AcadGenix
- an E – Learning Platform

Developers:

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Project Report

Project Scope

AcadGenix strives to provide an E-learning platform towards enriching Employability Skills of Indian Institute of Information Technology, Dharwad students. It encompasses various features to let the faculty and students share videos showcasing their expertise in a technical field.
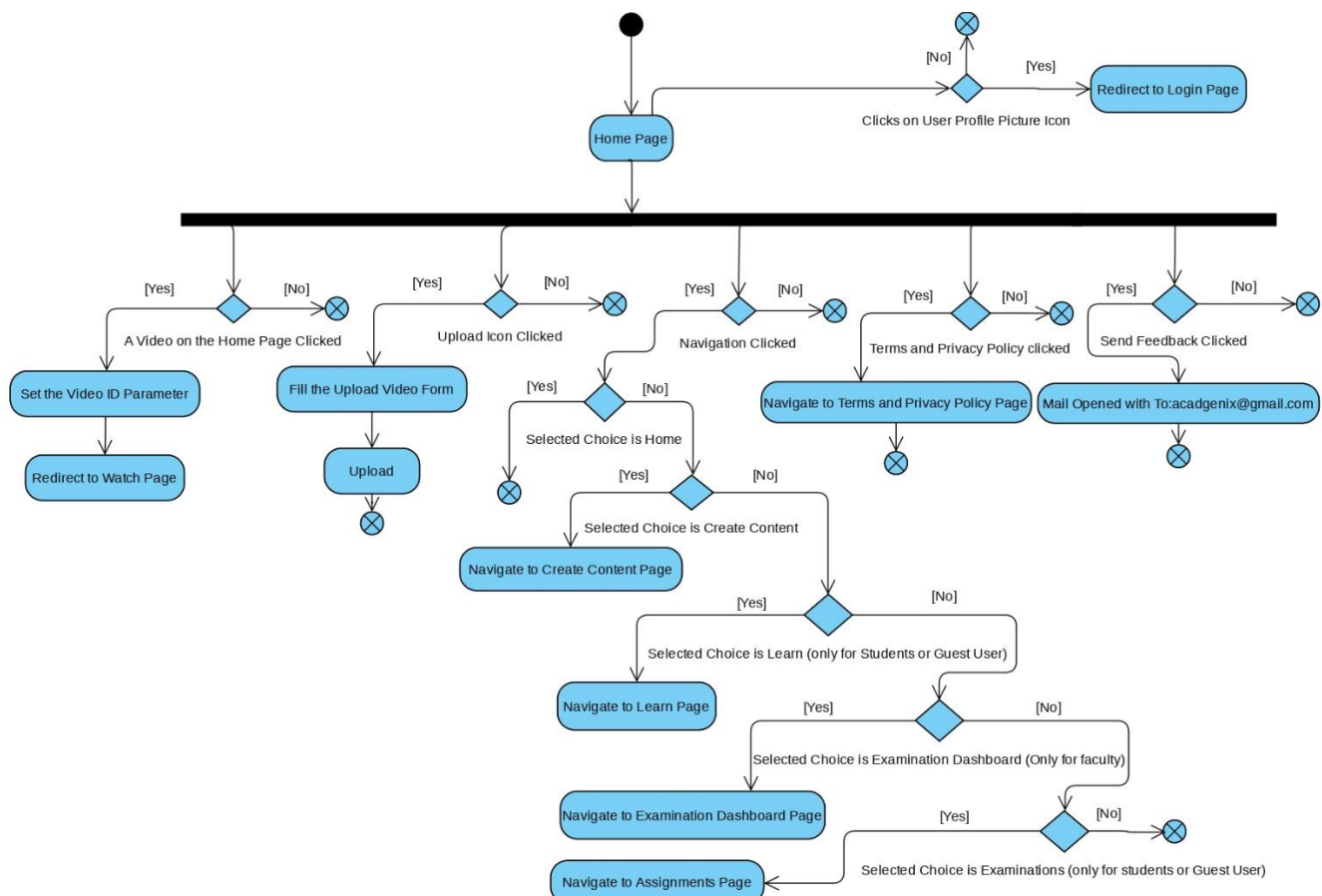
Technologies Used

- User Login: OAuth 2.0 Authentication
- Front-End: HTML5, CSS3, jQuery (JS), Bootstrap 5.0, Flowplayer
- Server – Side Scripting: PHP
- Database – MySQL
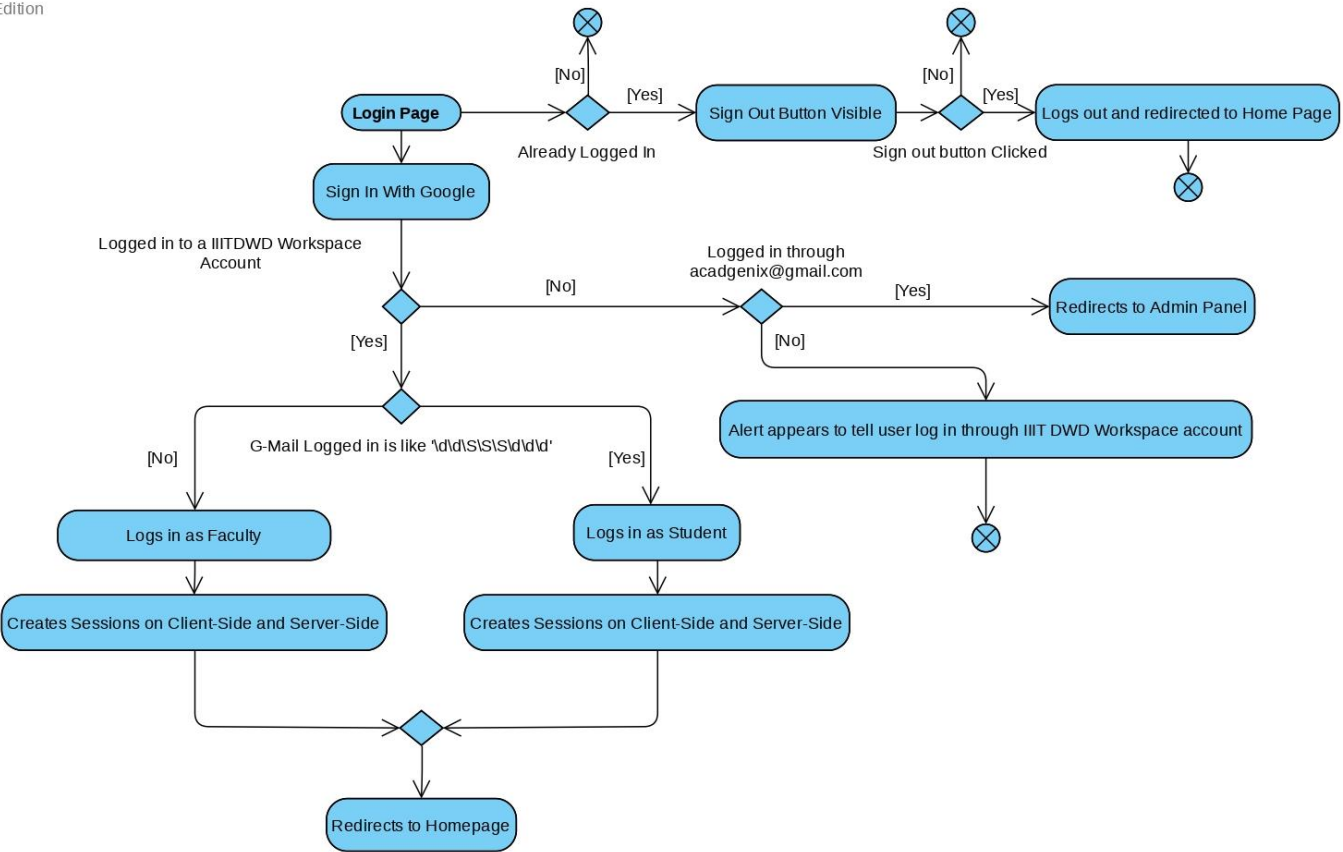- Web Server (Deployment): HostGator's Linux Shared Webserver

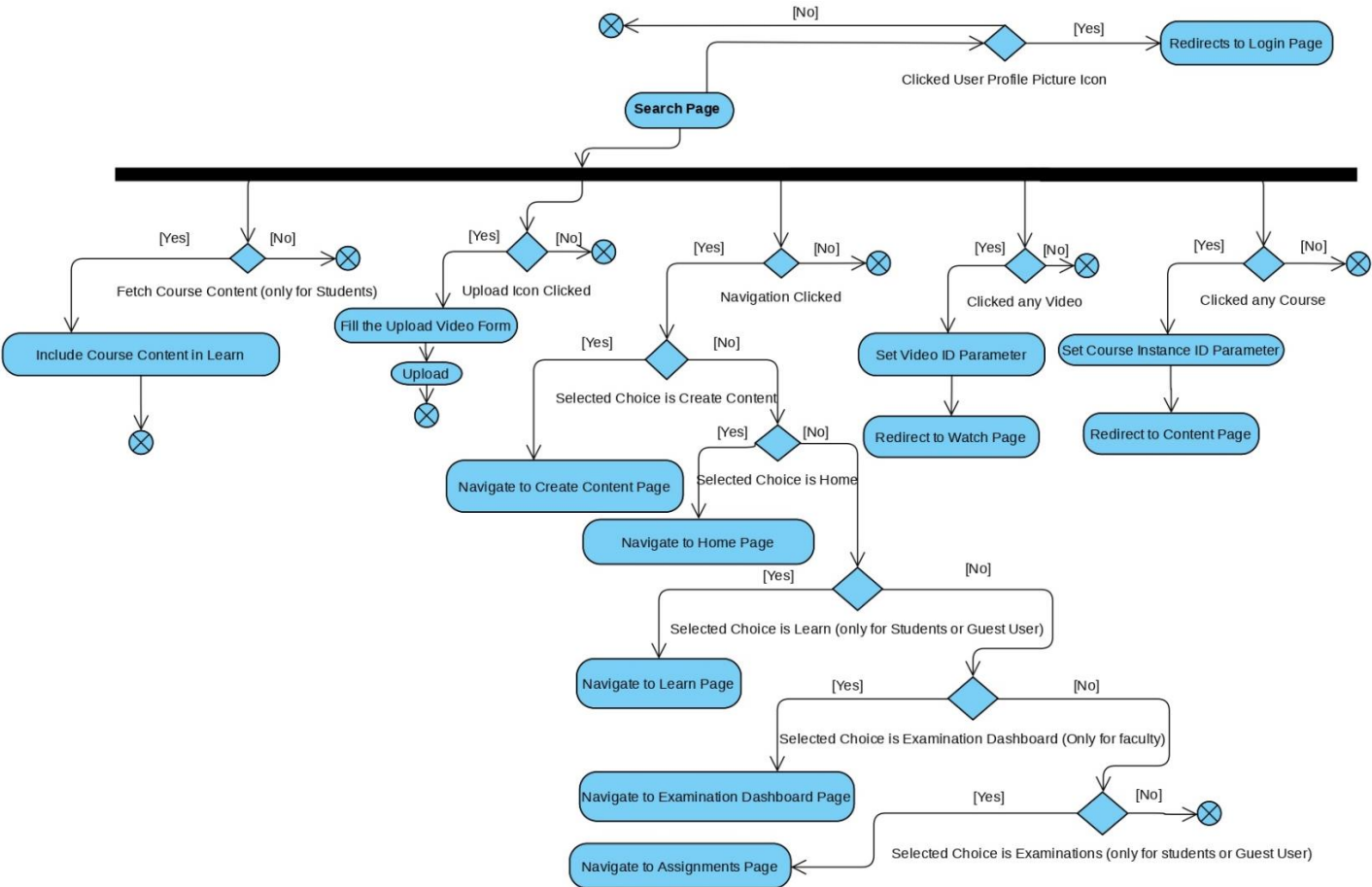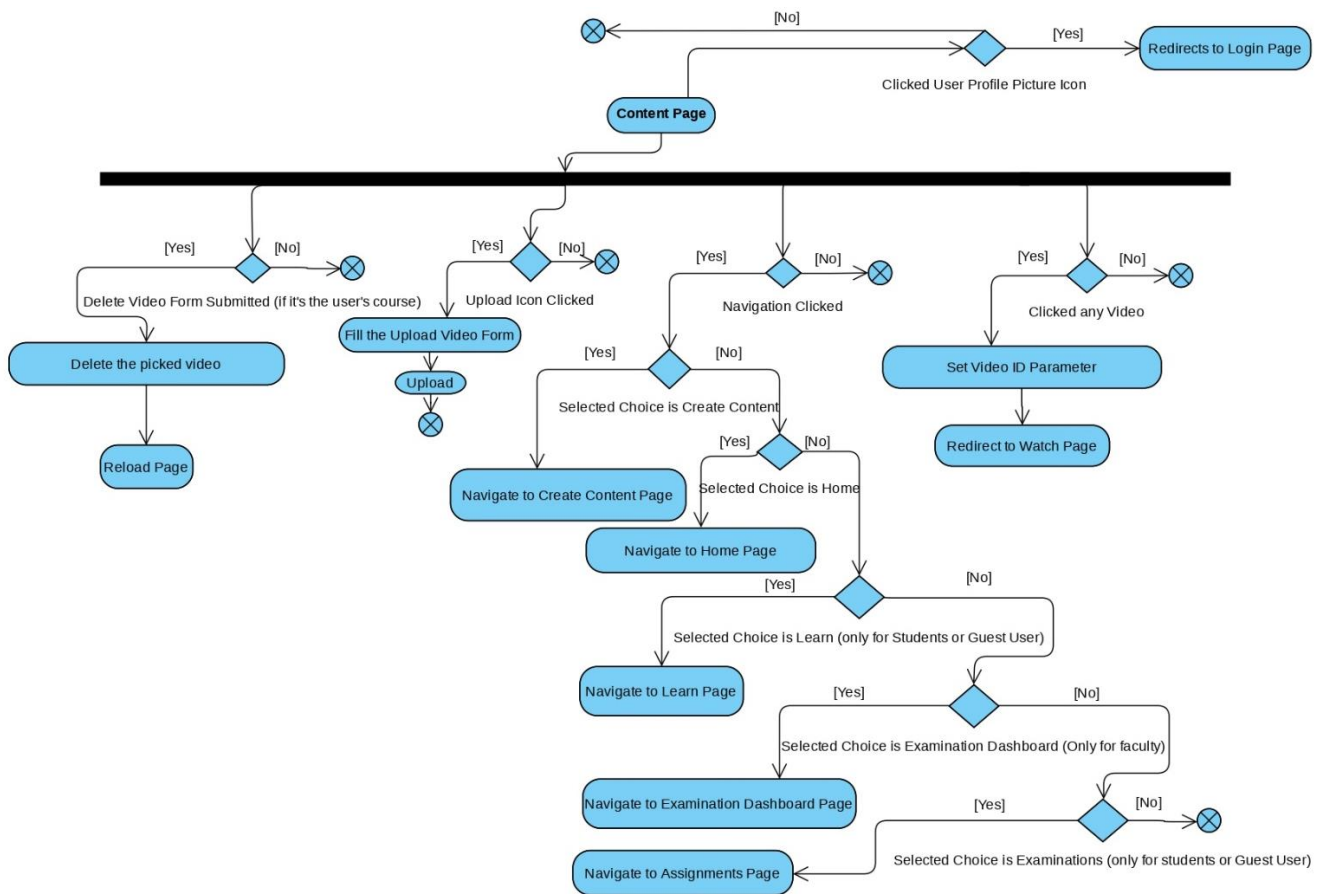## Functional Flowchart

Home Page

Login Page

Login Page → Already Logged In
- [No] → ⊗
- [Yes] → Sign Out Button Visible → Sign out button Clicked
  - [No] → ⊗
  - [Yes] → Logs out and redirected to Home Page → ⊗

Login Page → Sign In With Google → Logged in to a IIITDWD Workspace Account
- [No] → Logged in through acadgenix@gmail.com
  - [Yes] → Redirects to Admin Panel
  - [No] → Alert appears to tell user log in through IIIT DWD Workspace account → ⊗
- [Yes] → G-Mail Logged in is like '\d\d\S\S\S\d\d\d'
  - [No] → Logs in as Faculty → Creates Sessions on Client-Side and Server-Side
  - [Yes] → Logs in as Student → Creates Sessions on Client-Side and Server-Side

→ Redirects to Homepage

Search Page

Clicked User Profile Picture Icon
- [No] → ⊗
- [Yes] → Redirects to Login Page

Search Page →

Fetch Course Content (only for Students)
- [Yes] → Include Course Content in Learn → ⊗
- [No] → ⊗

Upload Icon Clicked
- [Yes] → Fill the Upload Video Form → Upload → ⊗
- [No] → ⊗

Navigation Clicked
- [Yes] → Selected Choice is Create Content
  - [Yes] → Navigate to Create Content Page
  - [No] → Selected Choice is Home
    - [Yes] → Navigate to Home Page
    - [No] → Selected Choice is Learn (only for Students or Guest User)
      - [Yes] → Navigate to Learn Page
      - [No] → Selected Choice is Examination Dashboard (Only for faculty)
        - [Yes] → Navigate to Examination Dashboard Page
        - [No] → Selected Choice is Examinations (only for students or Guest User)
          - [Yes] → Navigate to Assignments Page
          - [No] → ⊗
- [No] → ⊗

Clicked any Video
- [Yes] → Set Video ID Parameter → Redirect to Watch Page
- [No] → ⊗

Clicked any Course
- [Yes] → Set Course Instance ID Parameter → Redirect to Content Page
- [No] → ⊗

Content Page

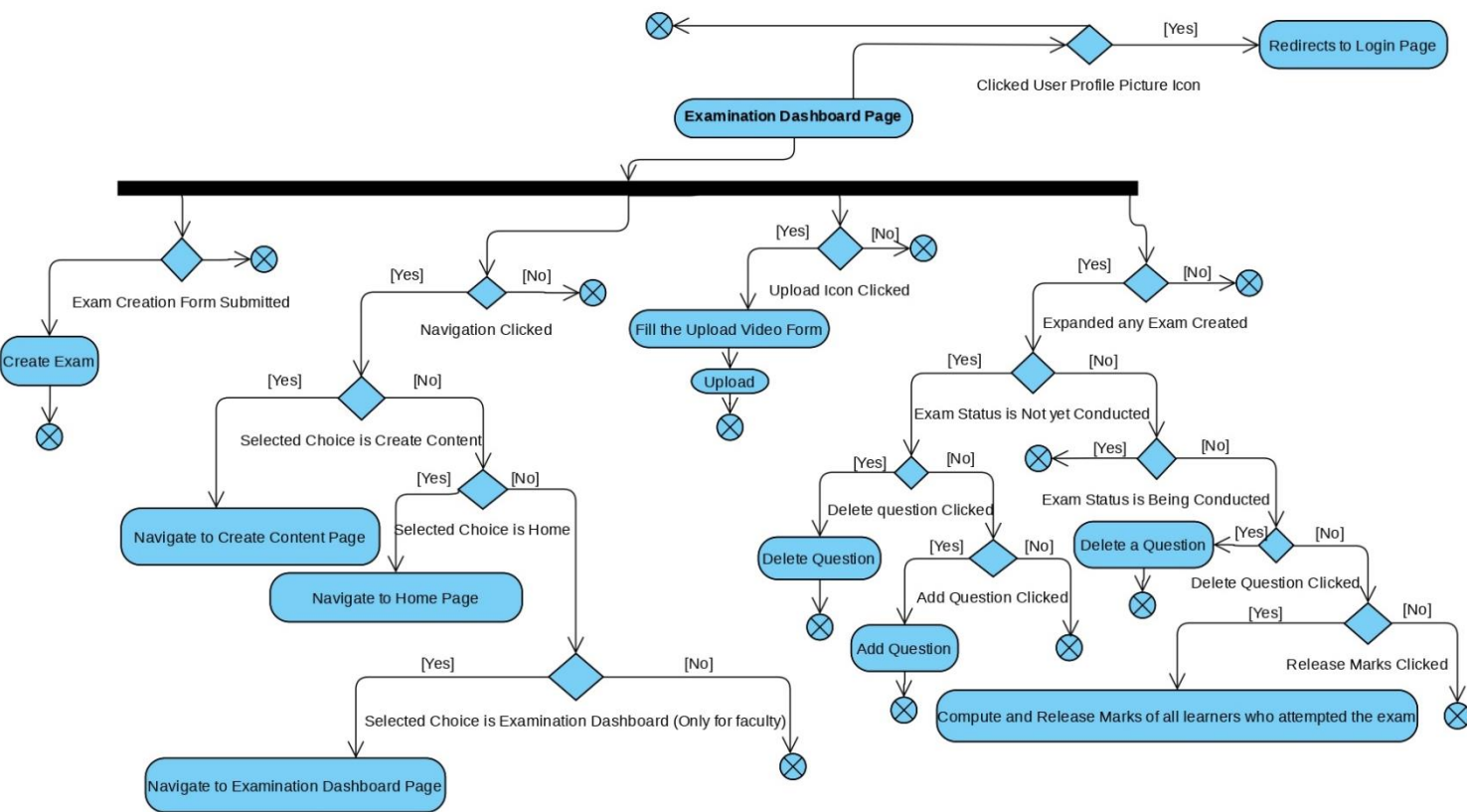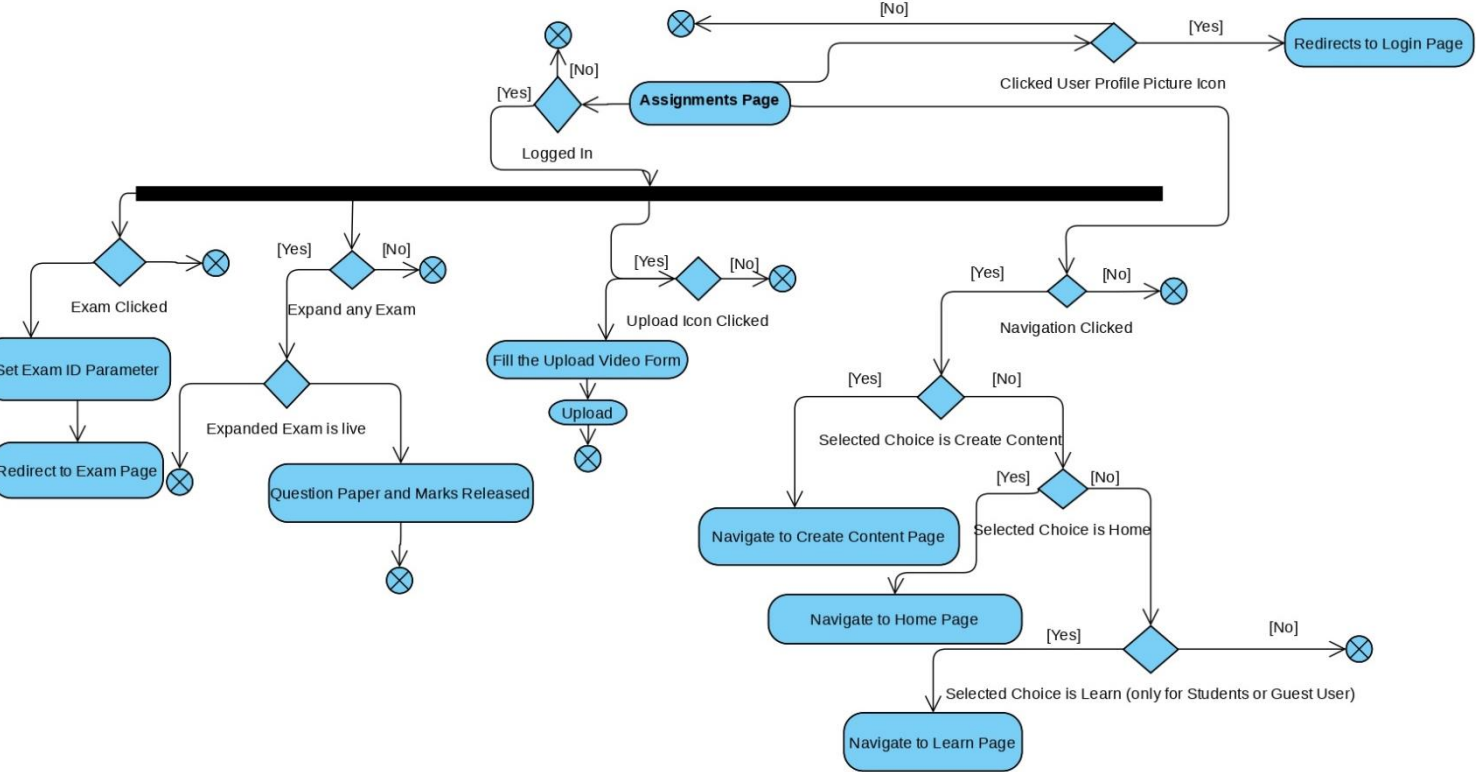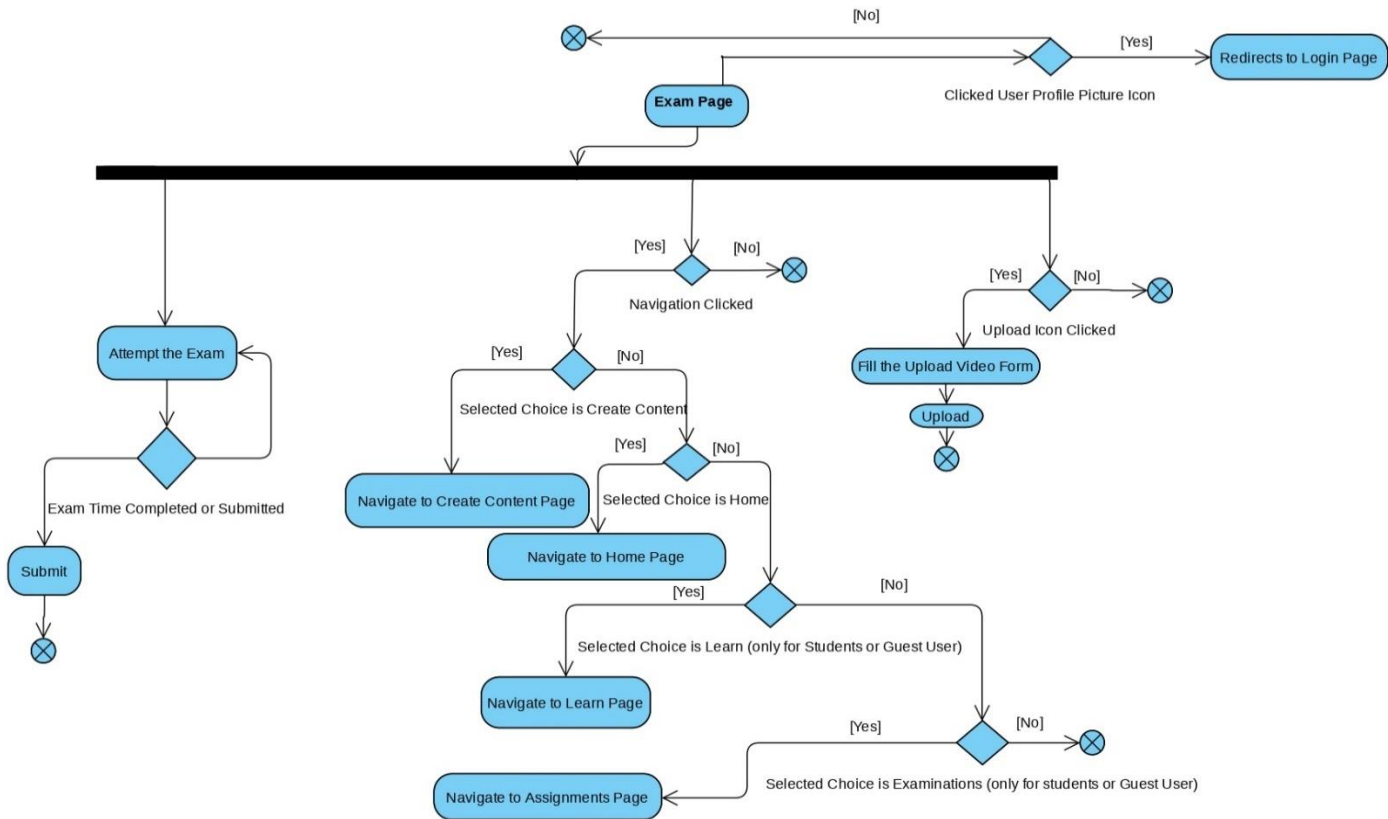# Watch Page

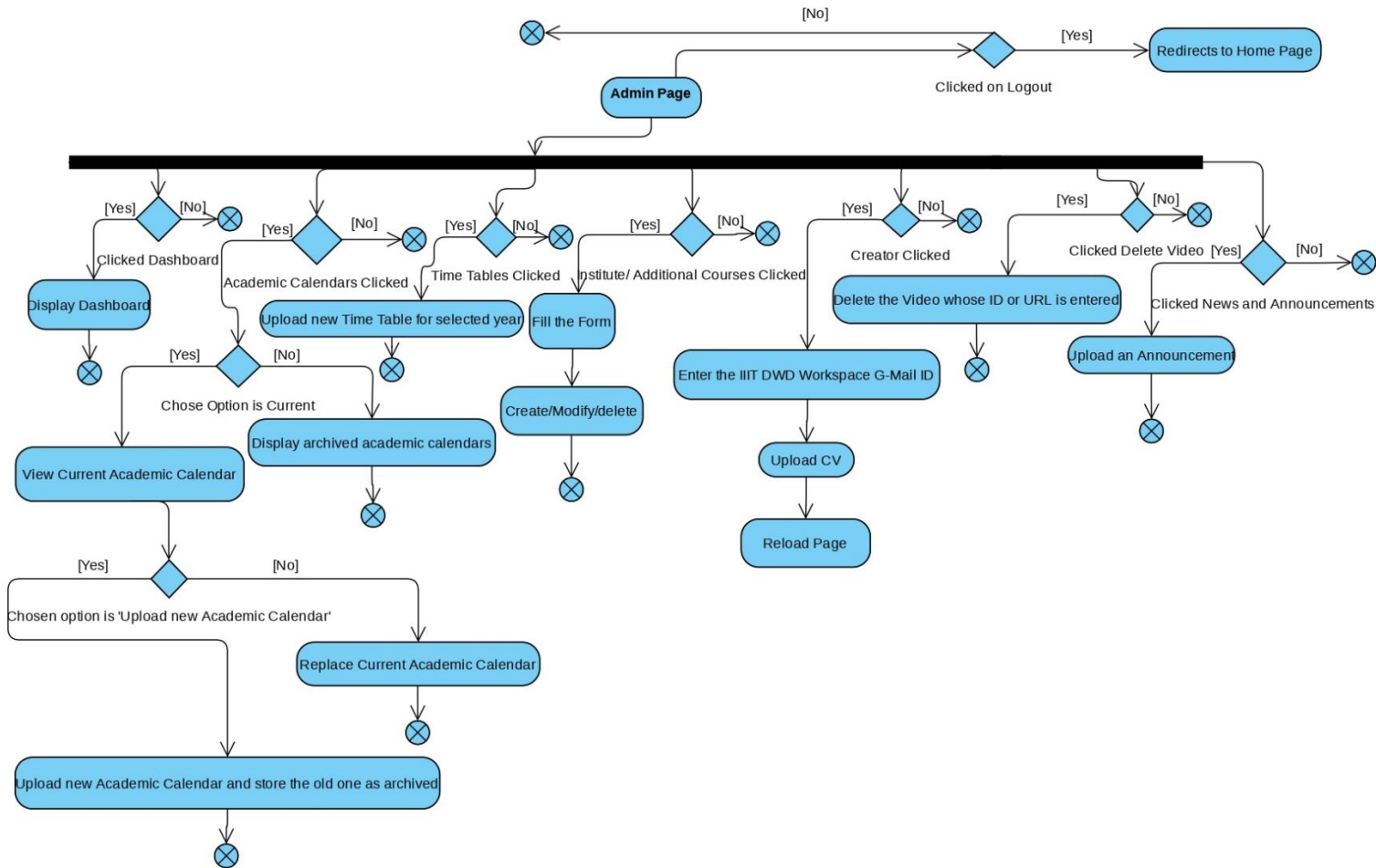# Create Content Page

Learn Page
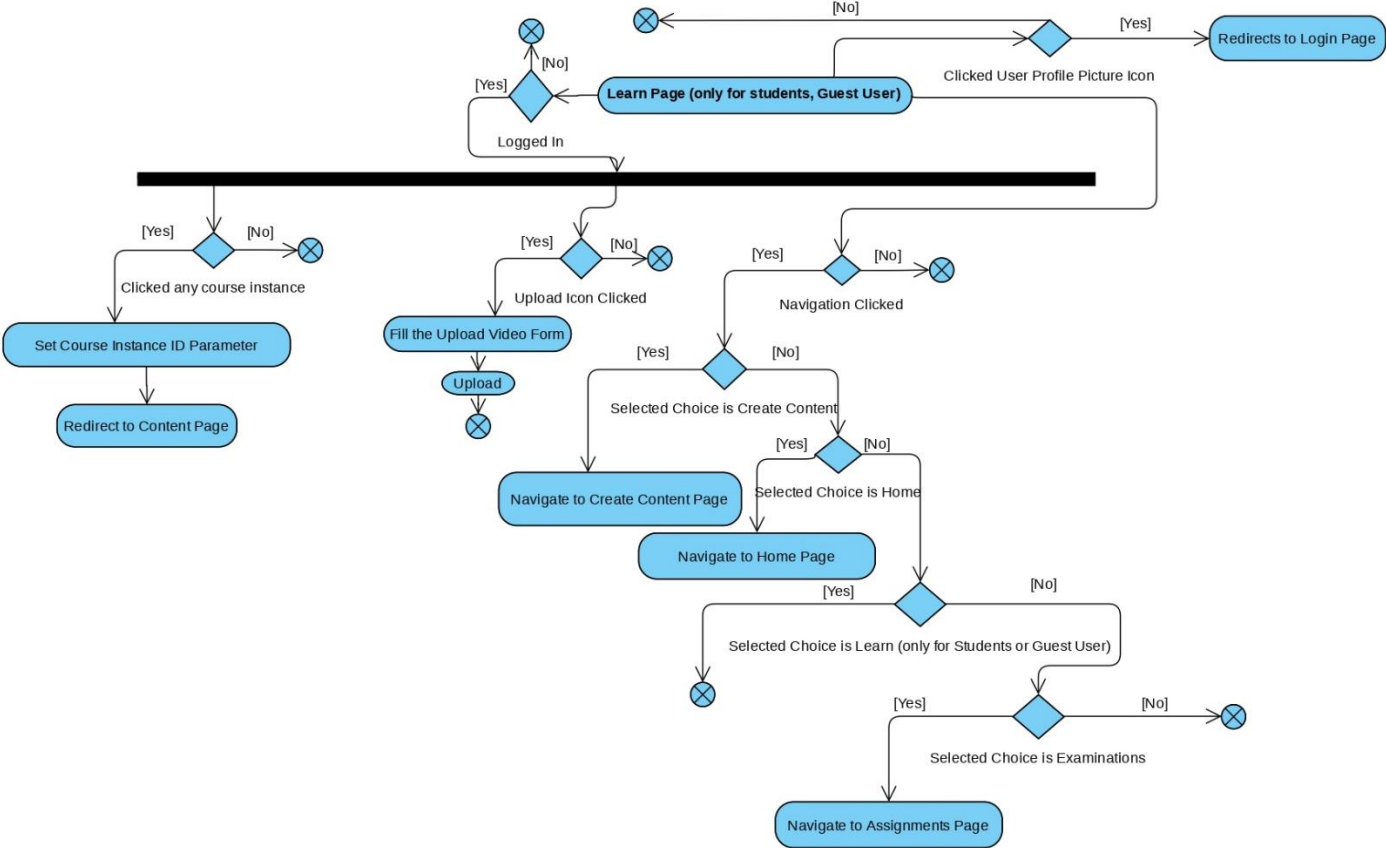
Examination Dashboard Page

Assignments Page

Exam Page

Admin Page

Functional Specifications

| Functionality Page	Nature	Access
Home	Dynamic	Guest User, Student, Faculty
Login	Dynamic	Guest User, Student, Faculty
Search	Dynamic	Guest User, Student, Faculty
Course Content Gallery	Dynamic	Guest User, Student, Faculty
Watch a Video (like, comment, make notes)	Dynamic	Guest User, Student, Faculty
Create Content	Dynamic	Student, Faculty
Learn	Dynamic	Student
Examination Dashboard	Dynamic	Faculty
Examinations live/ Attended/ Missed	Dynamic	Student
Examination	Dynamic	Student
Admin	Dynamic	Admin

PS: Guest Users cannot like, comment, or make notes on a video.

Possible File Uploads:

➢ Video: Format – MP4, Max size – 1 GB
➢ Timetables, Academic Calendars, CV: Format – PDF, Max – size – 5 MB
➢ News and Announcements: Format – PDF/HTML/PHP, Max-size – 5 MB

Workflow

Home
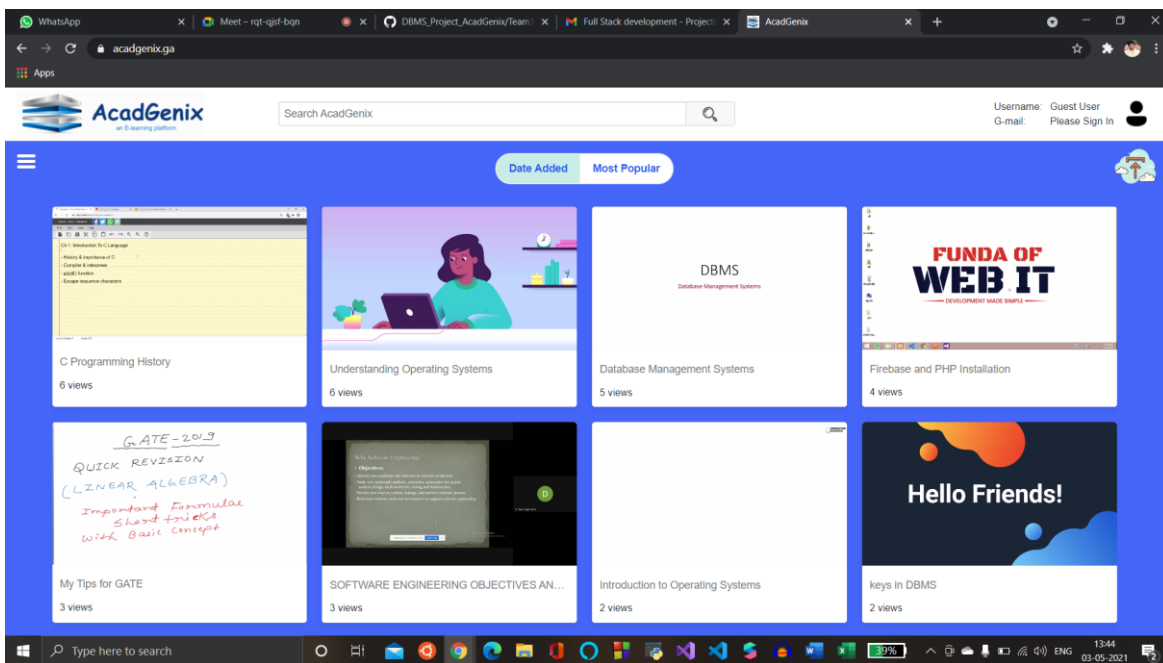
A maximum of 16 videos randomly picked from all the available videos in the database will be displayed sorted by the order of popularity. The View count of each video aids in measuring the popularity of a video. The user can even

choose to sort the listed videos in the order of data added. Users can go through the terms and privacy policy of AcadGenix or send feedback by mail with the help of the hyperlinks mentioned at the end of the home page.

| Stage	Developed From	Developed Until	Developed By
Front-End	03-02-2021	10-02-2021	Subgroup 1
Database Table Creation	16-02-2021	20-02-2021	Subgroup 2
Server – Side scripting	16-02-2021	20-02-2021	Subgroup 1

Login
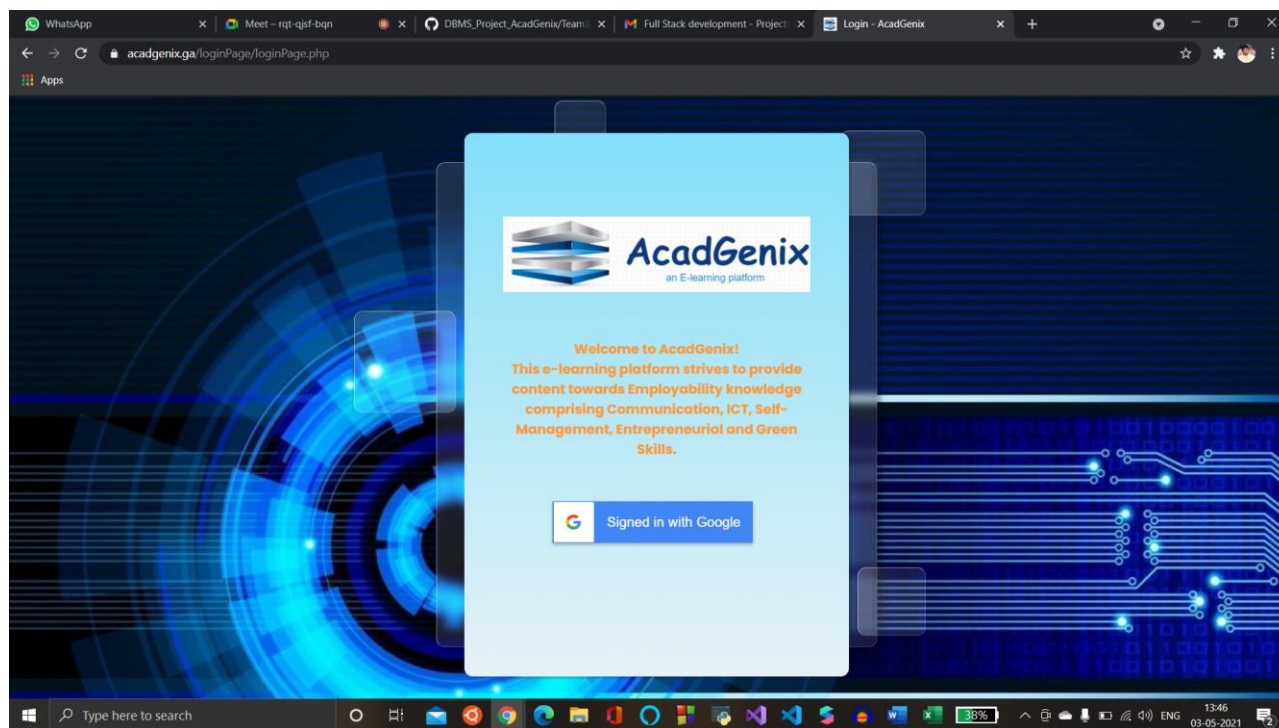
OAuth 2.0 is the industry-standard protocol for authorization. OAuth 2.0 focuses on client developer simplicity while providing specific authorization flows for web applications, desktop applications, mobile phones, and living room devices. We have implemented this user-authentication tool to manage every user of an educational institution through a Google Workspace account (ex: iiitdwd.ac.in).

Whenever a user logs in, AcadGenix ensures the G-Mail through which he/she has attempted to sign in belongs to the preset workspace account. After signing in through an institute G-Mail account, it will be deduced whether the logged in user is a student or faculty. As an illustration, we have considered the case of IIIT Dharwad where each student is given an 8 – character unique registration number of the format '/\d\d\S\S\S\d\d\d/'. Any user who logs in with an account with such mail address will be regarded as a student. All other institute accounts will be considered as a student. After successful sign in, the user is redirected to the Home Page.

An exception arises here; if at all a user logs in using 'acadgenix@gmail.com', even though it doesn't belong to an institute workspace, it will be considered as a valid user thereafter regarded as Admin and redirected to the admin controls. Until a user logs in, he will be regarded as a guest user and will only be able to perform limited operations such as browsing through content across AcadGenix, watching a video or a course content gallery.

Stage	Developed From	Developed Until	Developed By
Front-End	01-02-2021	03-02-2021	Everyone
Database Table Creation	03-02-2021	03-02-2021	Subgroup 1
Server – Side scripting	04-02-2021	04-02-2021	Everyone

# Search
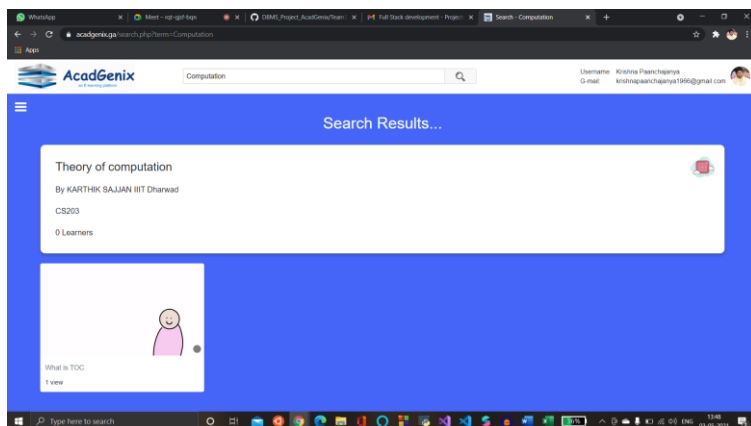
In case of a 'Faculty'/ Guest User
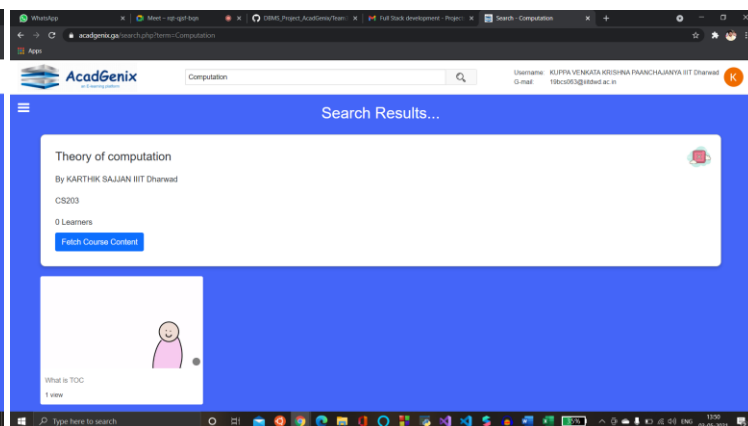
In case of a 'Student'

Users can browse through content of their choice related to a specific skill/ competency shared by different users with the help of search option available on top of every webpage of AcadGenix. This will lead them to appropriate search results displayed in the search page. If at all the search term resides in a particular course instances' name or code or in the title or description of a video in that particular course instance, the course instance will be displayed in the results. Nearest matches will be given higher position in the order of display. After displaying all the course instances with nearest matches, videos having the search term in their title or description will be displayed. Nearest matches will be given higher position in the order of display again.

If at all a user (guest user – user who has not logged in yet or a user who is given faculty or student status) chooses to view the content in a particular course instance or to watch a video, he needs to click (or tap) on them. In addition, a student can even fetch a particular course content permanently to be displayed in "Learn" feature every time he/ she opens navigates to "Learn".

Stage	Developed From	Developed Until	Developed By
Front-End	16-04-2021	16-04-2021	Everyone
Database Table Creation	16-02-2021	20-02-2021	Subgroup 2
Server – Side scripting	17-04-2021	17-04-2021	Subgroup 2

Course Content Gallery
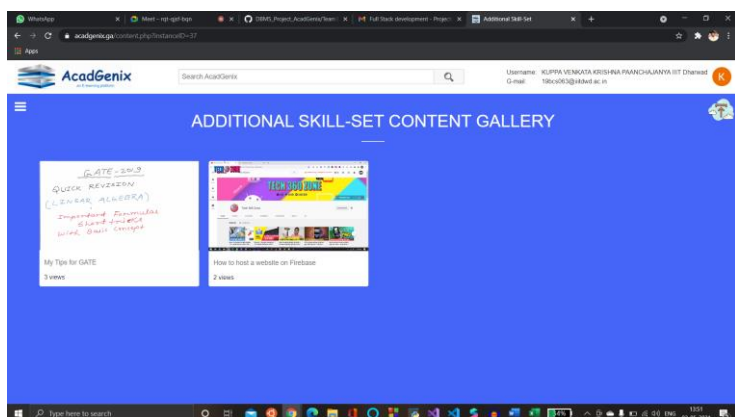
**View of Course Content not posted by the user**
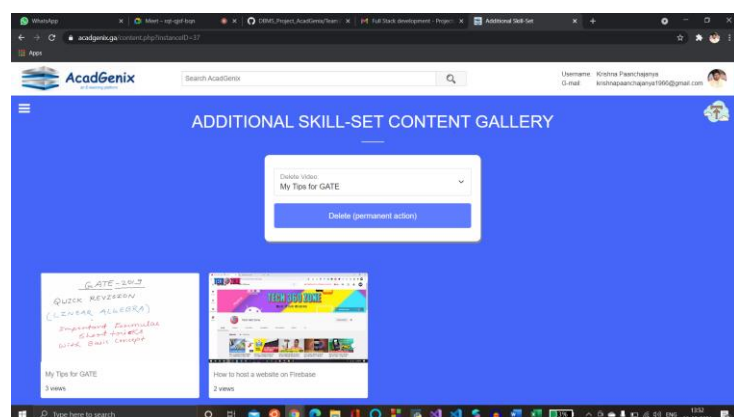
View of Course Content posted by the user

Whenever a user clicks on a course instance, the user gets navigated to a page where all the videos posted under a course instance shall be displayed. If at all the course instances being displayed is the current user's creation, he will be able to delete a video he uploaded here. Clicking on any video, the user gets redirected to the Watch page where he can view the video and do much more operations.

Stage	Developed From	Developed Until	Developed By
Front-End	01-04-2021	03-04-2021	Everyone
Database Table Creation	16-02-2021	20-02-2021	Subgroup 2
Server – Side scripting	16-02-2021	20-02-2021	Subgroup 1

Watch a Video
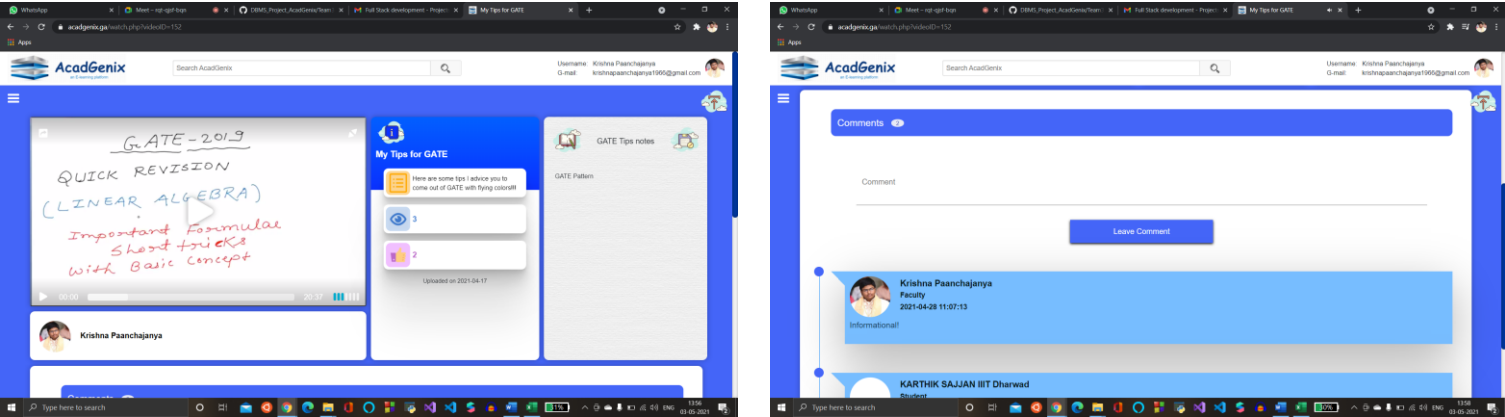
Whenever a user clicks a video listed in Home or search result or in a course content gallery, he gets redirected to the watch page. The video player is powered by Flowplayer which is an online video platform for broadcasters, publishers, and media houses. It gives you top ranking ad fill rates and the best-of-breed live streaming. The user can go through the video title and description, the number of viewers who watched this video before, the appreciators (likes) count and upload date and time.

The user can make notes out of a video based on the concept being portrayed simultaneously while watching the video. He can save it so that it persists until further manipulation. A copy of the notes can be downloaded into the user's device. The user can comment on a video in addition to viewing comments on the video of other viewers. Unless a user logs in (guest user), he/she cannot like, comment or make notes on a video.

| Stage	Developed From	Developed Until	Developed By
Front-End	11-02-2021	15-02-2021	Everyone
Database Table Creation	16-02-2021	20-02-2021	Subgroup 2
Server – Side scripting	16-02-2021	20-02-2021	Subgroup 1

Create Content

Users (students/ faculty) can create his/ her original skill/ competency/ knowledge content and can share here under a course. To do so, the user first must instantiate a course from the available course options. After instantiation, he can upload any number of videos under the course instance with the help of upload icon displayed on the top-right corner of every webpage in AcadGenix. User can choose to delete a course instance he instantiated before. But this deletes all videos posted under that instance thereby deleted all the learners' data i.e., notes made in a video, likes, views. All the courses instantiated by the user will also be listed here. Clicking on a course instance

being displayed will redirect the user to the courses' content gallery.
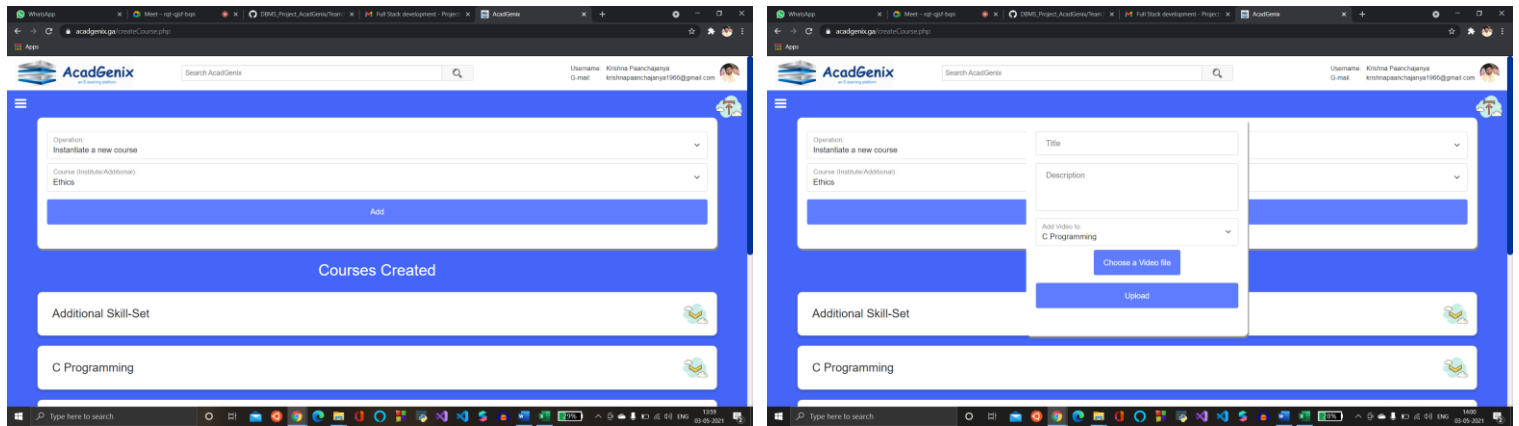
Stage	Developed From	Developed Until	Developed By
Front-End	03-02-2021	10-02-2021	Subgroup 2
Database Table Creation	21-02-2021	20-03-2021	Subgroup 1
Server – Side scripting	21-02-2021	25-02-2021	Subgroup 2

Learn
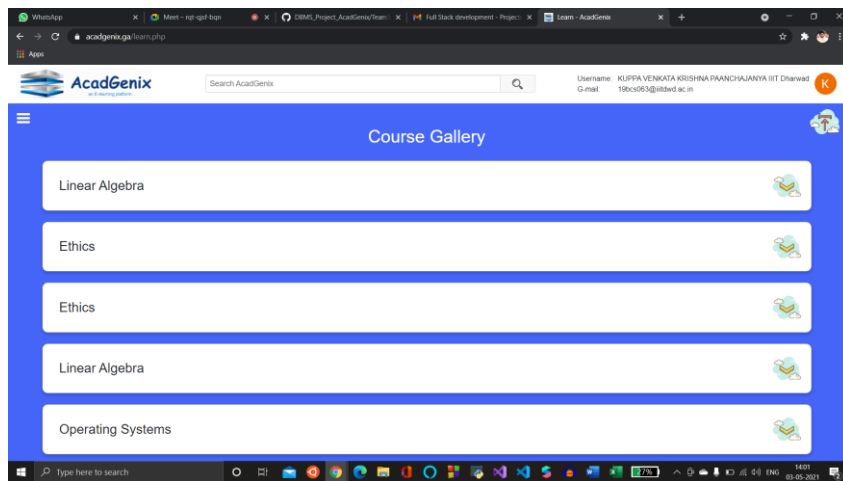
Users can access and learn the content of courses they have fetched while browsing through related content. Clicking on a course instance being displayed will redirect the user to the courses' content gallery. It is important to note that this feature shall be available only to users having 'Student' status. Therefore, 'Fetch Course Content' option shall not be available to any other users while browsing through content using Search.

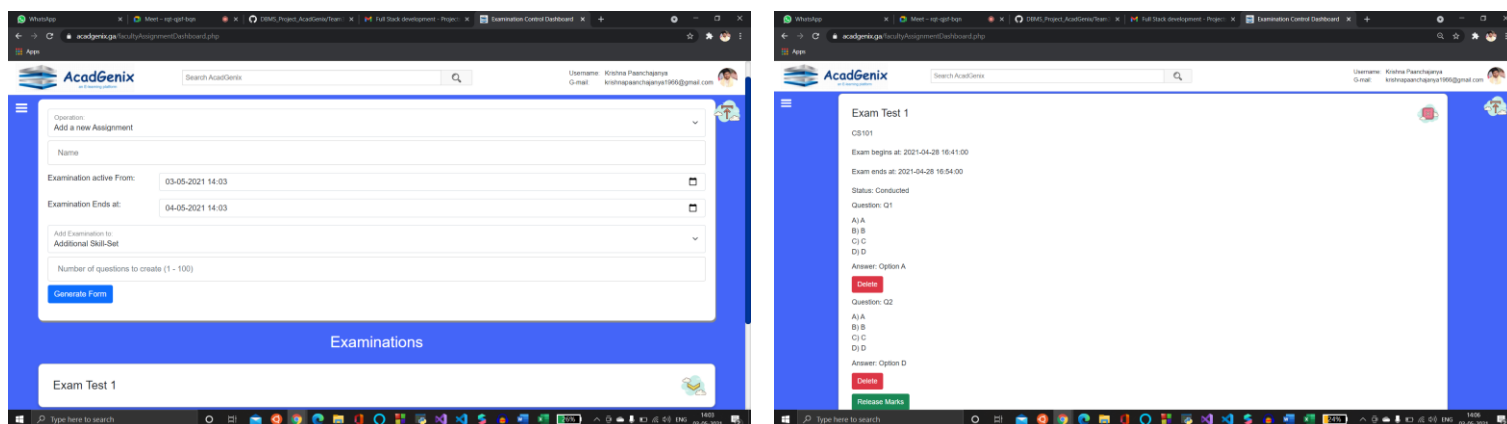| Stage	Developed From	Developed Until	Developed By
Front-End	11-03-2021	15-03-2021	Subgroup 2
Database Table Creation	21-02-2021	20-03-2021	Subgroup 1
Server – Side scripting	11-03-2021	20-03-2021	Subgroup 1

Examination Dashboard

Users with 'Faculty' status can create and conduct examinations in a course instance. The exam so created shall be available to all those users with 'Student' status who have fetched this particular course instance's content into

'Learn' in the 'Examinations' feature. While a user (faculty) creates an exam, he must set the timings from and to the exam should accept submissions. These timings can even be modified at any later moment. The question paper can contain any number of single correct answer multiple choice questions (MCQs). The user must mention which among the 4 options of a question is the answer for later use. It is important to note that an exam shall pass through a maximum of three stages after creation:

- Yet to be conducted: The user gets a chance to add/ delete questions to the previously created question paper
- Being conducted: The user cannot make any modifications to the exam except the timings.
- Conducted: The user gets a chance to delete questions (in case he comes across errors in the question or options provided). The user can release marks now so that all the learners who attempted the exam view their marks and the question paper with correct answers.

We are even planning to make the examination portal more intense in later increments of AcadGenix with the addition of more question types, shuffling of the question paper to avoid malpractices from the attendees.

| Stage	Developed From	Developed Until	Developed By
Front-End	01-04-2021	03-04-2021	Subgroup 2
Database Table Creation	04-04-2021	15-04-2021	Subgroup 2
Server – Side scripting	04-04-2021	15-04-2021	Subgroup 1

Examinations
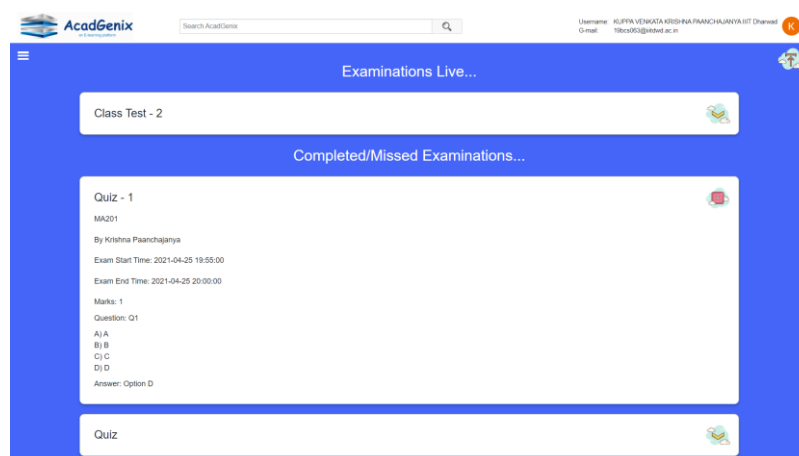
Users logged in with 'Student' status can go through a list of examinations created by content creators of a particular course instance whose content has been fetched into 'Learn'. Examinations either live or conducted shall only be listed but not the ones yet to be conducted. Thus, examinations listed shall be categorized as:

- ➢ Examinations Live: Students will be able to attempt the exam by clicking on an examination listed. Even after successful submission, the user cannot attain the question paper with solutions or marks because there may be co-learners who might still be attempting the exam
- ➢ Examinations Completed/ Missed: Students cannot attempt the exam hereafter as the timings of an exam passed by. Students who successfully submitted the exam while it was live could access the marks attained and the question paper with solutions once the faculty who hosted the exam chooses to release marks in his examination dashboard. Students who missed the exam will also be able to access the question paper with solutions although he will not be awarded any marks

| Stage	Developed From	Developed Until	Developed By
Front-End	08-04-2021	12-04-2021	Subgroup 2
Database Table Creation	04-04-2021	15-04-2021	Subgroup 2
Server – Side scripting	04-04-2021	15-04-2021	Subgroup 1

The Exam
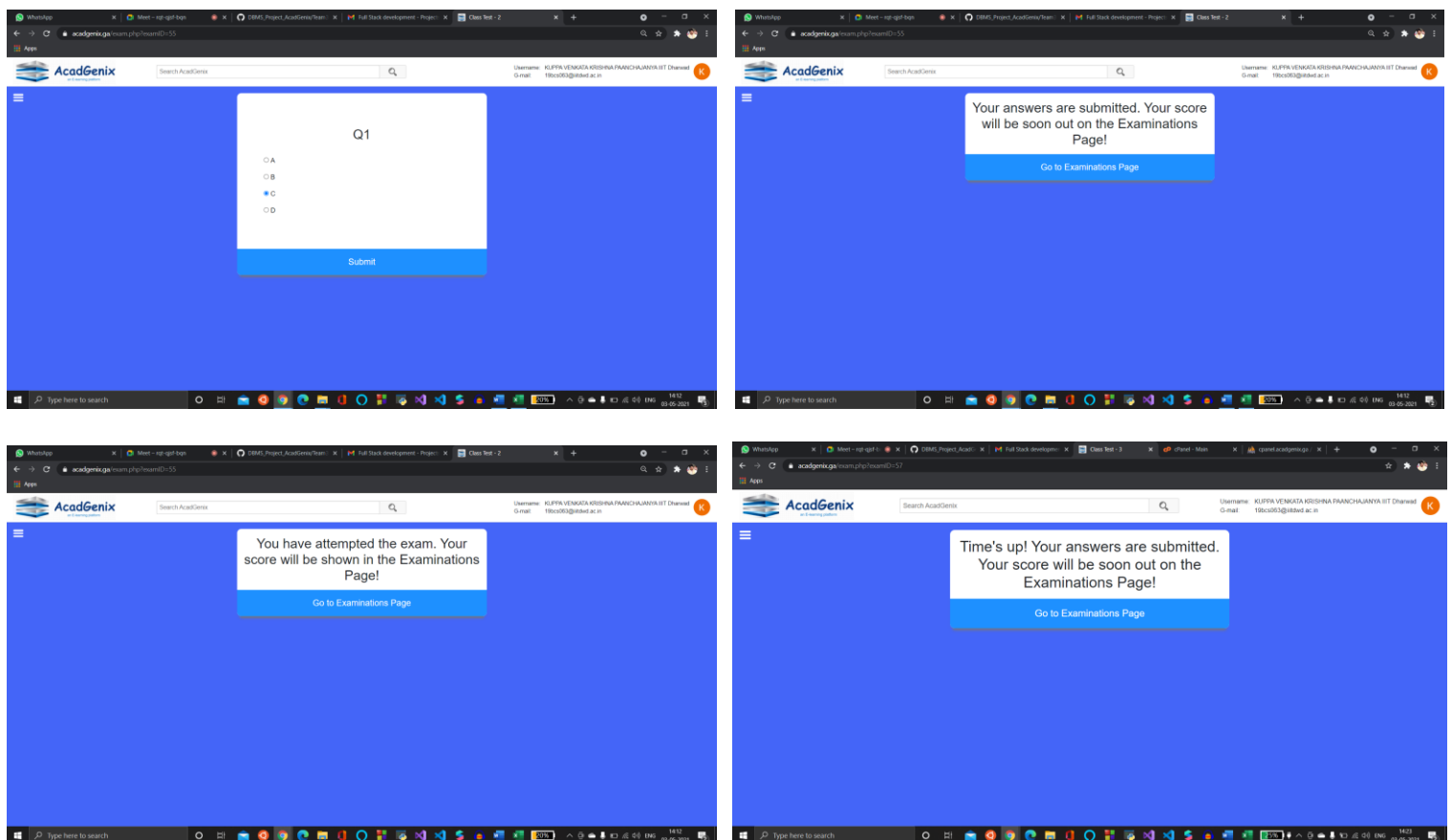
This is the webpage which will be rendered as a result of a user given 'Student' status clicking an examination title in the examinations list in 'Examinations'.

- ➢ If the exam being displayed is live and the user hasn't submitted any previous responses, then he will be able to attempt the exam. If at all the time is up (the exam end timing has passed), the responses of questions attempted until now will be submitted.
- ➢ If the exam being displayed is live and the user has submitted any previous responses or the user missed an exam or the exam is not live although the user submitted his responses, then he will not be able to attempt the exam.

| Stage	Developed From	Developed Until	Developed By
Front-End	12-04-2021	15-04-2021	Subgroup 2
Database Table Creation	04-04-2021	15-04-2021	Subgroup 2
Server – Side scripting	04-04-2021	15-04-2021	Subgroup 1

Admin
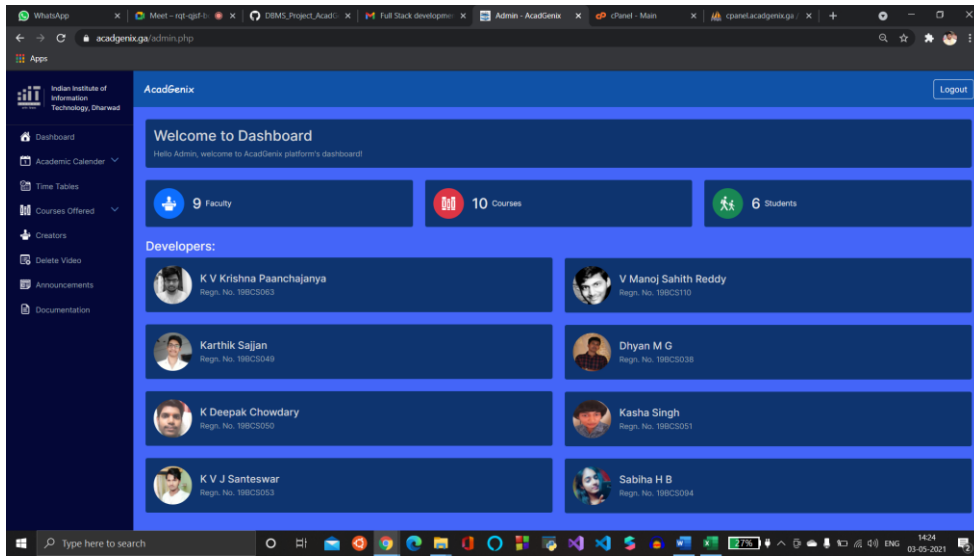
The user when logged in using 'acadgenix@gmail.com' is regarded as admin and will be redirected to the admin panel consisting various control to manage AcadGenix as follows:

- ➢ Academic Calendar: Whenever a user signs in (as a faculty/ student), a hyperlink to access the PDF file of the institute's academic calendar shall be displayed in the navigation bar of AcadGenix. It is obvious that academic calendars often come across minor changes and even needs to be replaced after a year passes by. To manage this, the admin can perform any of the following operations:
  - ❖ Change the Current Academic Calendar: The admin can perform this operation in case of there are changes in the current academic calendar. He can replace the already existing file with the newly uploaded one.
  - ❖ Upload a new academic calendar: The academic can perform this operation in case a year passed a need to upload a fresh academic calendar. In this case, the old academic calendar gets categorized as 'archived' and will be available for further access in the Archives feature in the Admin panel controls.
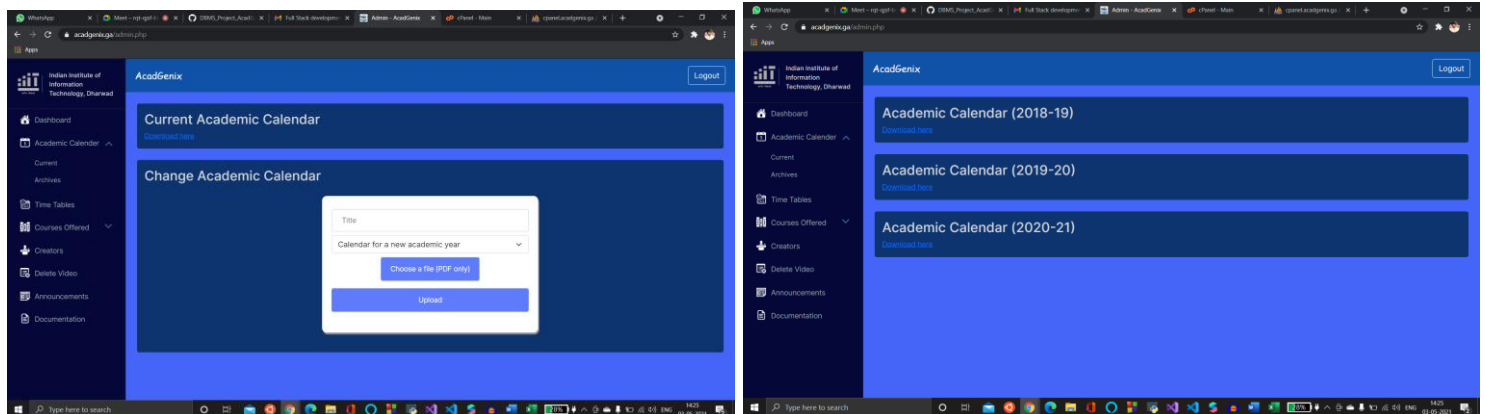

- ➢ Timetables: Whenever a user signs in as a student, a hyperlink to access the PDF file of the institute's timetable of lectures shall be displayed in the navigation bar of AcadGenix beneath the Academic Calendar link. There will be able to 4 timetables available in the database for 4 separate years of graduation. To

compute which file's link must be displayed, the first two characters of the user (student's) mail id using which will be taken into consideration. It is due to the fact that they indicate the year of joining of a student in the institution. The year of graduation of a particular student shall be deduced with reference to the current year and month, the year of joining. To manage this, the admin can make use of the timetables admin control wherein he can upload and manage PDF files consisting the timetable of a particular year.
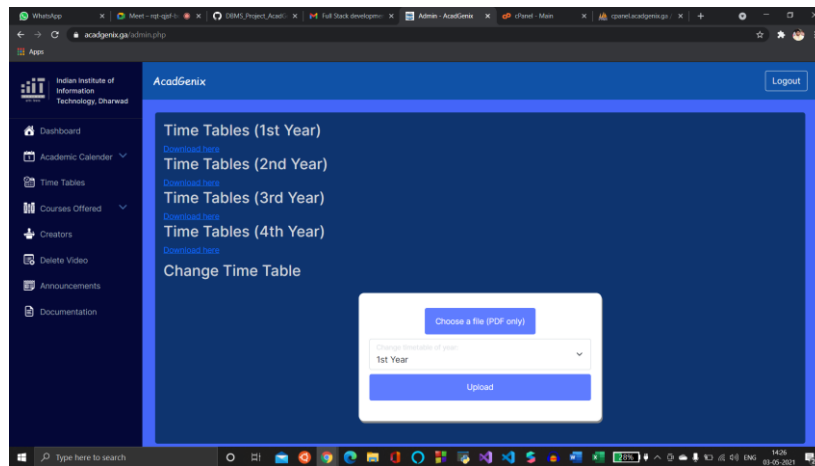

➤ News and Announcements: Whenever a user signs in (as a faculty/ student), multiple hyperlinks to view current developments in the institution i.e., news and announcements shall be displayed in the navigation bar. The hyperlinks can redirect the user to a PDF file/ a webpage consisting of the information about an event. To manage these, the admin can make use of the news and announcements admin control wherein he can upload and manage PDF/PHP/HTML files showcasing the info. A Maximum of 5 announcements can be uploaded at a time.
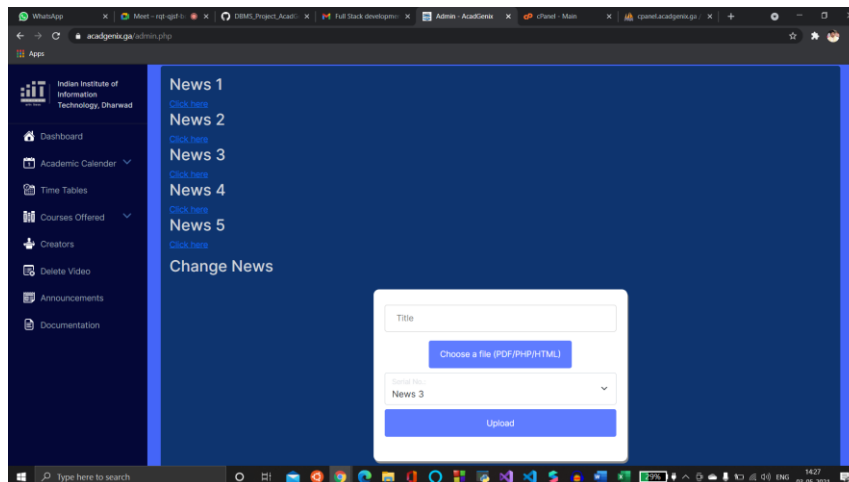

➤ Create a Course: As we saw in the 'Create Content' functionality description, a user (either faculty/ student) can instantiate a course from a prefixed set of available topics (course). The prefixed set can be managed from the 'Create a Course' admin control wherein the admin can create a course by giving it a name, code and uploading a PDF file showcasing the syllabus. The syllabus uploaded at the time of the creation of a course can even be changed (even though it is quite rare). Furthermore, the courses from which a content creator (the user) can instantiate his own version of the content can be categorized as institute tunning or additional courses. Institute courses are the ones taught by the faculty in the institute while the additional courses are the ones that are not.
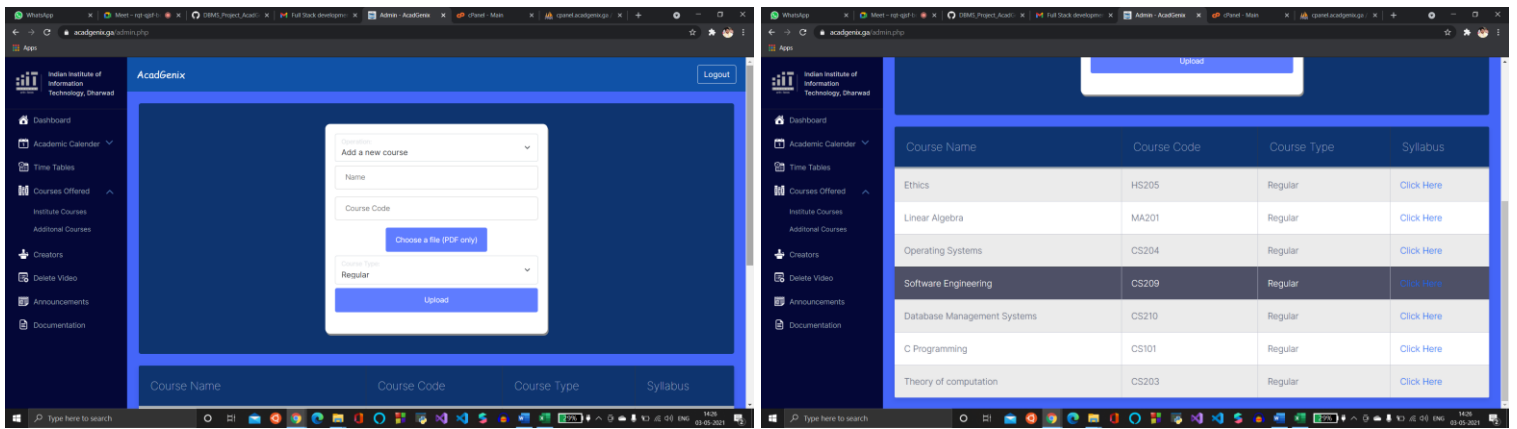
➢ Creators: This is an admin control wherein we can view the list of content creators of AcadGenix. We can upload the Curriculum Vitae of a particular content creator after proper check of credibility here so that learners of the course instance can go through the CV of the creator to know his credibility.
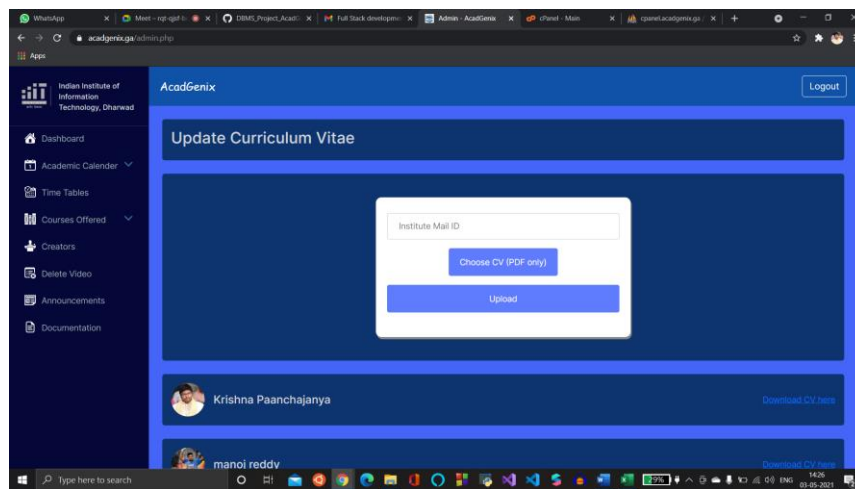
➢ Delete a Video: This admin control gives the admin the ability to delete a video with inappropriate/misleading content simply with the help of the video URL or the unique ID allocated to it.
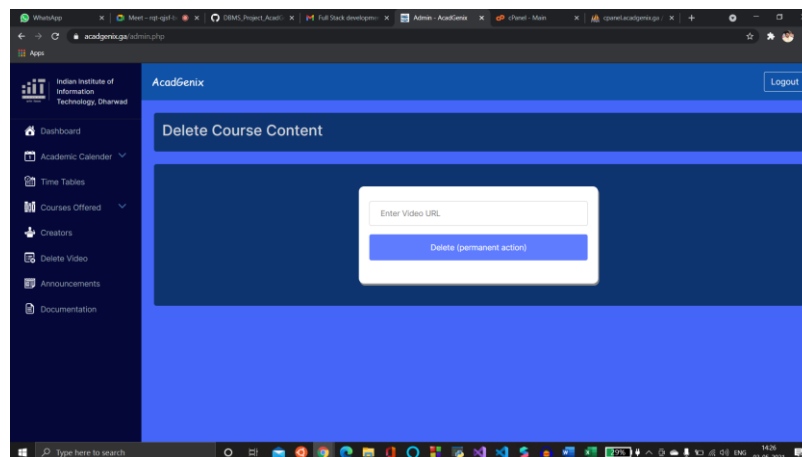
Stage	Developed From	Developed Until	Developed By
Front-End	21-03-2021	31-03-2021	Subgroup 1
Database Table Creation	21-03-2021	31-03-2021	Everyone
Server – Side scripting	21-03-2021	31-03-2021	Subgroup 2