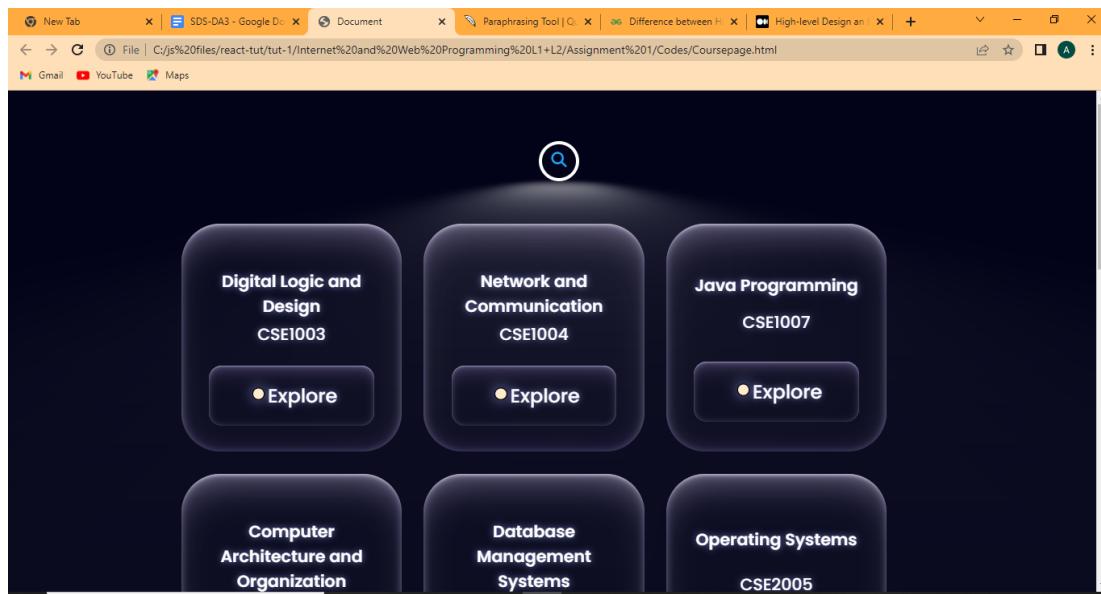
4.2.2.2.1 Login page



4.2.2.2.2 Home page



4.2.2.2.3 Course page



4.2.2.2.4 Resource page

A screenshot of a resource page for the course CSE3501 - Internet and Web Programming. The page features a sidebar menu and a main content area with resource cards.

MENU

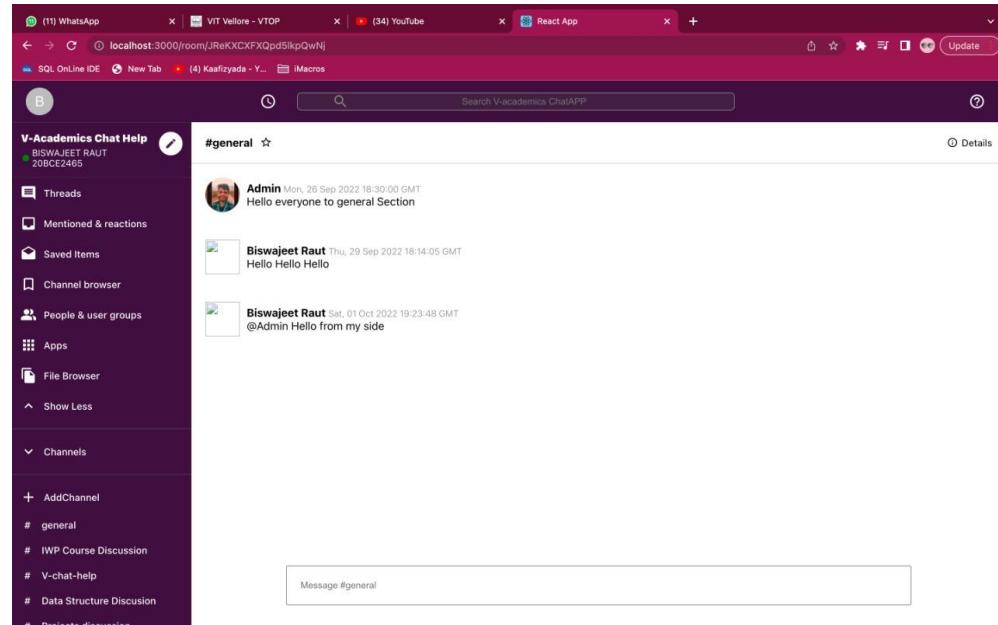
- Resources
- GitHub Projects
- Research Paper
- Comments
- U-CHAT

CSE3501 - Internet and Web Programming

Resources

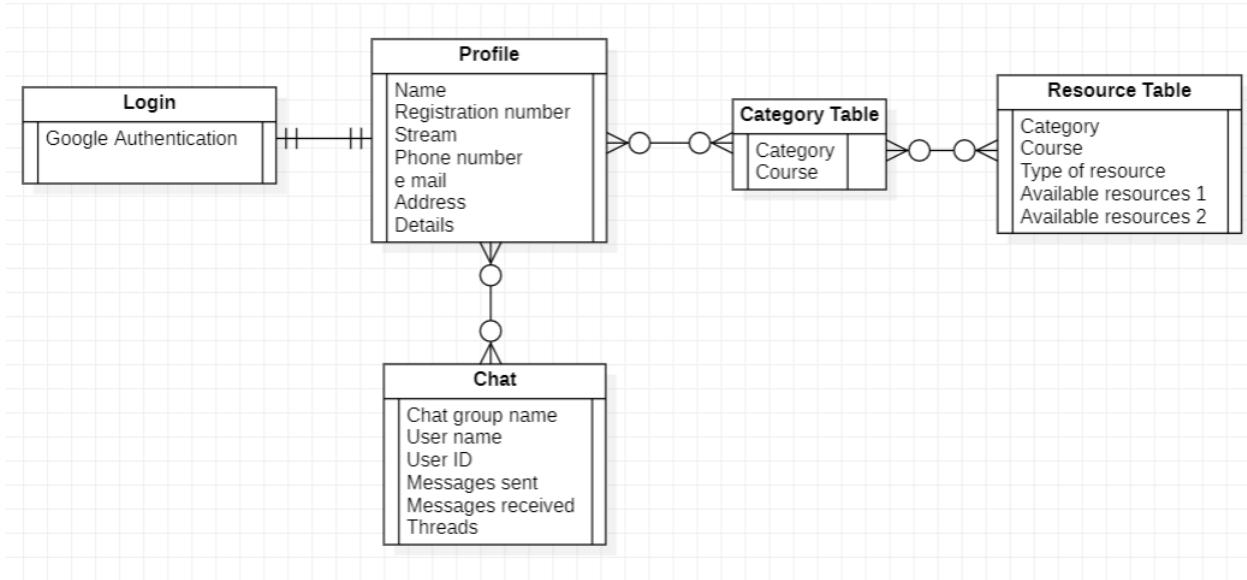
Resource Type	Description	Action
Curriculum	Icon of a document with lines	Click to Download
Class Notes	Icon of a document with a pencil	Click to Download
Books	Icon of an open book	Click to Download
YouTube Playlist	Icon of a play button inside a video camera	Click to Access
Class Recordings	Icon of a video camera	Click to Download

4.2.2.2.5 Chat Application



4.3. Detailed Design

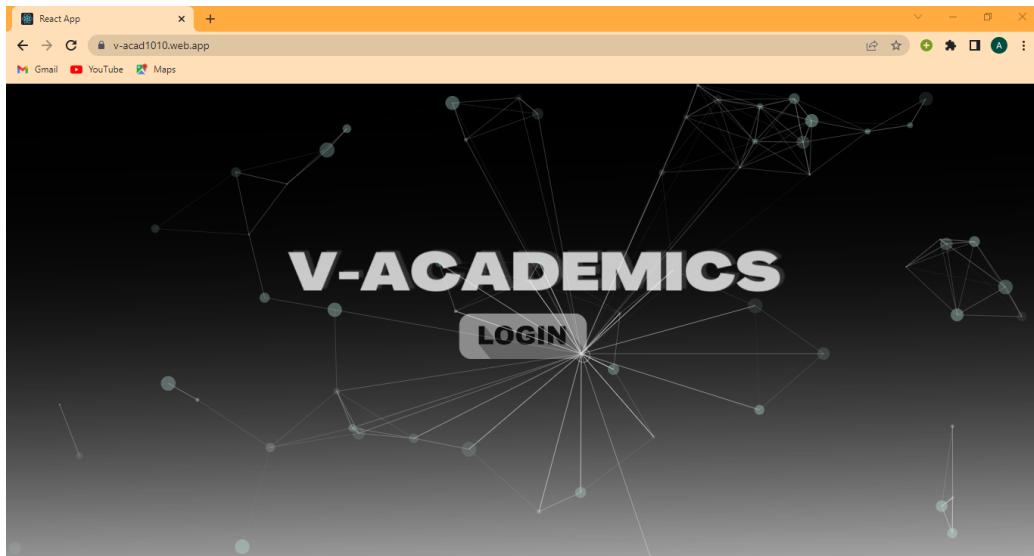
4.3.1. ER Diagram



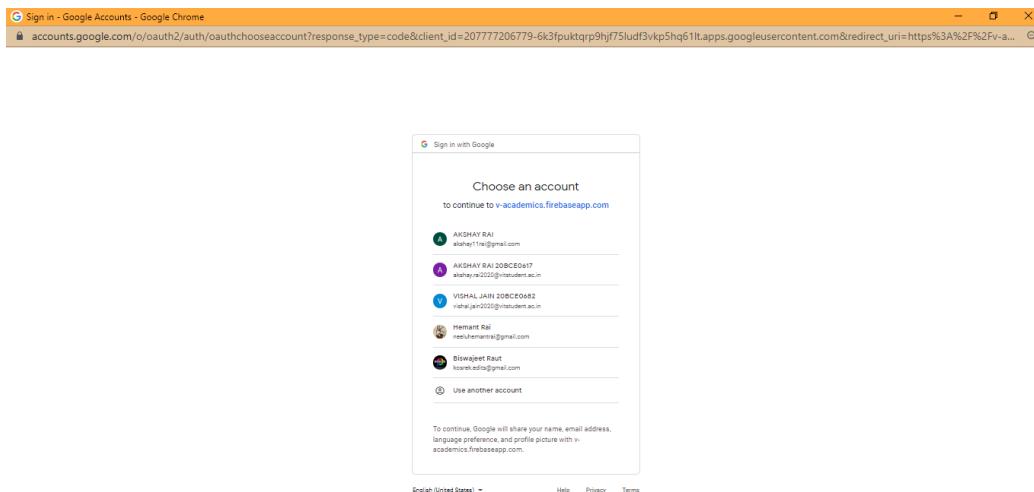
5. Implementation and Testing (Snap shots with description)

5.1. Implementation details (snapshots)

The first landing page of the website is a login page with V-academics as title in the centre and a login button below it. Besides this the background of this page is particle type which makes a simple login page more dynamic and attractive.

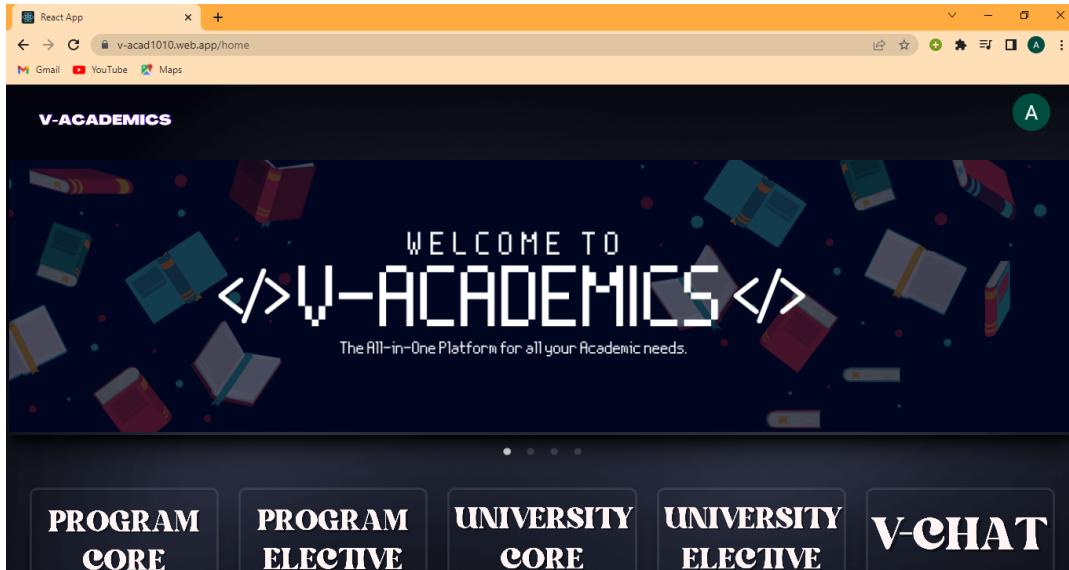


Upon clicking the login button there is a google authentication page which gets loaded automatically from the firebase and asks the user for their google account

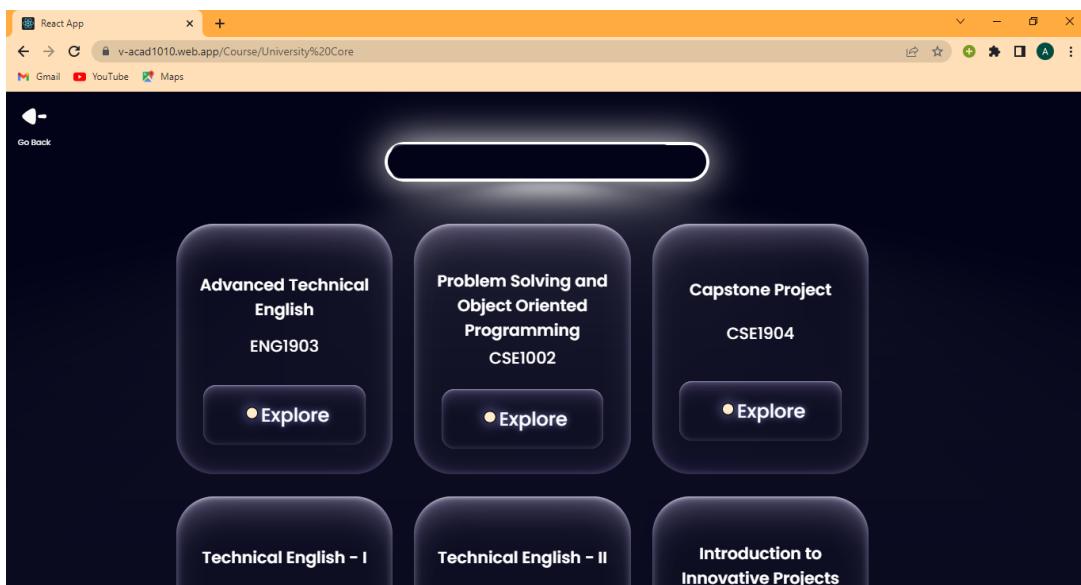


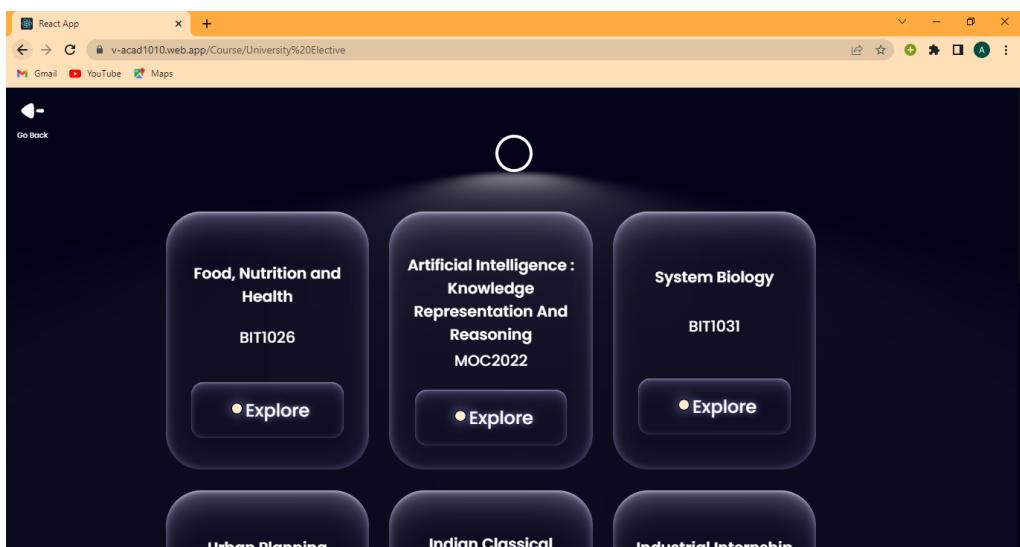
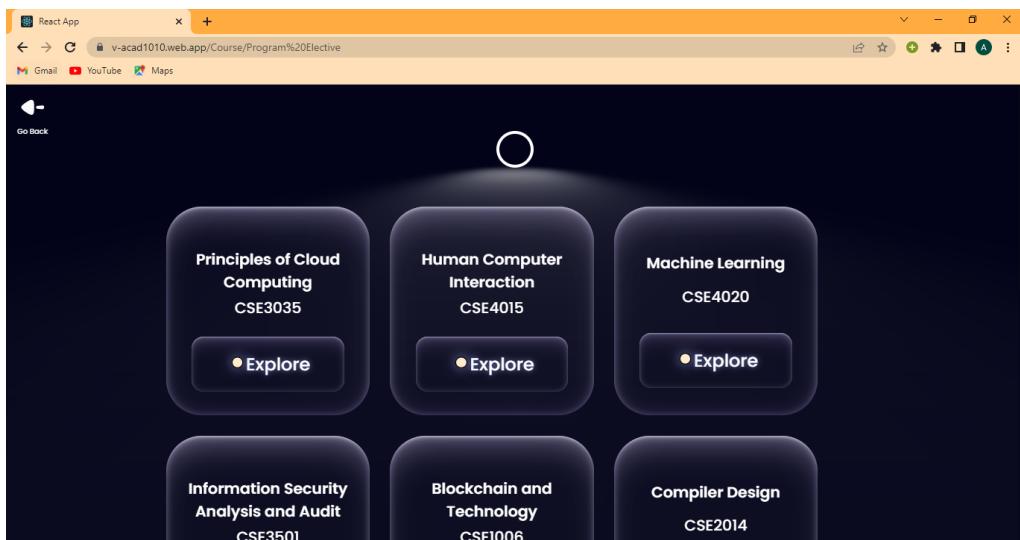
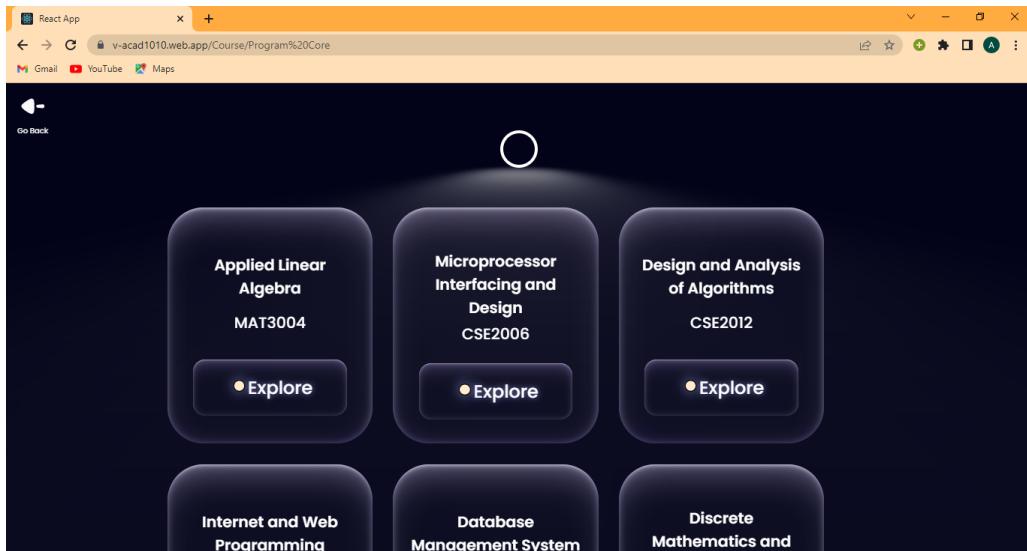
Upon selecting the google account the website takes the user forward to the home page. The home page has a slider at the top which rotates and displays four cards

continuously .Below the slider there are five divisions out of which four are the type of programs offered in btech cse core at VIT and the fifth one is the division which links the user to V-chat.

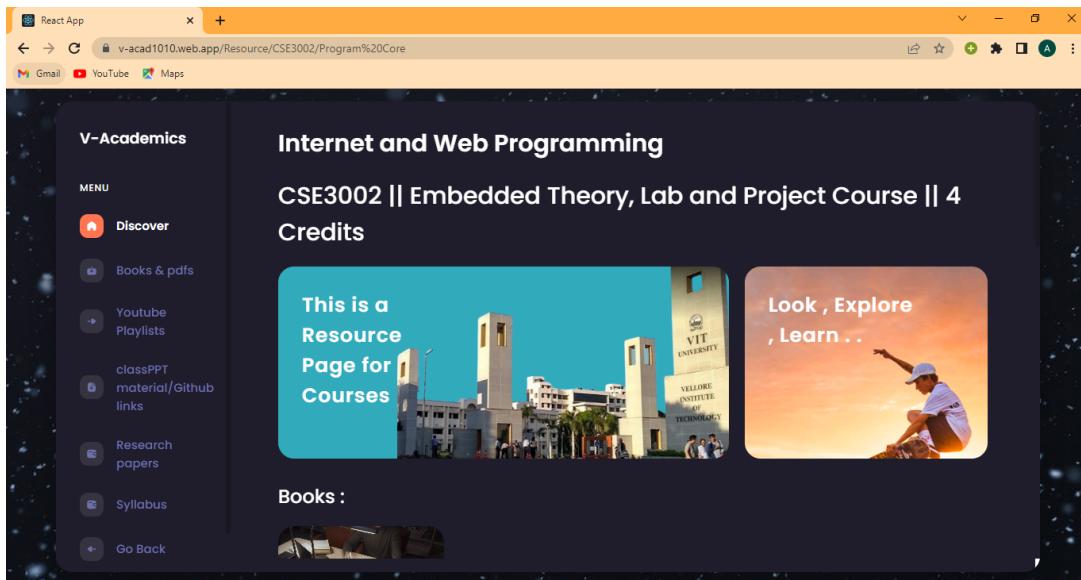


Upon clicking on any of the divisions the course page for that particular types is loaded so there are in total four course pages for the four divisions .Course page has a search bar in the top and below it a list of divisions containing information of courses .Each division has an explore button to open the resource page of that particular course.Here shown are four different course pages : -

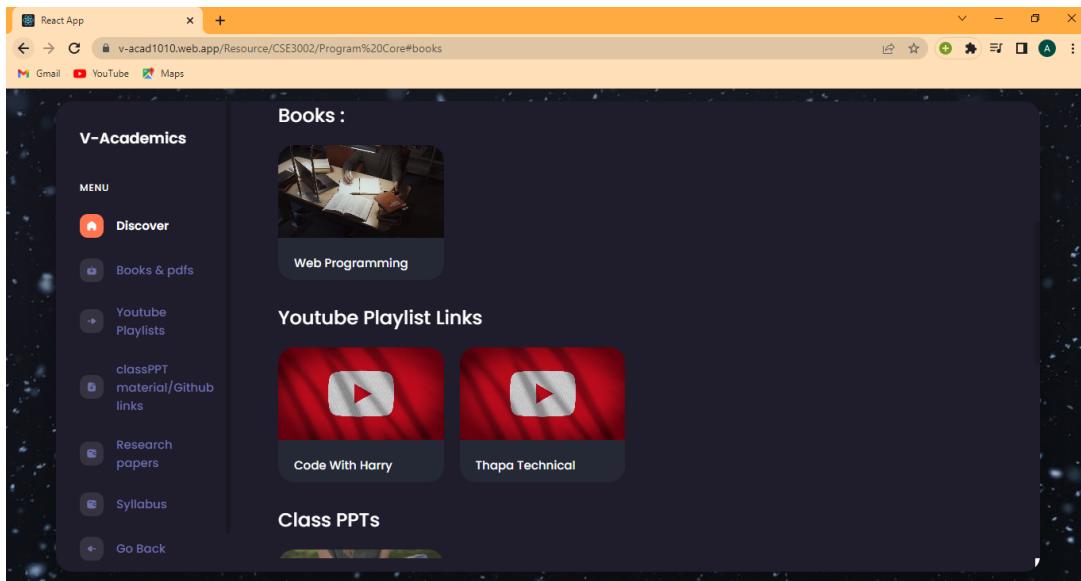


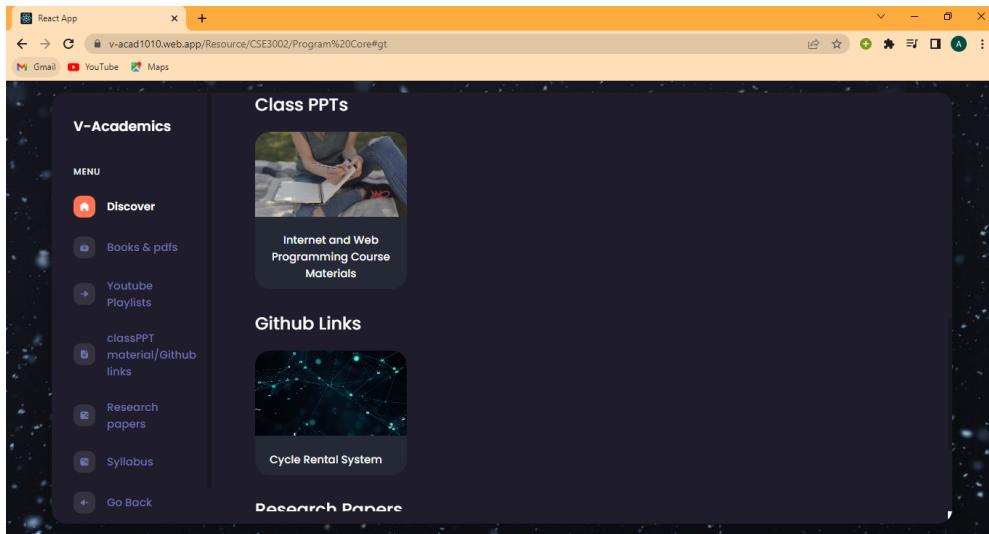


Once the explore button for any course is clicked then resource page of that course gets loaded with a center division having an internal scroll option.Resources are addressed in a vertical nav bar and are mainly books , youtube links , classppt , research paper , github links.Upon clicking on any side option the page directs to that area with that particular resource .Cards on this page are static.

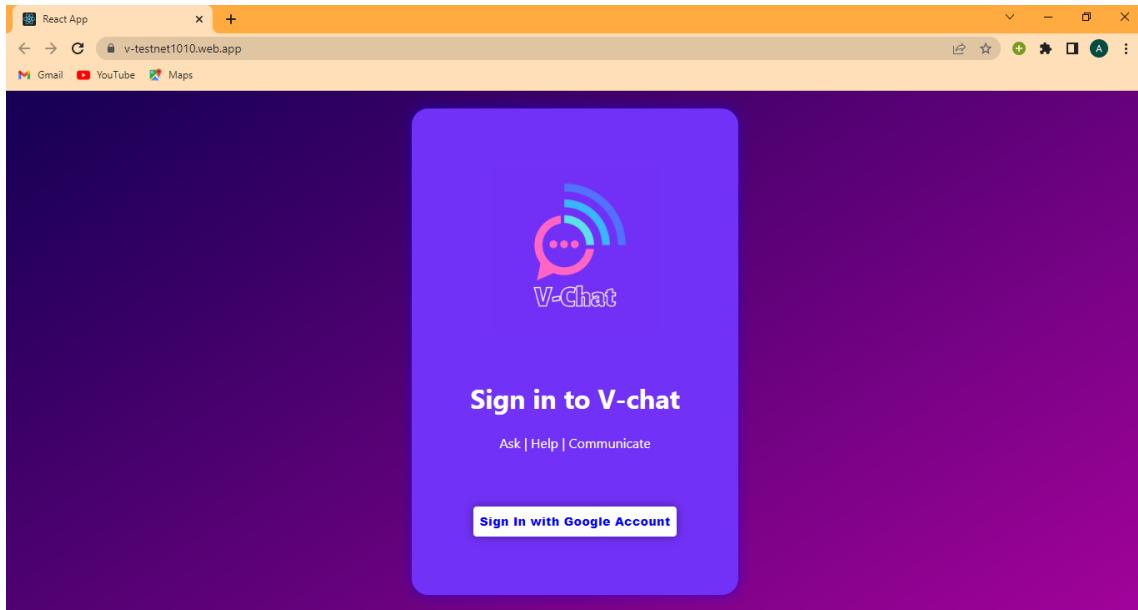


These are various resources placed in different divisions one below another available on this page which open instantly as a new window when the user clicks on them.Thus below are five open resource links from this particular page : -

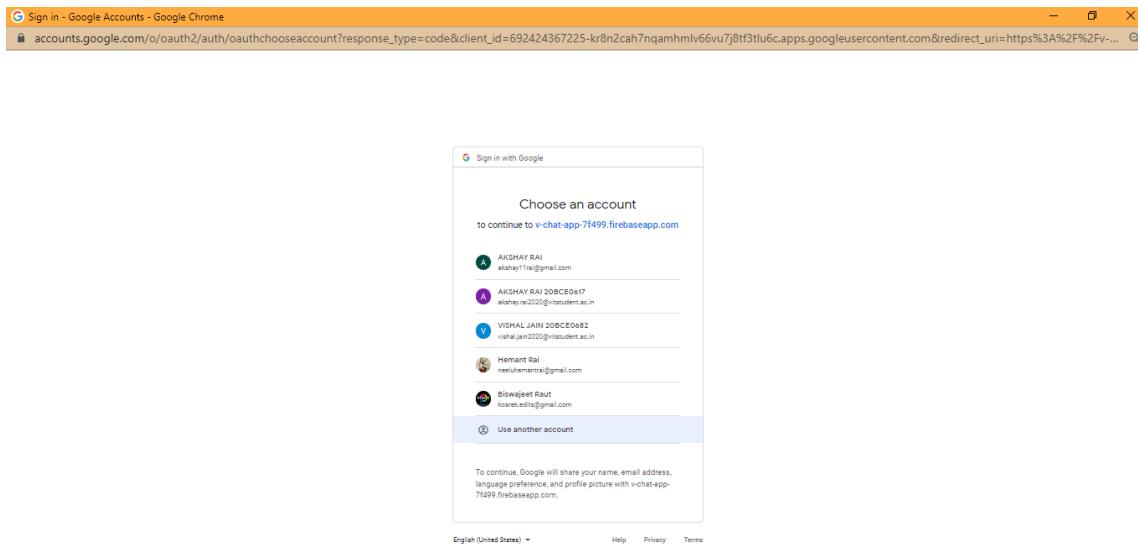




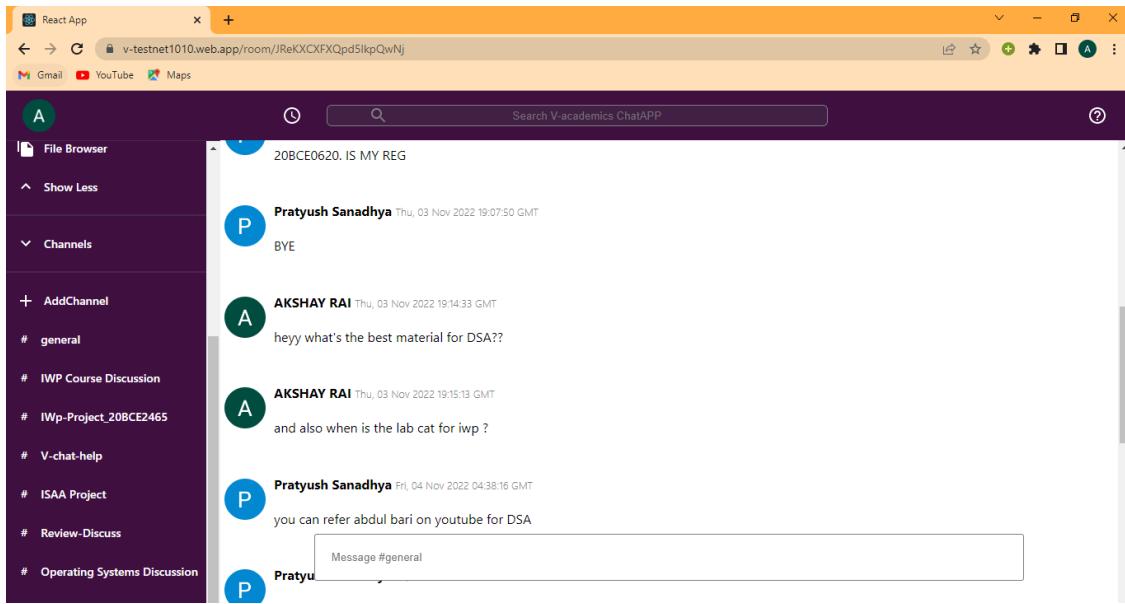
Vchat is accessible from the home page and upon clicking on the vchat option this is the user sign in page for Vchat with a sign in with google account option



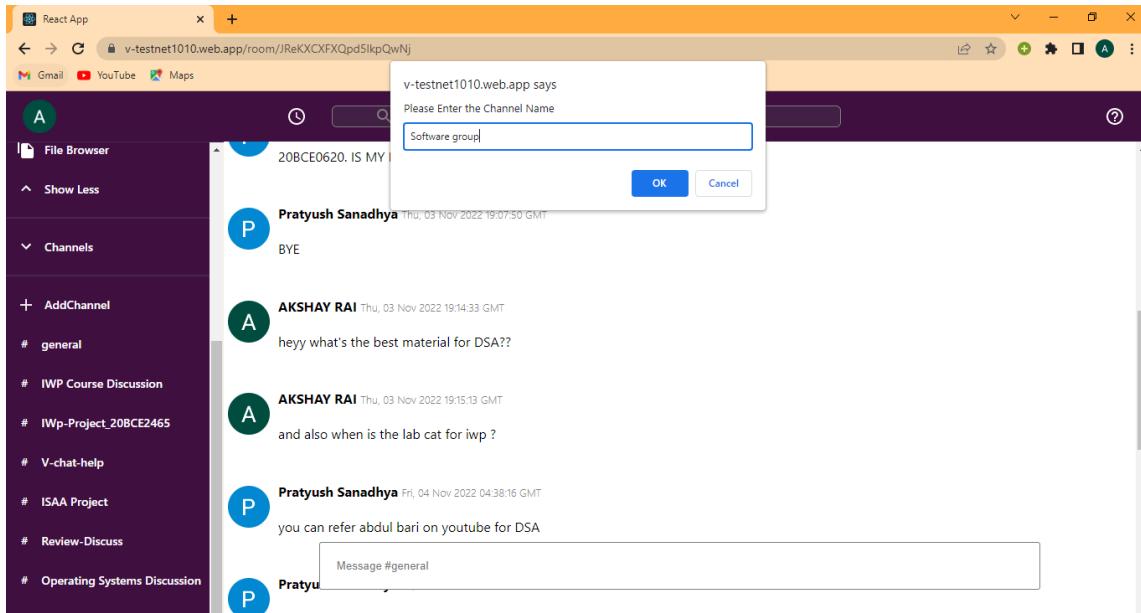
Once sign in is clicked then google authentication from the firebase is automatically loaded and the user has to select their google account



After the user authorizes, the chat page is loaded. At the vertical nav bar we have rooms and upon clicking on any room a person enters into that room and chats there by simply typing message in message box and pressing enter.



Rooms can be even be created by the user by simply clicking on add channel option and entering into an alert box and typing the name of the room and pressing ok inside the alert to close it and finally create a new room for chatting



5.2. Testing

5.2.1. Types of Testing

We performed two types of testing in behavioral aspect of software/ black box testing where we tested Unit testing i.e testing of all the modules separately namely, Google Authentication, Course Category Selection, Course selection and Redirection, Resource selection and the V-Chat, we also performed integrated testing of all modules combined in few couples to check of complete run of application.

5.2.2. Test Cases (for all modules)

Unit Testing:

Module-1:Google Authentication

Test Priority:High

Module Name:Google Authentication

Test Title: Verify login with valid google account

Description: Test the google login page

Test designed by: Akshay Rai

Test Designed Date: 7-11-2022

Test Executed by: Vishal Jain

Test Execution Date: 7-11-2022

Pre-Conditions :- User has a valid google Account

Dependencies :- N/A

S.No	Test Steps	Test-Data	Expected Result	Actual Result	Status (pass/fail)	notes
1.1	Navigate to login page	Login Portal	Login Page opens	Login Page opens	pass	
1.2	Select login method as Google account	Login Method	Google Account List is	Google Account List is	pass	

			shown	shown		
1.3	Select valid google account	Google account: vishal.jn2001@gmail.com	Google Account chosen is authenticated	Google Account chosen is authenticated	pass	
2.1	Navigate to Login Page	Login Portal	Login page opens	Login page opens	pass	
2.2	Select Login method as Google Account	Login Method	Google Account List is shown	Google Account List is shown	pass	
2.3	Select Invalid Google Account	Google account:vishal 12@gmail	not login and redirect to login page	not login and redirect to login page	pass	

Post Condition: User has been validated by Google Authentication Database and has successfully logged into the page.

Module-2: Course Category Selection

Test Priority:Medium

Module Name: Course Category Selection

Test Title: Selecting the category of the courses

Description: Selects among different course category

Test designed by: Arush Saxena

Test Designed Date: 7-11-2022

Test Executed by: Mogalapu Jaya Srikar

Test Execution Date:7-11-2022

Pre-Conditions :- We have all course category available to select
Dependencies :- Google Authentication

S. No	Test steps	Test-Data	Expected Result	Actual Result	Status	Notes
1	Select the course category-1	Program Core	Redirect to the valid course list page of the Program Core	Redirect to the valid course list page of the Program Core	Pass	
2	Select the back option	Navigation button	Redirected to the Home page	Redirected to the Home page	Pass	
3	Select the course category-2	Program Elective	Redirect to the valid course list page of the Program Elective	Redirect to the valid course list page of the Program Elective	Pass	

4	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	
5	Select the course category-3	University Core	Redirect to the valid course list page of the University Core	Redirect to the valid course list page of the University Core	Pass	
6	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	
7	Select the course category-4	University Elective	Redirect to the valid course list page of the University Elective	Redirect to the valid course list page of the University Elective	Pass	
8	Select the back option	Navigation button	Redirected to the Home page	Redirected to the Home page	Pass	

9	Select the Chat option	Chat Application	The chat page opens	The chat page opens	pass	
10	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	

Post Condition: User has selected successfully the desired course category and has been correctly redirected to course list page

Module 3-Course Selection and Redirection

Test Priority : Medium

Module Name : Course Selection and Redirection

Test Title : Verify Correct Course Selection and Redirection

Description : Courses are redirected based on correctness

Test designed by : Vishal Jain

Test Designed Date : 8-11-2022

Test Executed by : Akshay Rai

Test Execution Date : 8-11-2022

Pre-Conditions :- Course list is available to select in selected course category

Dependencies :- Course Category Selection

S. No	Test steps	Test-Dat a	Expected Result	Actual Result	Status	Notes

1	Select the required Course Category	Program Core	Redirect to the valid course list page of the Program Core	Redirect to the valid course list page of the Program Core	pass	
2	Point the cursor at the search bar	Search Bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	pass	
3	Type the course name	Applied Linear Algebra	User able to type Applied Linear Algebra	User able to type the Applied Linear Algebra	pass	
4	Click the search button	Search Icon	The searched course is visible	The searched course is visible	pass	
5	Click the explore button	Applied Linear Algebra	The valid Resource page is open	The valid Resource page is open	pass	
6	Select the back option	Navigation Button	Redirected to the valid course list page	Redirected to the valid course list page	Pass	

7	Point the cursor at the search bar	Search bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	pass	
8	Type another course name	Java Programming	User able to type Java Programming	User able to type the Java Programming	pass	
9	Click the search button	Search Icon	The searched course is visible	The searched course is visible	pass	
10	Click the explore button of newly typed course	Java Programming	The valid Resource page is open	The valid Resource page is open	pass	
11	Select the back option	Navigation Button	Redirected to the valid course list page	Redirected to the valid course list page	Pass	

12	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	
13	Select another course category	University Core	Redirect to the valid course list page of the University Core	Redirect to the valid course list page of the University Core	pass	
14	Point the cursor at the search bar	Search bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	pass	
15	Type the course name	Statistics for Engineers	User able to type Statistics for Engineers	User able to type Statistics for Engineers	pass	
16	Click the search button	Search Icon	The searched course is visible	The searched course is visible	pass	

17	Click the explore button of newly typed course	Statistics For Engineers	The valid Resource page is open	The valid Resource page is open	pass	
18	Select the back option	Navigation Button	Redirected to the valid course list page	Redirected to the valid course list page	Pass	
19	Point the cursor at the search bar	Search bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	pass	
20	Type another course name	Engineering Chemistry	User able to type Engineering Chemistry	User able to type Engineering Chemistry	pass	
21	Click the search button	Search icon	The searched course is visible	The searched course is visible	pass	

22	Click the explore button of newly typed course	Engineering Chemistry	The valid Resource page is open	The valid Resource page is open	pass	
23	Select the back option	Navigation Button	Redirected to the valid course list page	Redirected to the valid course list page	Pass	
24	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	

Post Condition: Desired Course is selected and redirected to correct resource page of corresponding course

Module-4: Resource Selection

Test Priority : High

Module Name : Resource selection

Test Title : Resource verification

Description : Resources are verified or not

Test designed by : Akshay rai

Test Designed Date : 8-11-2022

Test Executed by : Vishal Jain

Test Execution Date : 8-11-2022

Pre-Conditions :- Valid Resources are available to select

Dependencies :- Course Selection and Redirection + Database of resources

S. No	Test steps	Test-Dat a	Expected Result	Actual Result	Status	Note s
1	Select required course category	Program Core	Redirect to the valid course list page of the Program Core	Redirect to the valid course list page of the Program Core	Pass	
2	Point the cursor at the search bar	Search bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	Pass	
3	Type the course name	Network and Communication	User able to type Network and Communication	User able to type Network and Communication	Pass	
4	Click the search button	Search icon	The searched course is visible	The searched course is visible	Pass	

5	Click the explore button	Network and Communication	The valid Resource page is open	The valid Resource page is open	Pass	
6	Click the resource button	Books	The valid resource list is visible in right side of page	The valid resource list is visible in right side of page	Pass	
7	Click the Download button of required resource	Book-Behrouz Forouzan - Data Communications and Networking	The valid resource gets downloaded	The valid resource gets downloaded	Pass	
8	Click the Download button of another resource	Syllabus	The valid resource gets downloaded	The valid resource gets downloaded	Pass	

9	Click the GitHub projects button	Packet Tracing	The Valid GitHub Projects are Listed	The Valid GitHub Projects are Listed	pass	
10	Click the View button of particular project	Packet Tracing	Redirected to the valid GitHub Project	Redirected to the valid GitHub Project	Pass	
11	Select the back option	Navigation Button	Redirected to the Resource page	Redirected to the Resource page	Pass	
12	Click the Research Paper button	Flow Control Methods	The Valid Research Papers are Listed	The Valid Research Papers are Listed	Pass	

13	Click the View button of particular Research Paper	Flow Control Methods	Redirected to the valid Research Paper	Redirected to the valid Research Paper	Pass	
14	Select the back option	Navigation Button	Redirected to the Resource page	Redirected to the Resource page	Pass	
15	Click the Comment button	Comment	The Comment section is open	The Comment section is opened	Pass	
16	Point the cursor at comment section	Comment	User able to point the cursor at the comment section and line starts blinking	User able to point the cursor at the comment section and line starts blinking	Pass	
17	Type the comment	Comment	User able to type the comment and the comment is visible on the screen	User able to type the comment and the comment is visible on the screen	Pass	

18	Click the submit button	Comment	The comment is posted and the Acknowledgement is Received	The comment is posted and the Acknowledgement is Received	Pass	
19	Select the back option	Navigation Button	Redirected to the Resource page	Redirected to the Resource page	Pass	
20	Click the V-CHAT button	chat	The chat page opens	The chat page is opened	pass	
21	Select the back option	Navigation Button	Redirected to the Resource page	Redirected to the Resource page	Pass	
22	Select the back option	Navigation Button	Redirected to the valid course list page	Redirected to the valid course list page	Pass	
23	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	

Post Condition: Selected resource exists in database and is ready to preview or download

Module-5: V-Chat

Test Priority : High

Module Name : Verification

Test Title : Verify chat application

Description : Chat app provides a place to have message exchange

Test designed by : Akshay rai

Test Designed Date : 8-11-2022

Test Executed by : Srikar

Test Execution Date : 8-11-2022

Pre-Conditions :- User has logged in chat and entered a chat room

Dependencies :- Google Authentication

S. No	Test steps	Test-Dat a	Expected Result	Actual Result	Status	Note s
1	Click the V-CHAT Button in the Home Page	Chat	The V-Academics Chat Page will be open	The V-Academics Chat Page will be opened	Pass	
2	Point the cursor at the search bar	Search bar	User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	Pass	

3	Type the Discussion Group Name	ISAA-Project	User able to type ISAA-Project	User able to type ISAA-Project	Pass	
4	Click the search button	Search icon	The corresponding Group chat is visible	The corresponding Group chat is visible	Pass	
5	Point the cursor at chat section	Message bar	User able to point the cursor at the chat section and line starts blinking	User able to point the cursor at the chat section and line starts blinking	Pass	
6	Type the Message	Message =”hello seniors can you help in projects”	User able to type the Message and the Message is visible on message section	User able to type the Message and the Message is visible on message section	Pass	
7	Click the Enter button	Send Button (via enter click)	The Message is posted and the Acknowledgement is Received	The Message is posted and the Acknowledgement is Received	Pass	

8	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
9	Click the Threads button	Thread Icon	The valid Threads are open	The valid Threads are opened	Pass	
10	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
11	Click the Mentioned and Reactions button	Mentioned and Reactions icon	The valid Mentioned and Reactions are open	The valid Mentioned and Reactions are opened	Pass	
12	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
13	Click the Saved Items button	Saved Items Icon	The valid Saved Items are open	The valid Saved Items are opened	Pass	

14	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
15	Click the Channel Browser button	Channel Browser Icon	The valid Channel Browser are open	The valid Channel Browser are opened	Pass	
16	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
17	Click the people and user groups button	People and User Group icon	The valid people and user groups are open	The valid people and user groups are opened	Pass	
18	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
19	Click the Apps button	Apps Icon	The valid Apps are open	The valid Apps are opened	Pass	

20	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
21	Click the File Browser button	File Browser	The valid File Browser are open	The valid File Browser are opened	Pass	
22	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
23	Click the show less button	Button	Only some menus until saved items should be visible	Only some menus until saved items should be visible	Pass	
24	Click the Channels button	Button	The list of channels should visible	The list of channels should visible	Pass	
25	Click the Channels button again	Button	The list of channels should not visible	The list of channels should not visible	Pass	

26	Click the Add Channel Button	Button	The new Channel should be added	The new Channel should be added	Pass	
27	Click the Generals Button	Button	The General Discussion Groups should be visible	The General Discussion Groups should be visible	Pass	
28	Click the V-CHAT Help Button	Button	The Help Manual must be open	The Help Manual must be opened	Pass	
29	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
30	Click the Edit button	Edit name	Provision for typing the name	Provision for typing the name	Pass	
31	Type the name	Name	User able to type the name	User able to type the name	Pass	

32	Click submit button	Button	The new updated name should be visible	The new updated name should be visible	Pass	
33	Click the question mark symbol	Button	The Help Manual must be open	The Help Manual must be opened	Pass	
34	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
35	Click the Details button	Details	The Help Manual must be open	The Help Manual must be opened	Pass	
36	Select the back option	Navigation Button	Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
37	Select the back option	Navigation Button	Redirected to the Home page	Redirected to the Home page	Pass	

38	Click the Logout button	Button	Redirected to the Login page	Redirected to the Login page	Pass	
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Post Condition: Chat Facility designed is working properly regarding group creation and messages are properly communicated.

Integration Testing

Integrating Category selection and course selection

S. No	Test steps	Test-Data	Expected Result	Actual Result	Status	Notes
1	Select one of the category among 4	Course category (PC,PE,UC,UE)	Redirect to the valid course list page of the particular category	Redirected to the valid course list page of the particular category	pass	
2	Point the cursor at the search bar		User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	pass	

3	Type the course name	Course Name	User able to type the course name	User able to type the course name	pass	
4	Click the search button		The corresponding course is visible	The corresponding course is visible	pass	
5	Click the explore button		The valid Resource page is open	The valid Resource page is open	pass	
6	Select the back option		Redirected to the valid course list page	Redirected to the valid course list page	Pass	
7	Select the back option		Redirected to the Home page	Redirected to the Home page	Pass	

Integrating Category selection and course selection and Resource Page

S. No	Test steps	Test-Data	Expected Result	Actual Result	Status	Note s

1	Select one of the category among 4	Course Category (PC,PE,UC, UE)	Redirect to the valid course list page of the particular category	Redirected to the valid course list page of the particular category	Pass	
2	Type the course name	Name of the course	User able to type the course name	User able to type the course name	Pass	
3	Click the search button		The corresponding course is visible	The corresponding course is visible	Pass	
4	Click the explore button		The valid Resource page is open	The valid Resource page is open	Pass	
5	Click the resource button		The valid resources are visible in right side of page	The valid resources are visible in right side of page	Pass	

6	Click the Download button of required resource	Resource Name	The valid resource gets downloaded	The valid resource gets downloaded	Pass	
7	Click the GitHub projects button		The Valid GitHub Projects are Listed	The Valid GitHub Projects are Listed	pass	
8	Click the View button of particular project	GitHub Project Name	Redirected to the valid GitHub Project	Redirected to the valid GitHub Project	Pass	
9	Select the back option		Redirected to the Resource page	Redirected to the Resource page	Pass	

10	Click the Research Paper button		The Valid Research Papers are Listed	The Valid Research Papers are Listed	Pass	
11	Click the View button of particular Research Paper	Research Paper Name	Redirected to the valid Research Paper	Redirected to the valid Research Paper	Pass	
12	Select the back option		Redirected to the Resource page	Redirected to the Resource page	Pass	
13	Click the Comment button		The Comment section is open	The Comment section is opened	Pass	
14	Point the cursor at comment		User able to point the cursor at the comment section and line starts blinking	User able to point the cursor at the comment section and line starts blinking	Pass	

	nt section					
15	Type the comment	Comment that has to be typed	User able to type the comment and the comment is visible on the screen	User able to type the comment and the comment is visible on the screen	Pass	
16	Click the submit button		The comment is posted and the Acknowledgement is Received	The comment is posted and the Acknowledgement is Received	Pass	
17	Select the back option		Redirected to the Resource page	Redirected to the Resource page	Pass	
18	Click the V-CHAT button		The chat page opens	The chat page is opened	pass	
19	Select the back option		Redirected to the Resource page	Redirected to the Resource page	Pass	

20	Select the back option		Redirected to the valid course list page	Redirected to the valid course list page	Pass	
21	Select the back option		Redirected to the Home page	Redirected to the Home page	Pass	

Integrating Home page and V – Chat Page

S. No	Test steps	Test-Da ta	Expected Result	Actual Result	Status	Notes
1	Click the V-CHAT Button in the Home Page		The V-Academics Chat Page will be open	The V-Academics Chat Page will be opened	Pass	
2	Point the cursor at the search bar		User able to point the cursor at the search bar and search line starts blinking	User able to point the cursor at the search bar and search line starts blinking	Pass	

3	Type the Discussion Group Name	Name of the Group	User able to type the Group name	User able to type the Group name	Pass	
4	Click the search button		The corresponding Group chat is visible	The corresponding Group chat is visible	Pass	
5	Point the cursor at chat section		User able to point the cursor at the chat section and line starts blinking	User able to point the cursor at the chat section and line starts blinking	Pass	
6	Type the Message	Message that user wants to type	User able to type the Message and the Message is visible on the screen	User able to type the Message and the Message is visible on the screen	Pass	
7	Click the Enter button		The Message is posted and the Acknowledgement is Received	The Message is posted and the Acknowledgement is Received	Pass	
8	Click the Threads button		The valid Threads are open	The valid Threads are opened	Pass	

9	Click the Mentioned and Reactions button		The valid Mentioned and Reactions are open	The valid Mentioned and Reactions are opened	Pass	
10	Click the Saved Items button		The valid Saved Items are open	The valid Saved Items are opened	Pass	
11	Click the Channel Browser button		The valid Channel Browser are open	The valid Channel Browser are opened	Pass	
12	Click the people and user groups button		The valid people and user groups are open	The valid people and user groups are opened	Pass	
13	Click the Apps button		The valid Apps are open	The valid Apps are opened	Pass	
14	Click the File Browser button		The valid File Browser are open	The valid File Browser are opened	Pass	

15	Click the show less button		Only some menus until saved items should be visible	Only some menus until saved items should be visible	Pass	
16	Click the Channels button		The list of channels should visible	The list of channels should visible	Pass	
17	Click the Channels button again		The list of channels should not visible	The list of channels should not visible	Pass	
18	Click the Add Channel Button		The new Channel should be added	The new Channel should be added	Pass	
19	Click the Generals Button		The General Discussion Groups should be visible	The General Discussion Groups should be visible	Pass	
20	Click the V-CHAT Help Button		The Help Manual must be open	The Help Manual is opened	Pass	

21	Select the back option		Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
22	Click the Edit button		Provision for typing the name	Provision for typing the name	Pass	
23	Type the name	Name	User able to type the name	User able to type the name	Pass	
24	Click submit button		The new updated name should be visible	The new updated name should be visible	Pass	
25	Click the question mark symbol		The Help Manual must be open	The Help Manual must be opened	Pass	
26	Select the back option		Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
27	Click the Details button		The Help Manual must be open	The Help Manual must be opened	Pass	

28	Select the back option		Redirected to the V-Academics Chat Page	Redirected to the V-Academics Chat Page	Pass	
29	Select the back option		Redirected to the Home page	Redirected to the Home page	Pass	
30	Click the Logout button		Redirected to the Login page	Redirected to the Login page	Pass	

6. Social Importance

Students in VIT have to register new courses every semester. These courses have completely new syllabus and content. Some of the courses are not even of the same domain as that of the student. Thus students face trouble in selecting appropriate courses according to their branch and also find it difficult to decide which resource to refer for these courses .So a platform is needed which can provide the students with all the necessary resources that can help them to decide which course to register .Later this platform can also act as a medium for the students to find the best possible resource for a particular subject while preparing that subject for CAT or FAT exam. The platform will also support a chat application which can help the students to clear their doubts .The Chat App will also support formation of groups where discussions about any common topic related to any course can take place.This is where V-academics comes in and proves its social importance by satisfying all the above needs.

7. Conclusion, Limitations and Scope for future Work

All in all, our project deals with the development of a student resources portal/website called VAcademics. This project successfully incorporates all the planned and proposed modules. We developed this website so that students could find resources for any course offered by VIT as part of the BTECH CSE CORE programme. Resources include a summary of the course curriculum, the course syllabus, YouTube playlists that are most appropriate for that course, course book pdfs, and class Powerpoint slides.

Additionally, our website gives students access to class recordings for core courses, github links for a variety of projects for the course's j-component, and finally a collection of recent research articles that can be used as references for project reviews.

Students can use the website's supplementary chat application feature, which is another feature.

Although, we propose a great idea with our project, it too has certain limitations, such as:-

- VAcademics, as the name suggests, is a website limited to only a single chain of institutions, i.e., VIT. It is not a large-scale resource portal.
- The search feature that our website provides is very limited as it can only search for the course codes and names and not resources particularly.
- As the developers of this website are not experienced people, the resources and tools used to develop it are not very advanced. The performance of the website can further be increased by using better tools and modules for development and testing.

Scope for future work which guides us on what additional features we can further have in such an application are:-

- Video call feature available in the Chat App
- More resources available for courses
- Light Mode feature for the web pages
- Ease of navigation between web pages
- Time table generator
- Better search feature

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