CO-PO MANAGEMENT PORTAL

PROJECT REPORT

Submitted by

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submitted to the faculty of

INFORMATION AND COMMUNICATION ENGINEERING

In partial fulfillment of the requirement for the degree of

MASTER OF COMPUTER APPLICATIONS

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May 2022

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BONAFIDE CERTIFICATE

Certified that this Report titled "**CO – PO Management Portal**" is the bonafide work of **R. Hariharan(2019272010)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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ACKNOWLEDGEMENT

Its my privilege to express my sincere thanks to my project guide **Ms.S.KANIMOZHI**, TEACHING FELLOW, Department of Information Science and Technology, College of Engineering, Guindy, Anna University, Chennai for her keen interest, inspiring guidance, constant encouragement and support with my work during all the stages, to bring this thesis into fruition.

I deeply express my sincere thanks to **Dr. S. SRIDHAR**, Professor and Head of the Department, Department of Information Science and Technology, College of Engineering, Guindy, Anna University, Chennai for extending support.

I would like to express my sincere thanks to the project committee members, **Dr.SASWATI MUKHERJEE**, PROFESSOR, **Dr.M.VIJAYALAKSHMI**, ASSOCIATE PROFESSOR, **Dr.E.UMA**, ASSISTANT PROFESSOR, **MS.C.M.SOWMYA**, TEACHING FELLOW, **MS.P.S.APIRAJITHA**, TEACHING FWLLOW, Department of Information Science and Technology, Anna University, Chennai for giving their valuable suggestions, encouragement and constant motivation throughout the duration of my project.

R. Hariharan

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ABSTRACT

For engineering programme accreditation, an efficient approach for evaluating course outcome (CO) and programme outcome (PO) is required. An effective technique for evaluating student performance through direct and indirect assessment tools will be advantageous for accurate CO and PO evaluation. Internal assessment tests, assignments, and final exams are used by most engineering colleges as direct and indirect evaluation instruments for evaluating student performance. To assess the students' understanding, the tools utilised for CO-PO achievement must be carefully chosen.

This paper provides detailed explanations for calculating achievement using a combination of direct and indirect approaches to measure COs and POs. Each CO is tailored to a certain set of programme objectives. COs and POs can be correlated by determining the degree of mapping strength using correlation levels 1, 2, or 3. Slight, Moderate, and Substantial are represented by one, two, and three, respectively.

Assessment procedures used to quantify CO and PO determine the success of mapping. A target level is specified for each course outcome in terms of low, medium, and high. The goal level is contrasted based on the evaluation of attainment acquired by the direct and indirect methods, and it is one of the measures to indicate the correctness of CO-PO mapping. With extensive mathematical calculations, the achievement attained through direct and indirect methods, as well as an example, is discussed. The findings provide a table that compares the goal level to the achieved level, allowing the teaching staff to detect gaps and take appropriate action to improve the learner's overall performance.

CHAPTER 1

INTRODUCTION

This chapter describes the project and organization of the report.

1.1 Co-Po Outcome

Accreditation allows the institute to better understand its own strengths, shortcomings, and potential. It assists the institute in accepting creative and modern approaches for the institute's improvement. The attainment of course and programme outcomes is one of the major criteria used by the National Board of Accreditation. NBA expects that a student's performance and knowledge will be evaluated based on the evaluation and attainment obtained from course and programme results.

Course outcomes are more specific statements that describe what learners should know after completing the course, as well as how they will use the skills, ethics, and information learned, and how they will benefit society. COs are continuous one-to-one mappings to POs, which are then mapped to program-specific objectives (PSO). Program outcomes are more specific statements that explain the abilities, information, and activities that students gain as a result of their participation in the programme.

1.2 Problem Statement

Co-Po Management portal is being presented to eliminate the need for manually analyzing the Co and Po data of a certain course. The user can automatically map the data while entering the marks and visualize the results.

1.3 Objective

The goal of this project is to determine whether or not the course and programme outcomes were met. The user gains clarity by visualizing the Co and Po data.

1.4 Motivation

To improve the Co and Po mapping into a digitalized version, there are some mapping types already available, such as excel, but the data will be lost in some cases, and we won't be able to track data from previous years, so we wanted to develop a web platform that will store data in the cloud and allow us to view the history of records**.**

1.5 Technologies Used

Programming Language:	Node Js, Express Js
Front-end Technologies:	HTML, CSS and Angular10
Database:	Mongo DB
IDE:	VS-Code

CHAPTER 2

LITERATURE REVIEW

This Chapter explains about the literature survey made on the existing system, analyzing the problem statements and issues with the existing system and proposed objectives for the new system.

s.no	Author	Publication Details	Methodologies	Pros	Cons
1	Akash Rajak, Ajay Kumar Shrivastava, Divya Prakash Shrivastava	The Fifth HCT INFORMATION TECHNOLOGY TRENDS (ITT 2018), Dubai, UAE, Nov., 28 - 29, 2018	Automating Outcome Based Education for the Attainment of Course and Program Outcomes	Focusing on results Outcome-based education(OBE) generates a transparent expectation of the top results.	Lack of evidence that OBE works Criticism of inappropriate outcome
2	Shivakumar Ramchandra1 , Samita Maitra1 * and K MallikarjunaBabu	2014 IEEE International Conference on MOOC, Innovation and Technology in Education (MITE)	Method for estimation of Attainment of Program outcome through Course outcome for Outcome based Education	The purpose of outcomes is to **make the expectations and priorities clear**, with the knowledge that there will be other things students take away from courses and programs.	Opposition to testing. Critics claim that existing tests do not adequately measure student mastery of the stated objectives. Inappropriate outcomes.
3	Khalid Saad, Anisul Haque	IEEE Region 10 Symposium (TENSYMP), 5-7 June 2020, Dhaka, Bangladesh-2020	A Systematic Automation of Direct Assessment of Outcomes Attainment in Outcome Based Education	Flexibility. With a clear sense of what needs to be accomplished, instructors will be able to structure their lessons around the student's needs	Critics claim that existing tests do not adequately measure student mastery of the stated objectives.

5	Raed Abu Zitar, Ammar Elhassan, Oraib AL-Sahlee.	2019 IEEE	Convolution Neural Network Learning for Course Outcome Attainment Improvemen	Every student has the flexibility and freedom of learning in their ways.	Standards can be set too low: Most fear that the focus on achievement by all students will result in "dumbing down" the definition of academic competence to a level that is achievable by even the weakest students

CHAPTER 3

OVERALL ARCHITECTURE

3.1 Architecture design

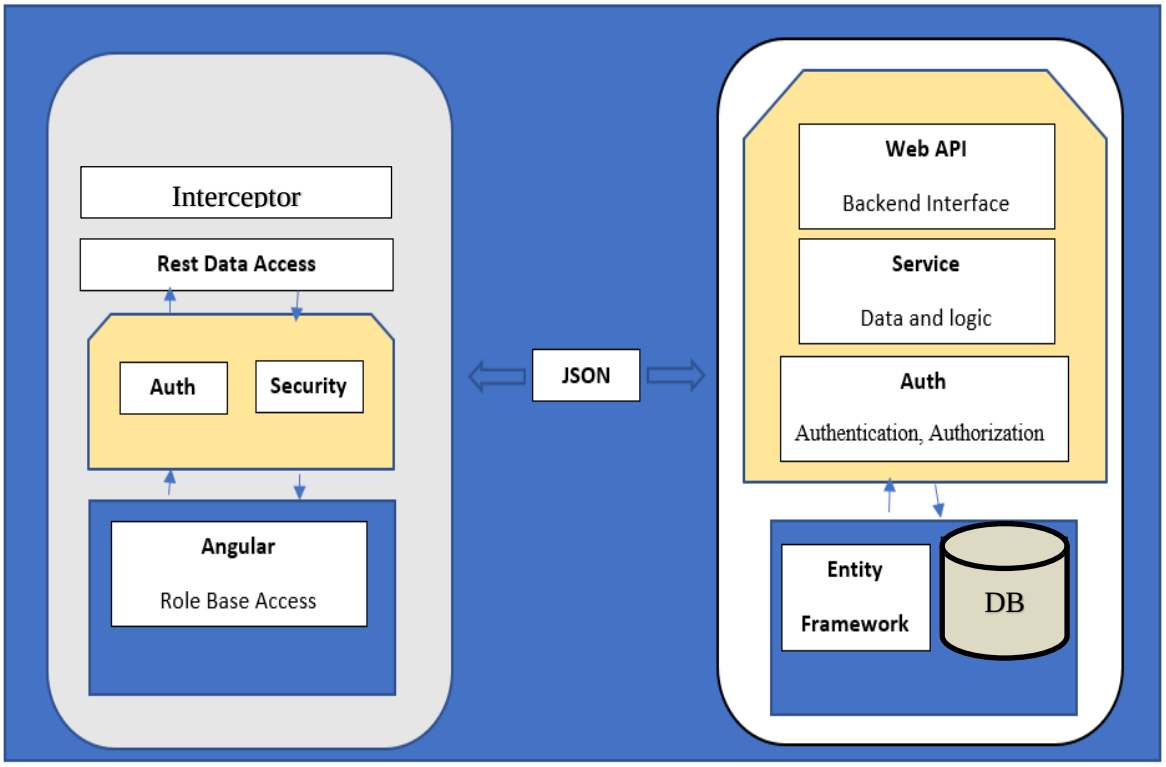

Figure 3.1: Overall Architecture design

In fig 3.1 Explain overall system architecture. Rest-api allows the user to post and retrieve data from the back end. The JSON format will be used for the Rest-Api. For security reasons, each has sent the header containing the authorization token to the backend to validate the user. The Front-End will have access to the backend via role-based communication. The Back-End Server will validate each API using a token and provide the appropriate information to the user.

Back-End Architecture diagram:

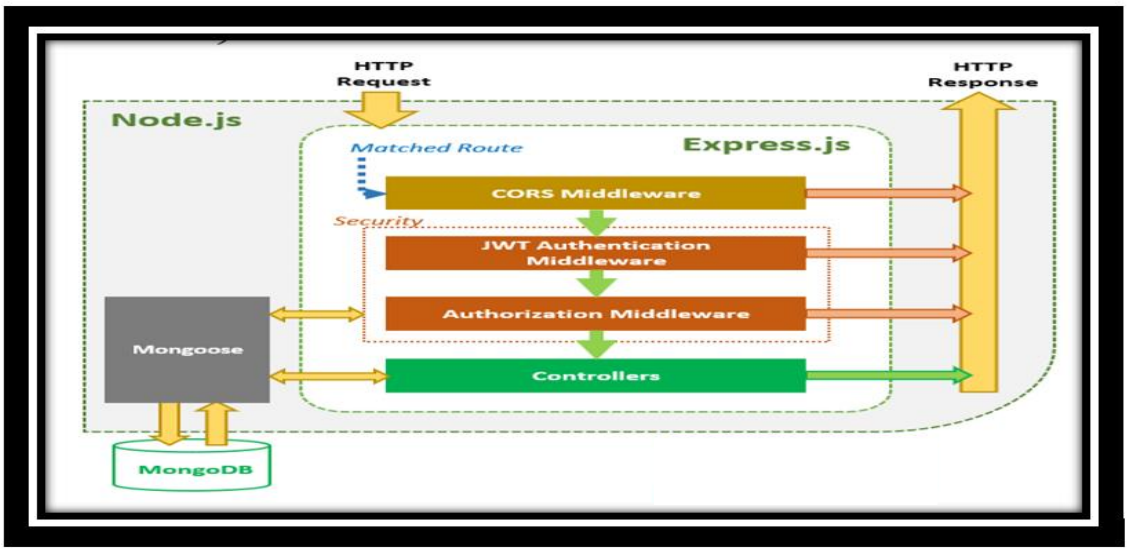

Figure 3.1.1: Back-End Architecture diagram

In fig 3.1.1 explain back-end flow diagram. This back-end will serve the front-end application like a server. It will receive all http requests and respond with a http response. The cors middleware is used to access the api logics from various origin http requests. The jwt Authentication middleware will authenticate the user whether they are a valid user or not, and for new users, it will generate a new token every time the user tries to login, which means it will generate a new token every time the user tries to login, and the token itself will expire after a certain amount of time for security reasons. Only after the token is verified will it be forwarded to the controllers, who will get data from the database and do other tasks.

Front-End Architecture diagram:

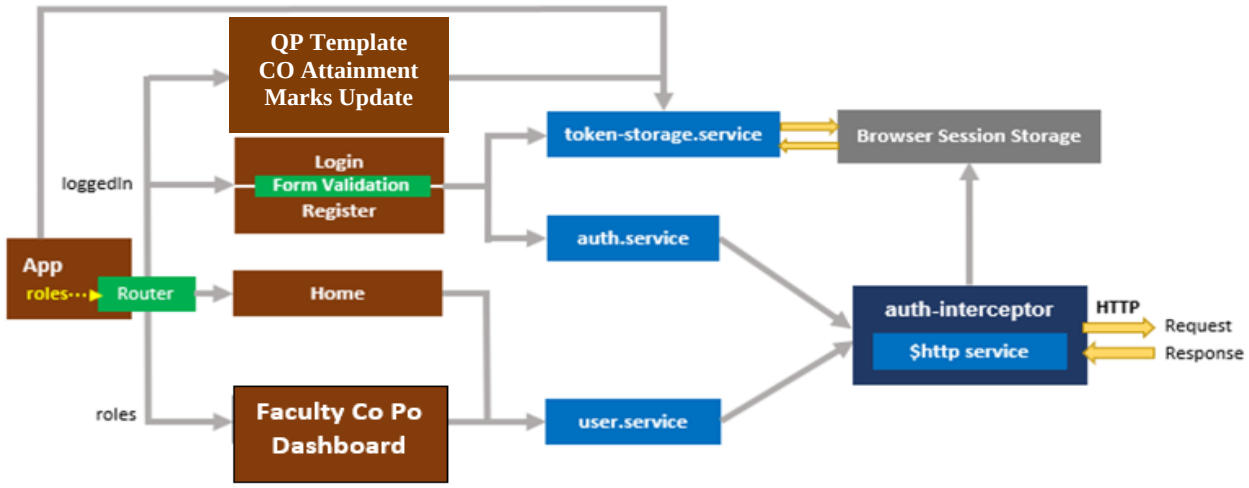

Figure 3.1.2 Front-End Architecture diagram

In fig 3.1.2 explain the front end architecture diagram, It will initially redirect to the application's main routing, from which it will redirect to the login page; if the user is already logged in, the session storage will be checked, and the user will be redirected to the faculty co-po dashboard. The auth service will use the interceptor idea to set the headers with the authorization token and send the token to the back-end server with every api call. There will be a type associated with the user's login, and this type will provide the user with specific navigation item.

3.2 LIST OF MODULES:

- Login Module
- Dashboard
    a. Question Paper Template
    b. Update Marks
    c. Co Attainment
    d. Generate Document
    e. Survey
- Admin Dashboard

CHAPTER 4

DETAILED DESIGN

4.1 Detailed Design Overall Dashboard

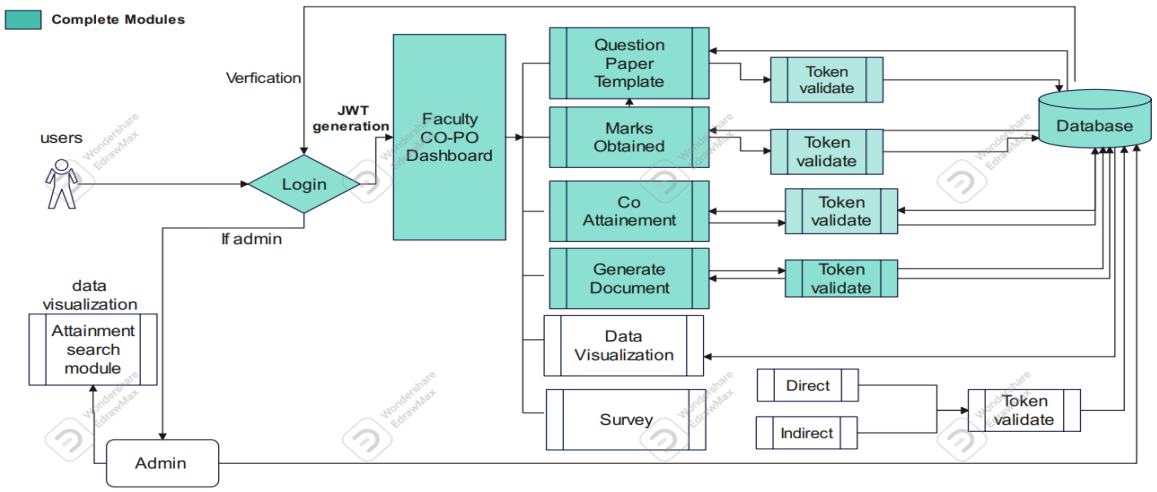

Figure 4.1 Detailed Designed Overall Dashboard

In fig 3.4.1 explain the

4.2 Login Module:

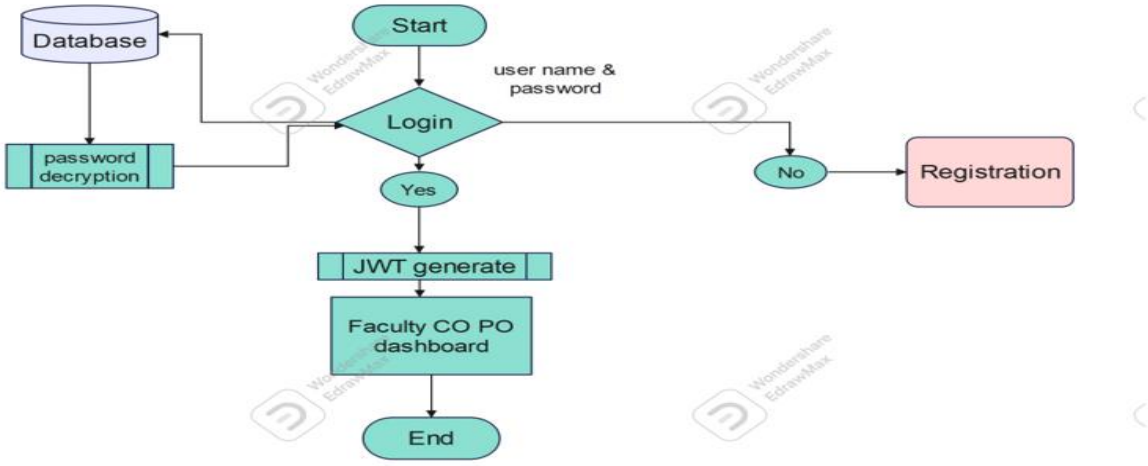

Figure 4.2 Login Module flow diagram

In fig 3.4.2 explain the login module flow diagram, this will make it easier for users to log into the system with their institute id and password. A user can only log in to their accounts if they have a valid id and password. It will aid in the user's authentication as they enter the system. The module adds a layer of security to the system by allowing only authorized individuals to log in. To hash user passwords and store them in the database, we utilize bcrypt. We won't be storing plain text passwords in the database this manner, and even if someone gets a hashed password, they won't be able to log in. Every time a user logs in, we generate a temporary token id that contains the user's information in order to verify whether or not the activity was performed by that user. We do this using json web tokens.

4.3 Dash Board:

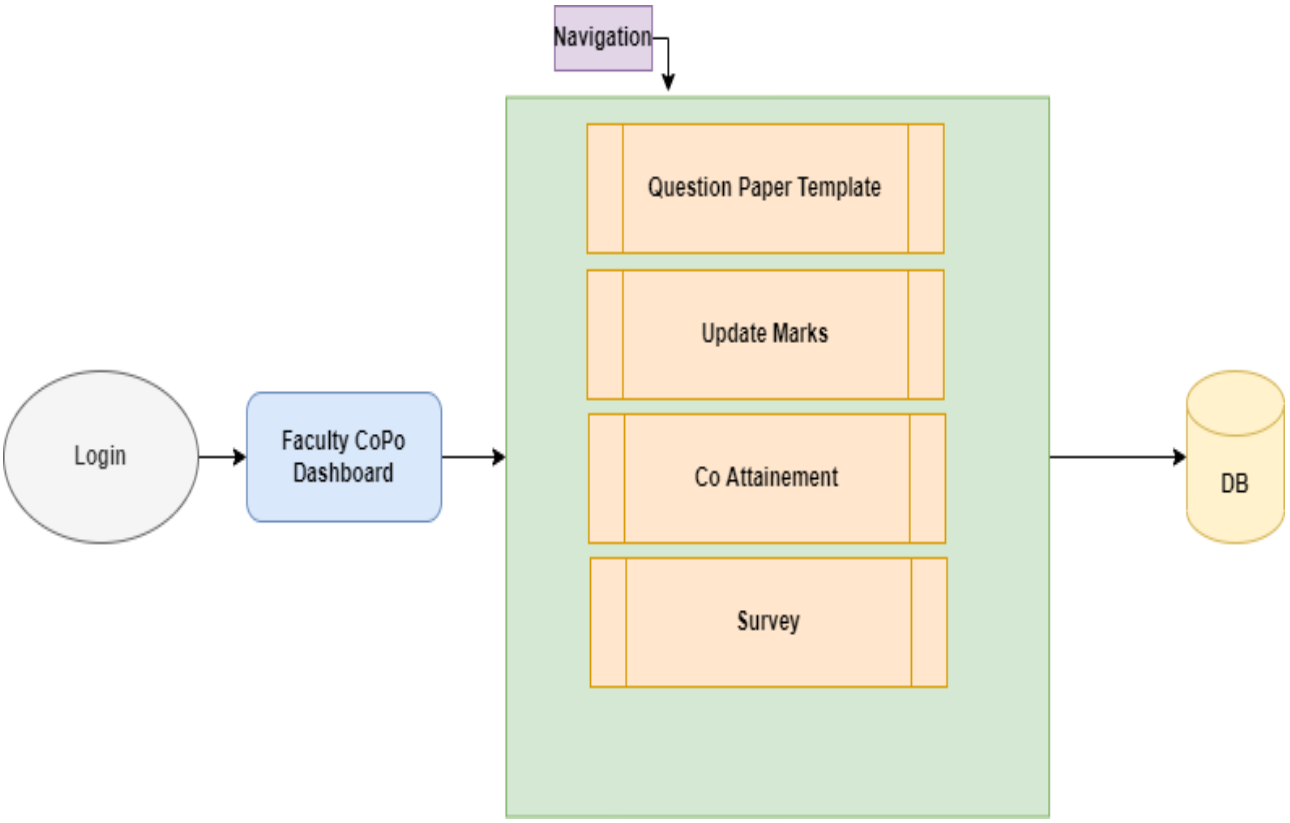

Figure 4.3 Dashboard flow diagram

In fig 3.4.3 explain dashboard flow diagram, Every API used by a user will be validated using JWT in this dashboard. The professors will be registered in this module because they are new to the educational institute. It will take the shape of a structure, with all of the faculty information filled in. There will be navigation to let the user browse through the material. It will travel to the sub module where the data will be posted and retrieved from the Backend.

4.4 Question Paper Module:

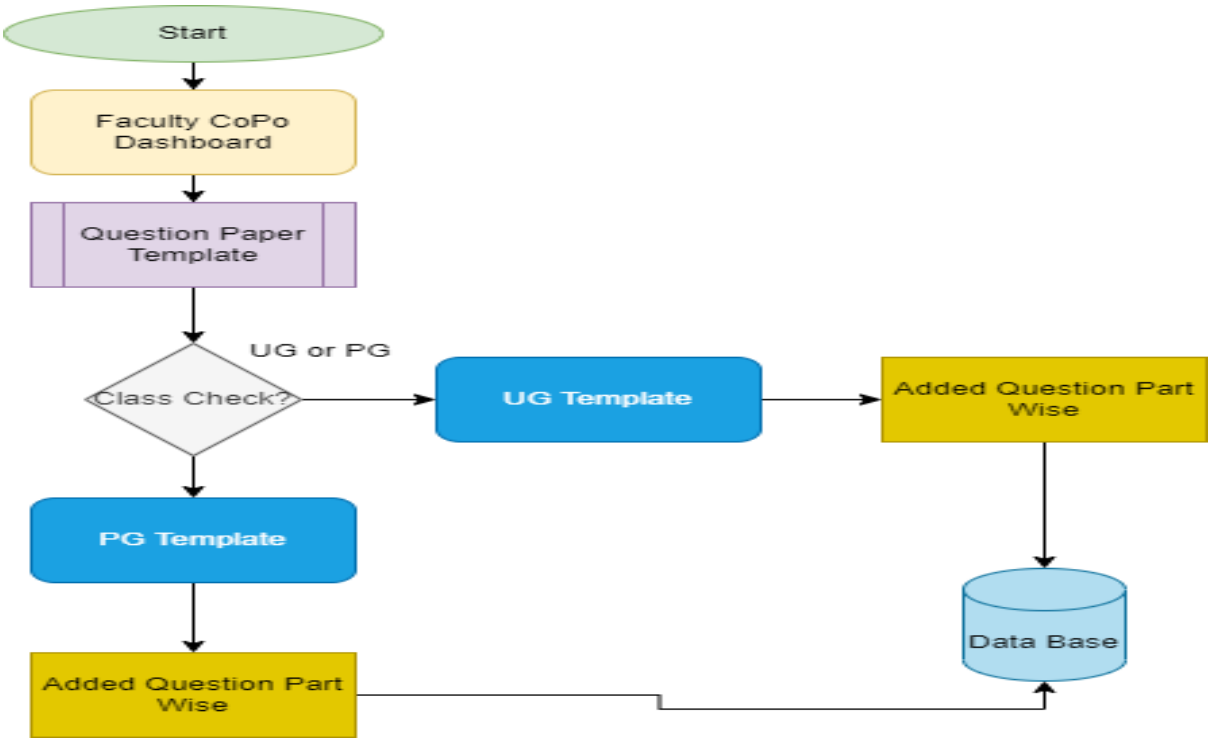

Figure 4.4 Question Paper Template flow diagram

In fig 3.4.4 explain, this question creation flow will first check the type of class, whether they are ug or pg, and then redirect to the appropriate question paper template page where their professor may create and set the question paper to subject. Each section of the question has some validation to set the question paper, and when you save the question paper, it will calculate and record the total of each co.

4.5 Update Marks Module:

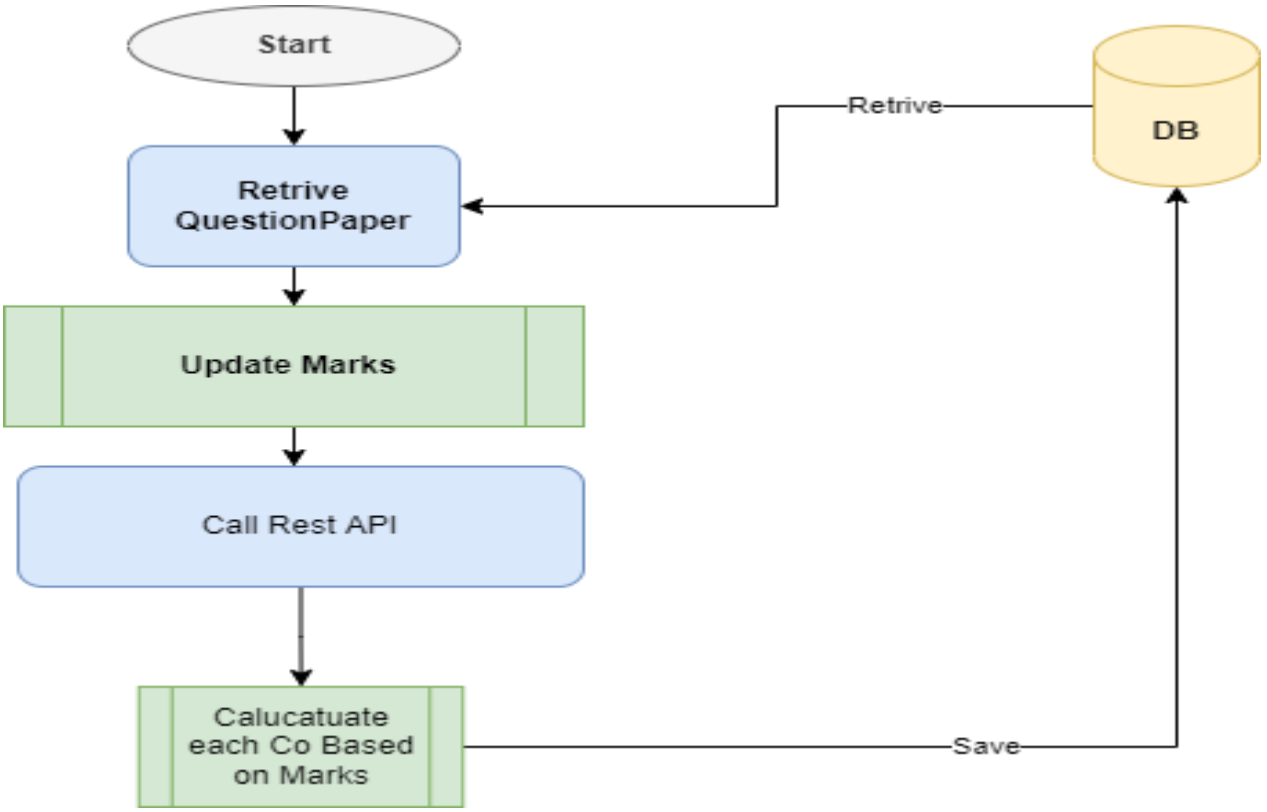

Figure 4.5 Update Marks flow diagram

In fig 3.4.4 explain. Update marks flow diagram, where the faculty gives some conditional type to search question paper from the back-end, which it will obtain from the database, after which the faculty can enter the marks of each and every question to the specific student who is already registered for the course. It will calculate the specific student mark that is mapped with the co to the specific question and store it while saving the data.

LIST OF COMPLETED MODULES

- Login Module
- Question Paper Template
- Update Marks
- Co-Attainment
- Generated Document

CHAPTER 5

IMPLEMENTATION AND RESULTS

5.1 Home Page:

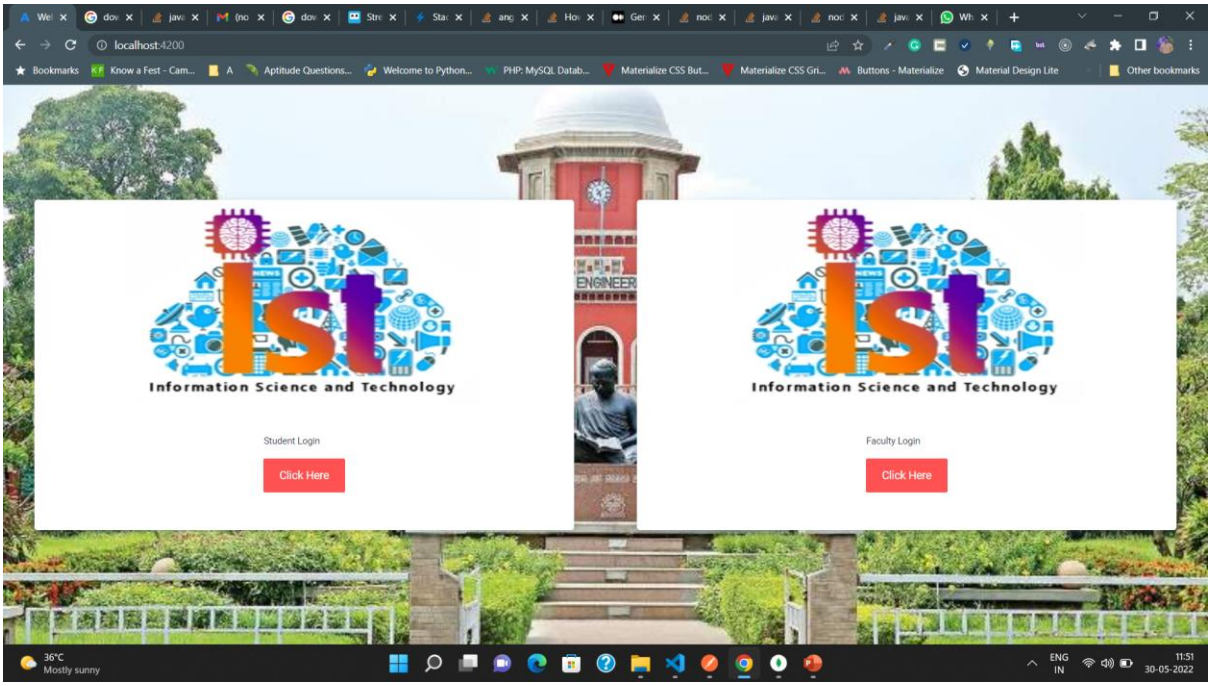

Figure 5.1: Home Page

5.2 Login Page:

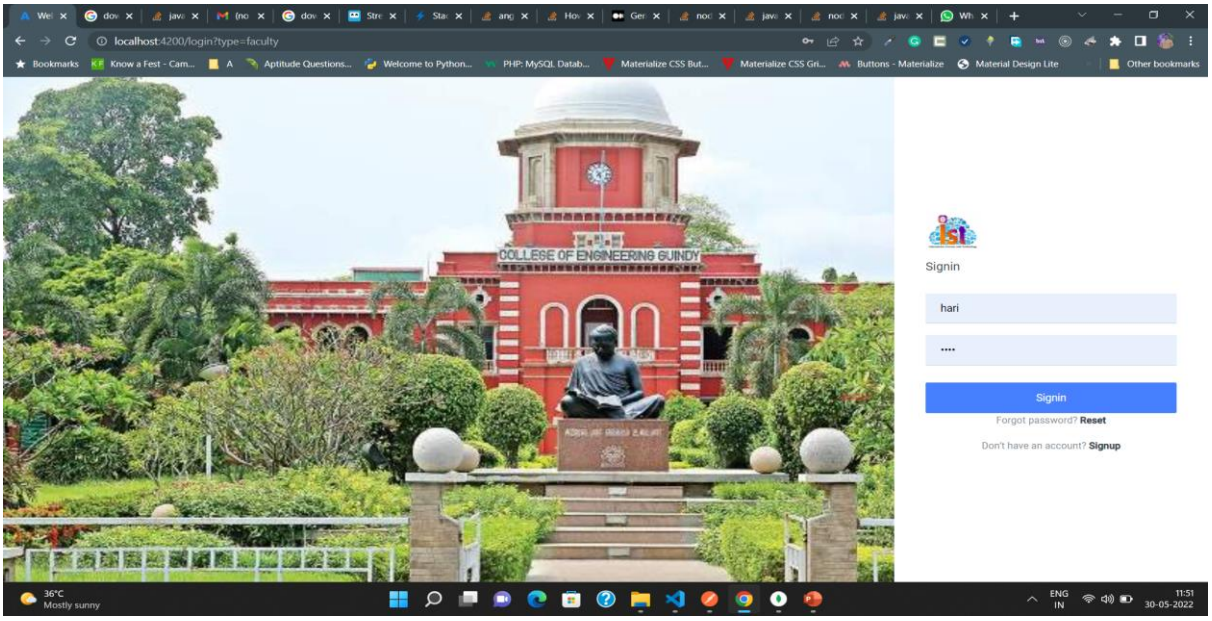

Figure 5.2: Login Page

5.3 List of Question Paper:

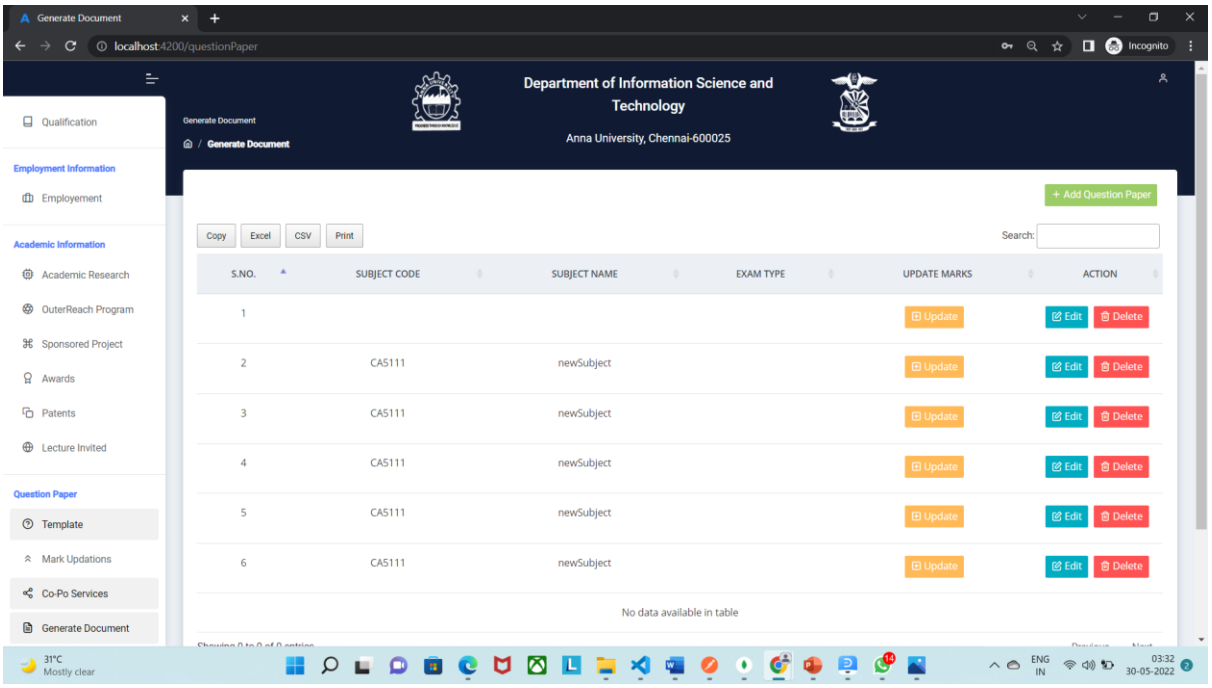

Figure 5.3: List of Question Paper

5.4 Question paper Template:

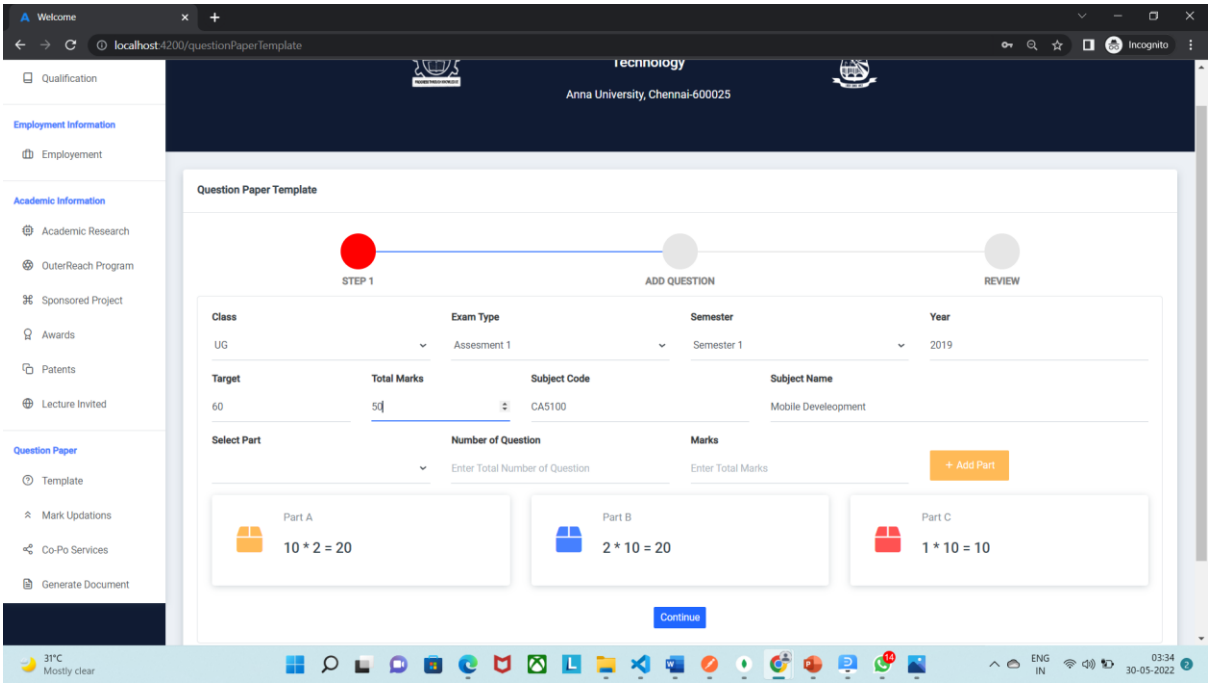

Figure 5.4.1: Question Paper Template

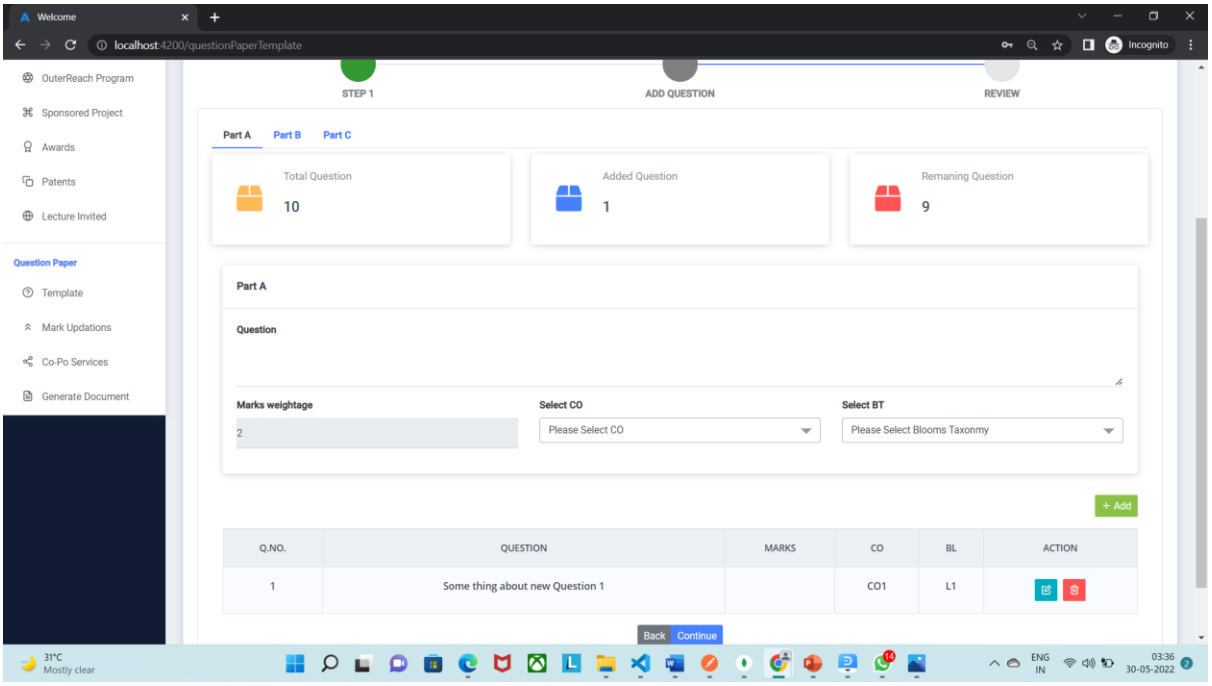

Figure 5.4.2: Question Paper Template

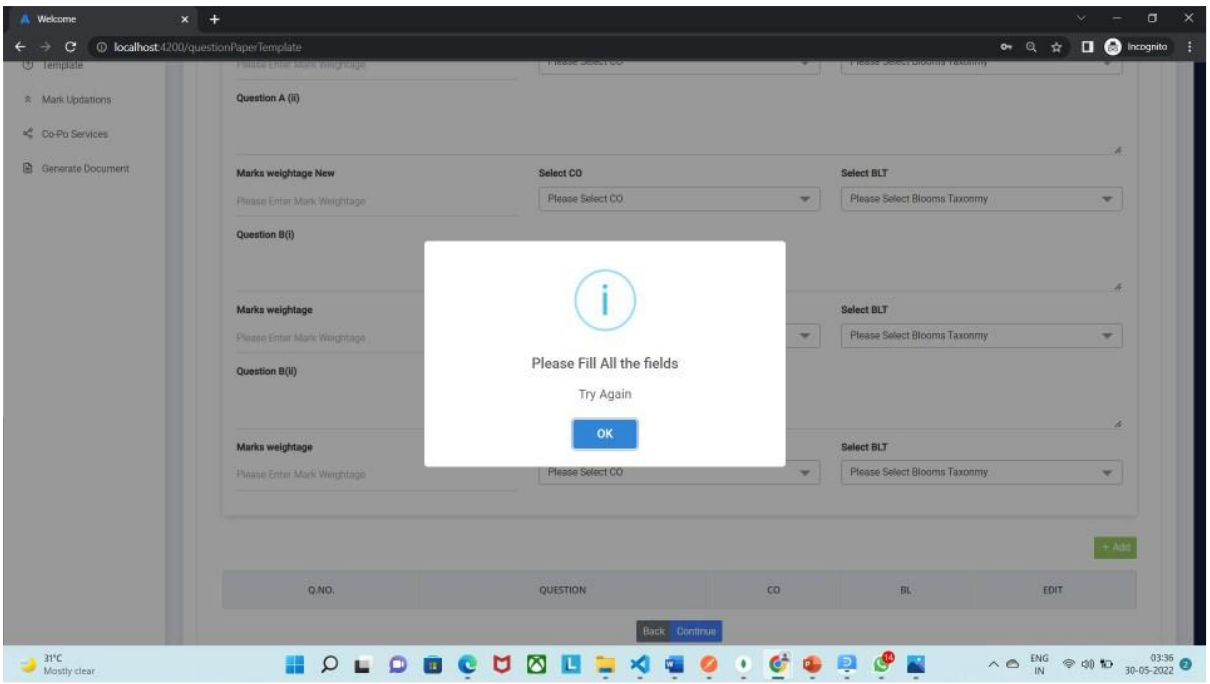

Figure 5.4.3: Question Paper Template some validation

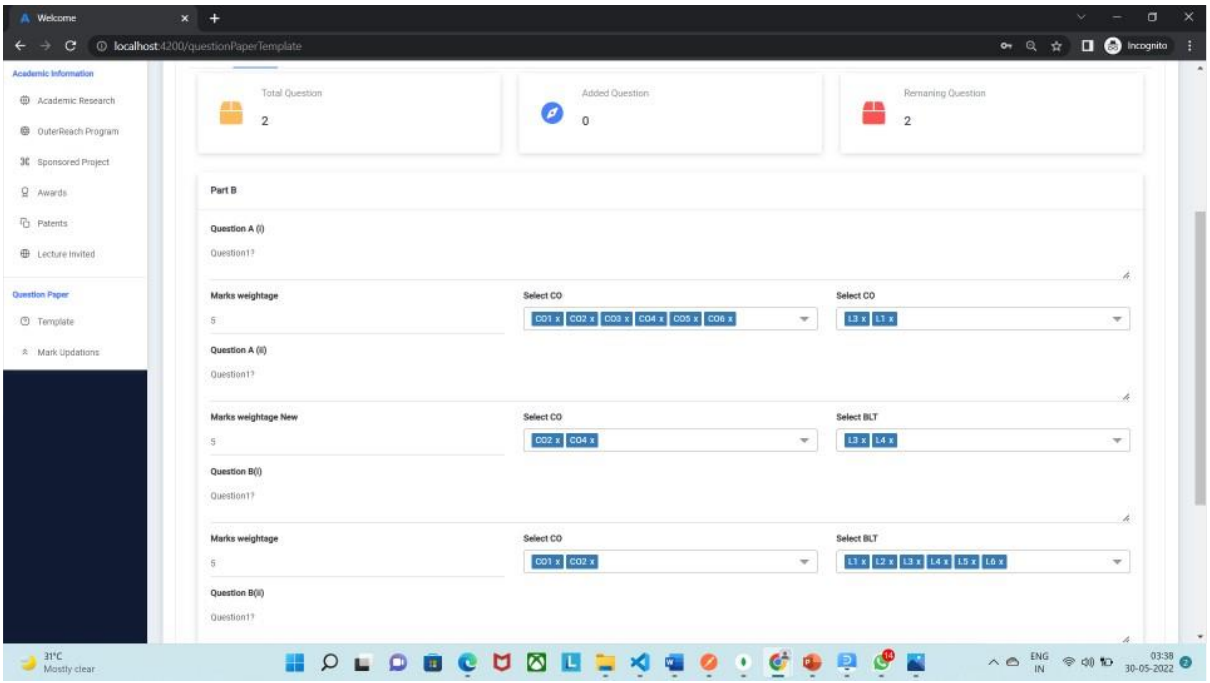

Figure 5.4.4: Question Paper Template some validation

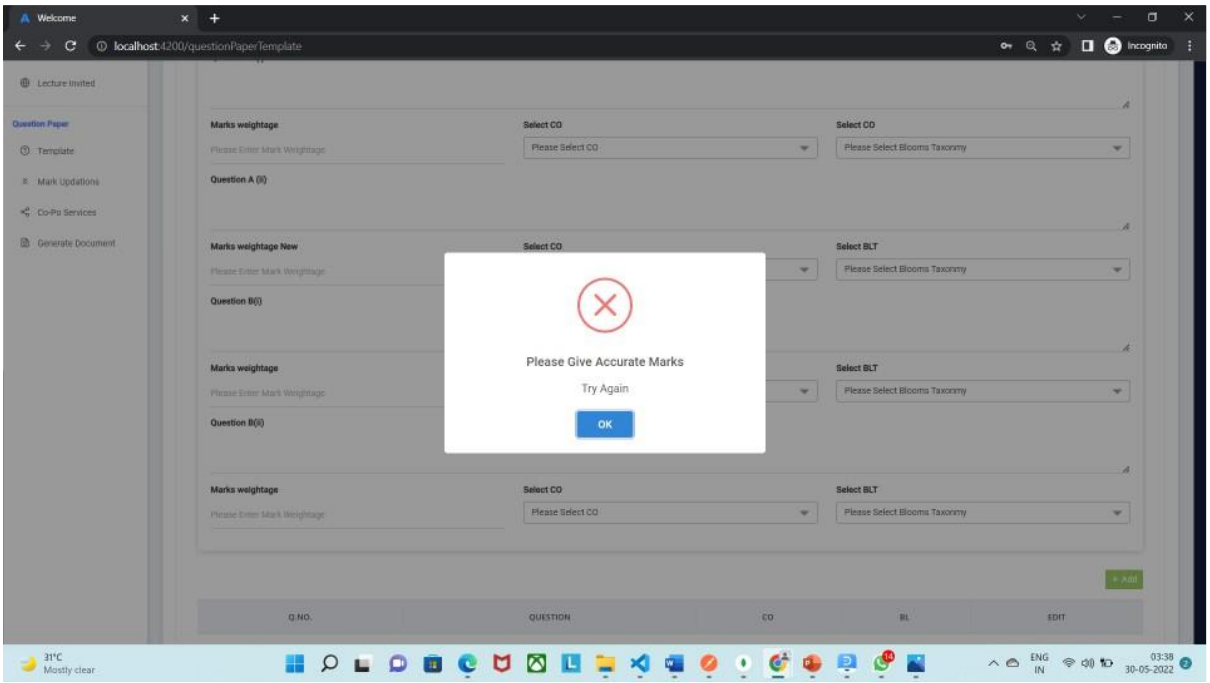

Figure 5.4.5: Question Paper Template some validation

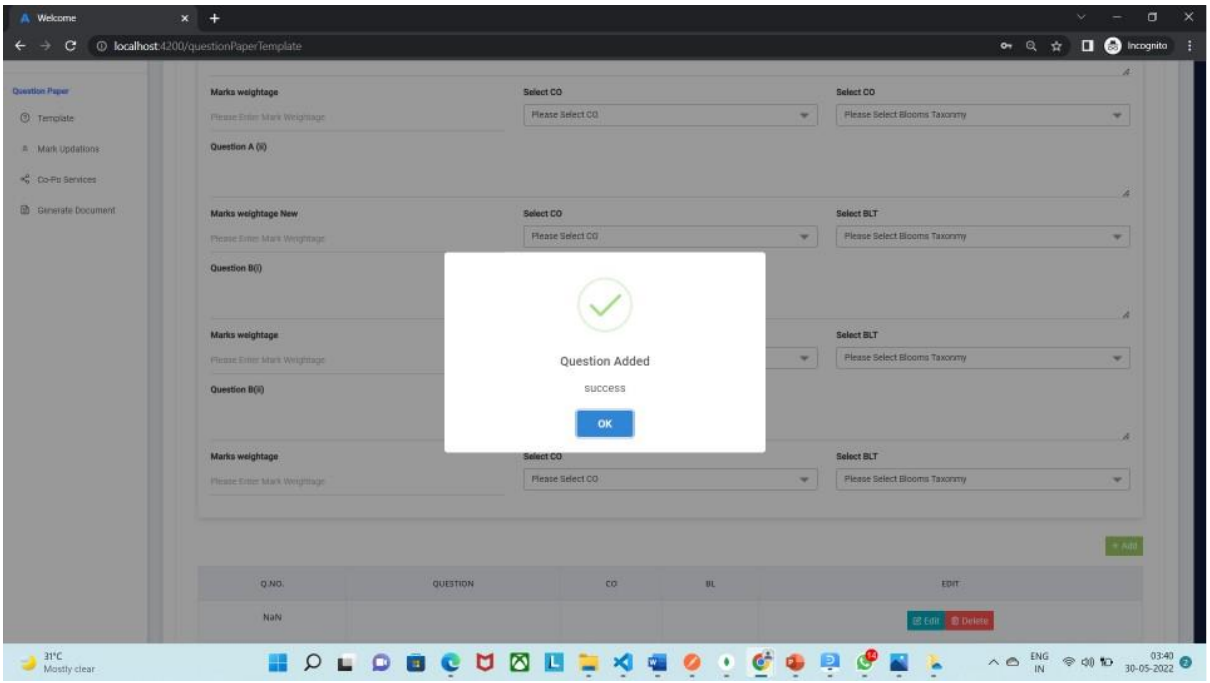

Figure 5.4.6: Question Paper Template some validation

5.5 Update Marks:

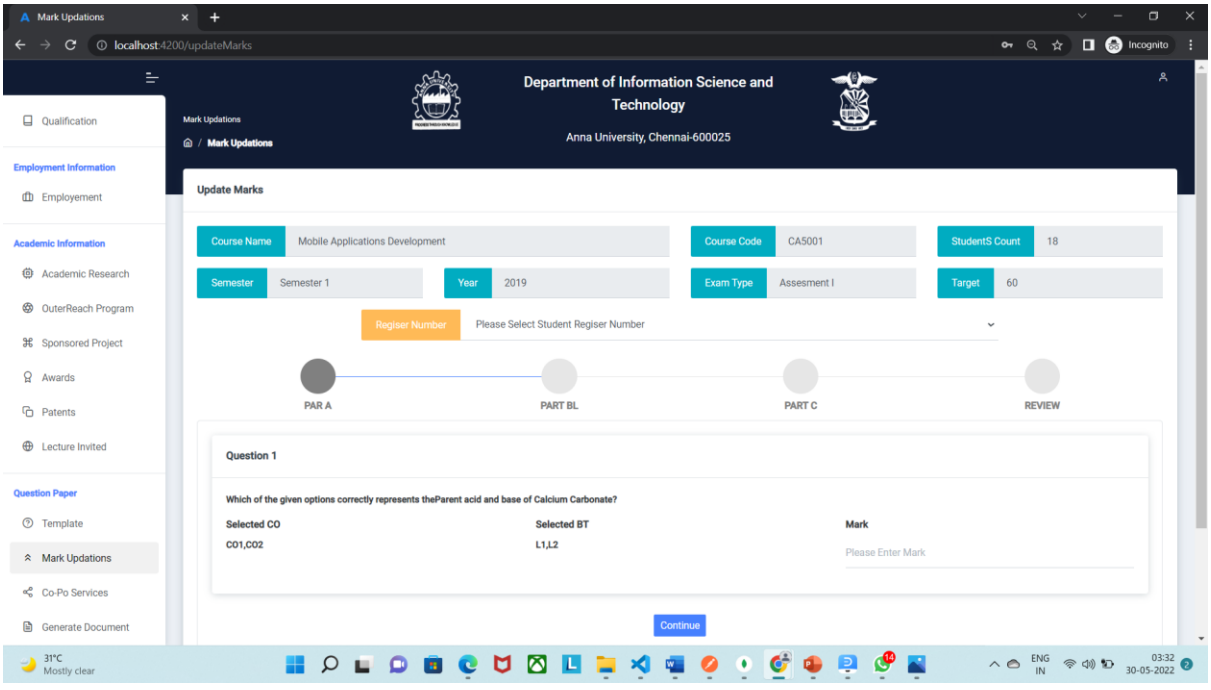

Figure 5.5: Update Marks

5.6 Co Attainment:

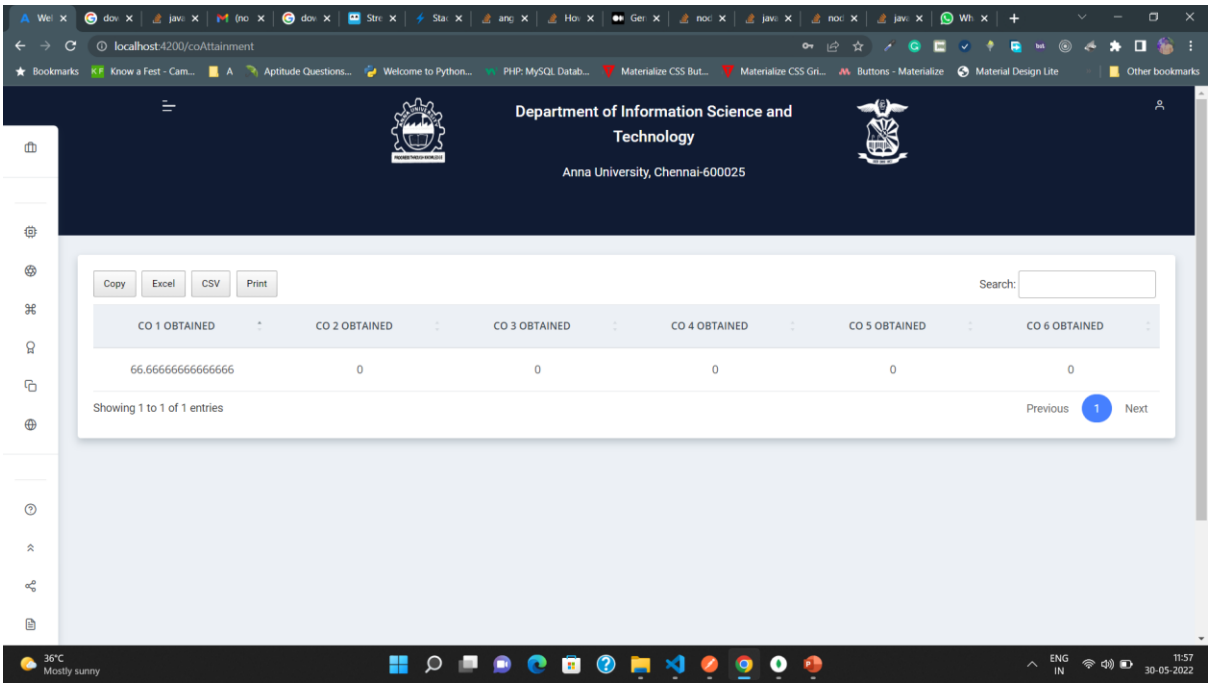

Figure 5.5: Co Attainment.

Results:

Unit Testing:

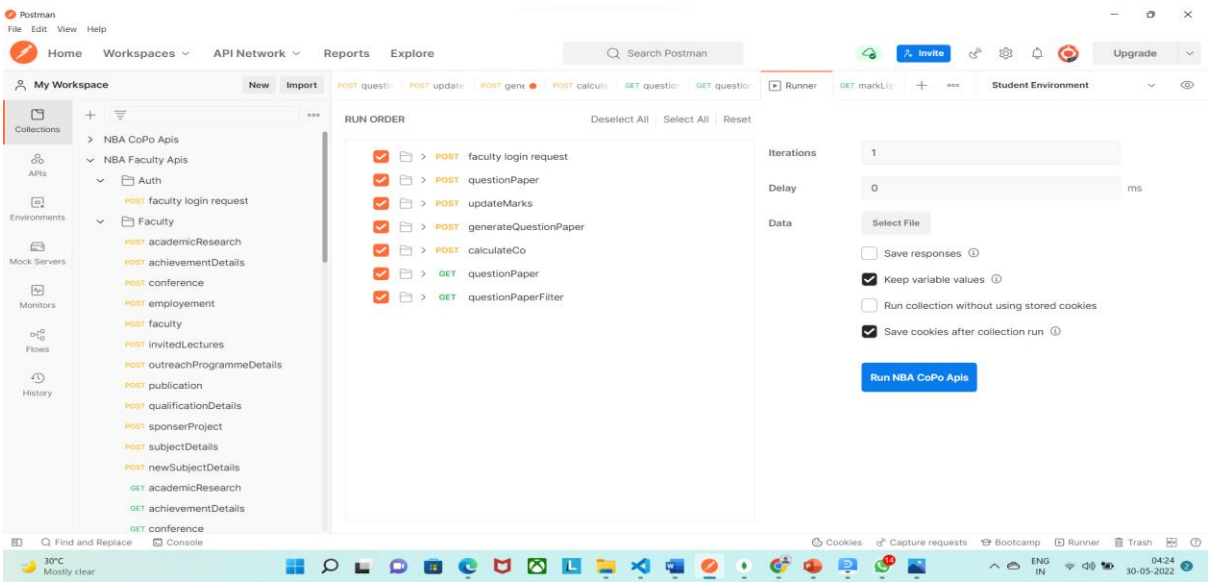

Figure 5.6: Unit Testing Before Result.

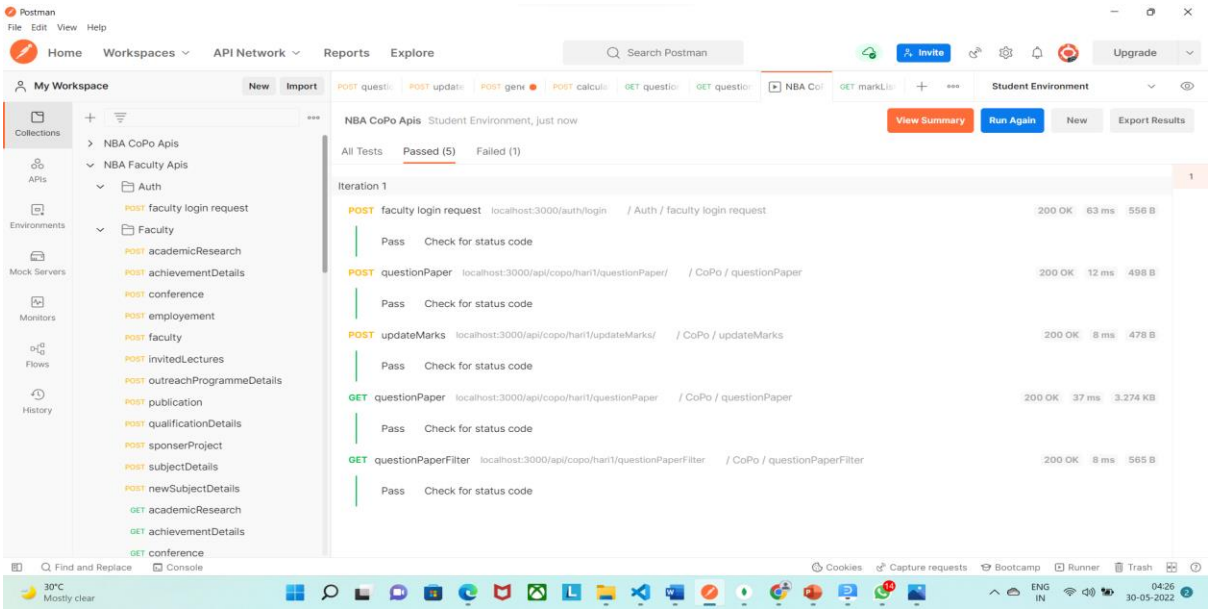

Figure 5.6: Unit Testing After Result.

CHAPTER 6

CONCLUSION AND FUTURE WORK

Conclusion:

Future Work:

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