SOFTWARE REQUIREMENTS SPECIFICATION

GROUP 13

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AUTOMATED LIVE CLASSROOM PERFORMANCE EVALUATION

INTRODUCTION

PURPOSE

The purpose of this project is to enhance the online evaluation scheme which is generally used by students and teachers in College and propose a better way of handling online examinations.

SCOPE

A all-in-one software solution for
a.) Improving the old evaluation method.
b.) Improving efficiency and time management.
c.) Reduced Workforce and better outputs.
d.) Better analysis among the batch.
e.) A detailed solution can be provided which help in improving student's performance
f.) Improving interaction between teachers and students during and after examinations.

TARGETED END USERS

i) Students
ii) Professors

FUNCTIONAL REQUIREMENTS

R1. Registration

1.1) Instructor Registration.

1.1.1) Validate Instructor email
Input:User credentials
Output: Validation link
Description:A validation link is sent to the email address specified.

1.1.2) Add Instructor to System
Input:Validation link
Output:Success/Error
Description:Add the instructor to the database.

1.2) Student Registration

1.2.1) Validate Student email
Input:User credentials
Output: Validation link
Description:A validation link is sent to the email address specified.

1.2.2) Add Student to System
Input:Validation link
Output:Success/Error
Description:Add the student to the database.

1.3) TA Registration

1.3.1) Validate User email
Input:User credentials
Output: Validation link
Description:A validation link is sent to the email address specified

1.3.2) Add TA to System
Input:Validation link
Output:Success/Error
Description:Add the TA to the database.

R2. Login

2.1) Student Login
Input: Student Credentials
Output: Personalized dashboard
Description: Authenticate the Student.

2.2) Instructor Login
Input: Instructor Credentials
Output: Personalized dashboard
Description: Authenticate the Instructor.

2.3) TA Login
Input: TA Credentials
Output: Personalized dashboard
Description: Authenticate the TA.

R3. Course Group Management

3.1) Create a course
Input: Course name
Output: Course
Description: The course is created by the instructor.

3.2) Manage Course Participants

3.2.1) Add Student
Input: Student Credentials
Output: Success/Error message.
Description: The student is added to the course group.

3.2.1.1) Notify Student
Input: Student Credentials
Output: Notification with invite link
Description: Notification sent to students.

3.2.2) Add Teaching Assistant(TA)
Input: TA Credentials
Output: Success/Error message.
Description: TA is added to the course group.
3.2.2.1) Notify TA
Input: TA Credentials
Output: Notification with an invite link.
Description: Notification sent to TA.

3.2.3) Remove Participant
Input: Participant details
Output: Success/Error message.
Description: Participant removed from the course.

3.2.4) Make Group Admin
Input: Participant details
Output: Success/Error message.
Description: The participant is given admin privileges.

3.2.5) Dismiss as Admin
Input: Participant details
Output: Success/Error message.
Description: The participant is removed from admin.

3.3)Course Chat Room

3.3.1) Create a Chat room

3.3.1.1) Create chat room
Input:Teachers and Student Credentials
Output:Chat room id
Description:Chat window is created for communication between teacher and student.

3.3.2) Chat room Management

3.3.2.1) Send Messages
Input: Message
Output: send status
Description: Message is sent.

3.3.2.2) Recieve Messages
Input:Course details
Output:Messages
Description: Message is displayed.

3.3.3) Close Chat room

3.3.3.1) Close chat room
Input: Chat room id
Output: Success/Error message.
Description: Chat window is closed for communication between teacher and student.

3.4) Delete course
Input: Course details
Output: Success/Error message.
Description: Course deleted.

R4. Examination Management

4.1) Create Exam
4.1.1) Set Schedule
Input: Date & Time
Output: Success / Error message
Description: Set date and time of exam to be conducted.

4.1.2) Set Duration
Input: Duration
Output: Success / Error message
Description: Set duration of exam to be conducted.

4.1.3) Create Question Set

4.1.3.1) Create MCQ:
Input: Question, Options, Answer
Output: Success/Error Message
Description: MCQ question is created with the given options and answer.

4.1.3.2) Create Single Word Question:
Input: Question, Answer
Output: Success/Error Message
Description: Single word question with the given answer is created.

4.1.4) Jumble Question Set
Input: Exam details
Output: Success/Error Message
Description: Question order gets jumbled.

4.1.4) Instructions for exam
Input: Instructions
Output: Success/Error Message
Description: An instruction list for the exam is created.

4.2) Start Exam

4.2.1) Display Instructions
Input: Exam details
Output: Instructions list
Description: The instructions list for the exam is displayed.

4.2.2) Start Countdown Timer
Input: Exam Duration
Output: Countdown Timer
Description: Countdown timer starts depending on the duration of the exam.

4.2.3) Display Questions
Input: Exam details
Output: Questions
Description: Questions are displayed.

4.2.4) Live Test Doubt Room

4.2.4.1)Create Live Test Doubt Room
Input:Teachers and Student Credentials
Output: Live Test Doubt room id
Description:Chat window is created between teacher and student.

4.2.4.2)Live Test Doubt Management

4.2.4.2.1)Ask Query
Input: Query
Output: Message
Description: Query is sent to the professor.
4.2.4.2.2)Reply Query
Input:Reply to the query.
Output: Message
Description: Reply to the query is sent to the student.

4.2.4.3) Close Live Test Doubt room
Input: Live Test Doubt room id
Output: Success/Error message.
Description: Live test doubt is closed.

4.2.5) Attempt Question
4.2.5.1) Answer Question
Input: Question details + option
Output: Success/Error Message
Description:The option as marked by the student is stored.

4.2.5.2) Mark for Review
Input: Question details
Output: Success/Error Message
Description: The question is marked to be reviewed later.

4.2.5.3) Next
Input: Question details
Output: Next Question
Description: Next page of the questions set is displayed.

4.2.5.4) Reset
Input: Question details
Output: Success/Error Message
Description: The marked answer is cleared.

4.2.6)Attempt summary
4.2.6.1) Display Attempt Summary
Input: Live Student response
Output:Attempt Summary
Description: A colour coded attempt summary is shown during the exam.

4.2.6.2) Display Questions Marked for Review
Input: Live Student response
Output:Questions Marked for Review
Description: List of Questions Marked for Review.

4.2.6.3) Display Unanswered Questions
Input: Live Student response
Output: Unanswered Questions
Description: List of Unanswered Questions.

4.3) End Exam
Input: Exam details, timer
Output: Submission Status
Description: Submission status is shown after ending the examination.

4.3.1) Feedback by student
Input: Feedback text
Output: Success/Error Message
Description: Student feedback is submitted.

4.4) EVALUATION
4.4.1) Evaluate Exam
Input: Students exam response
Output: Marks
Description: Professor evaluates the exam and returns the marks for each student.

4.3.3) Get Results
Input: Student+Exam details
Output: Marks
Description: The student receives the marks obtained in the test.

4.3.4) Get Answer Key
Input: Exam details
Output: Answer Key
Description: Returns the answer key of the given exam.

4.3.5) Evaluation Doubt Room:

4.3.5.1)Create Evaluation Doubt Room
Input:Teachers and Student Credentials
Output:Evaluation Doubt room id
Description:Chat window is created between teacher and student.

4.3.5.2)Evaluation Doubt Management

4.3.5.2.1)Ask Query
Input: Query
Output: Message
Description: Query is sent to the professor.

4.3.5.2.2)Reply Query
Input:Reply to the query.
Output:Message
Description: Reply to the query is sent to the student.

4.3.5.3) Close Evaluation Doubt room
Input: Evaluation Doubt room id
Output: Success/Error message.
Description: Live Test Doubt is closed.

4.3.6) Plagiarism Report

4.3.6.1) Generate Plagiarism report
Input: Exam details
Output: Plagiarism Report
Description: A plagiarism report is generated for each exam.

R5. Dashboard

5.1) Student Dashboard

5.1.1) Student Profile
Input: Student Details
Output: Student Dashboard
Description:A Personalized student dashboard is shown for each student.

5.1.2) Student Calendar
Input: Student & Courses' Details
Output: Calendar
Description:A calendar to display student's exam schedule.

5.1.3) Completed Exams
Input:Course name
Output:All exams completed
Description: Shows all the exams completed by the student in the course.

5.1.4) Upcoming Exams
Input:Course name
Output:All upcoming exams
Description:Shows all the upcoming of the student in the course.

5.1.5) Missed Exams
Input:Course name and Student details
Output:All exams missed
Description:Shows all the exams missed by the student in the course.

5.2) Instructor Dashboard
5.2.1) Instructor Details
Input: Instructor Details
Output: Instructor Dashboard
Description:A Personalized Instructor dashboard is shown for each Instructor.
5.2.2) Scheduled Exams
Input:Course name
Output:All exams scheduled
Description: Shows all the exams scheduled by the instructor in the course.

5.2.3) Completed Exams
Input:Course name
Output:All exams completed
Description: Shows all the exams completed in the course.

5.2.4) Canceled Exams

Input:Course name

Output:All exams completed

Description: Shows all the exams cancelled by the instructor in the course.

5.3) Logout

Input: User details

Output: User login page

Description: User gets logged out .

R6. Analysis

6.1)Generate Performance Report

6.1.1) Get Average

Input:Exam detail

Output: Average of marks

Description: Average of marks obtained by students in an exam.

6.1.2) Get Highest

Input: Exam details

Output: Highest marks

Description: Highest marks among the students in an exam.

6.1.3) Get Marks Distribution Graph

Input: Exam details

Output: Graph of marks.

Description: Distribution of marks

6.1.4) Correct Responses per question

Input: Question

Output: Count of responses

Description: Count of correct responses for each question.

6.1.5) Best Performers List

Input:Exam details

Output: Top 10 list of students.

Description: Top 10 list of students that aced the exam orderwise.

6.1.6) Your Marks

Input: Exam details

Output: Score

Description: Displays the score of the student in the exam.

Contextual Inquiry

PLANNING STAGE

We aimed to observe the end-users to collect information about the desirable features the users will require in this exam-evaluation application.
We contacted people whom we felt to be best suited for the end-user of our application and scheduled a google-meet with them to observe them doing the required tasks.

INITIATE STAGE

We met on a google meet with the intended end-users on the scheduled time.

EXECUTION STAGE

In a video call session with an intended end-user we provided him with a test we asked him to perform a demo on how he would give an actual exam during this we deduced the following observations. We conducted a similar session for creation of tests too.
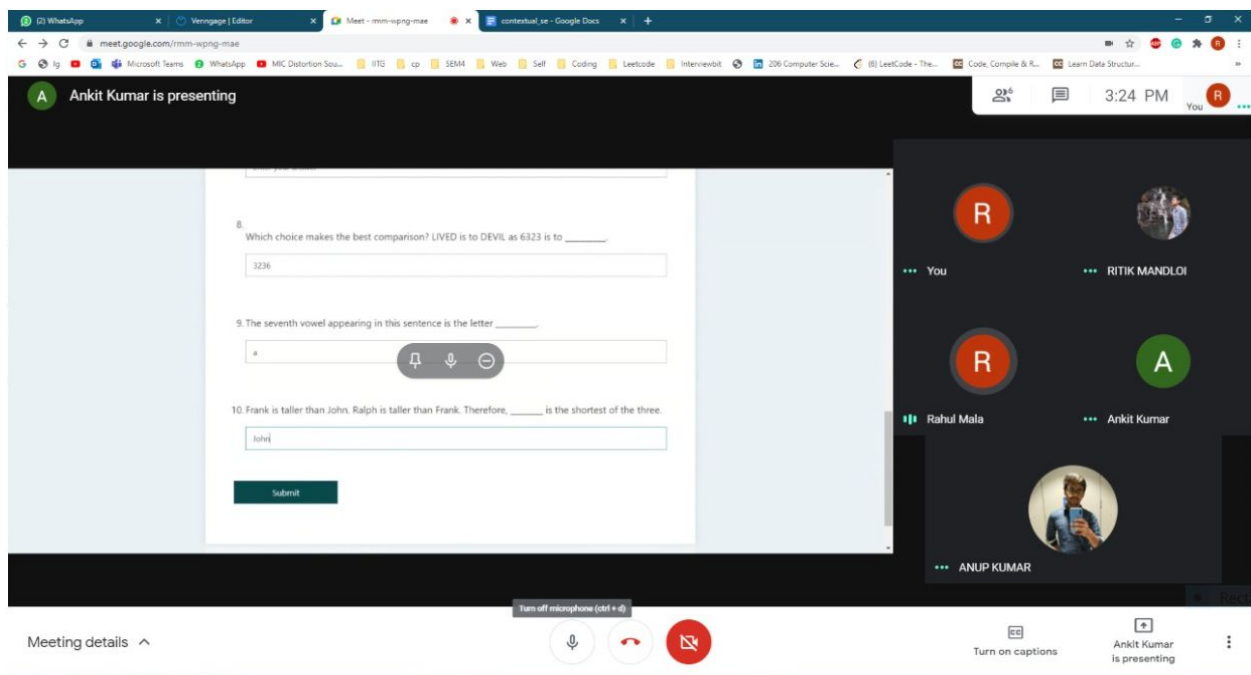
Screenshot of the video-conference with the end user

FOR STUDENTS

1. First, we provided the link for the exam and the user signed in with appropriate credentials.
2. The user initially looks after the whole paper for a number of questions, marking scheme, and type of question.
3. The user scrolls back to the question he/she is comfortable with and attempts it.
4. We intentionally made some questions which were a bit wrong so report the response of the user here the user was unable to report an error in question back to the paper setter.
5. The user frequently feels the need to see the unanswered questions and usually wastes a lot of time searching for them.
6. The user also finds it difficult to have a track of the time as there are restrictions that don't allow users to submit after the deadline.
7. While solving some questions the user was having problems with calculations.
8. If the user wants to leave a mcq question which was previously attempted then he/she cannot leave the response empty.
9. There is no confirmation pop-up for final submission and no attempt summary is provided.
10. It takes a while to give the result and also it does not provide the analysis and standing for the exam.

FOR INSTRUCTORS

1. At first we observed that creating a test is a bit more complicated.
2. Instructors may feel the need to check manually on some question types.
3. Need a faster and better automatic evaluation method.
4. Professor has to provide the link for every test which sometimes makes it inefficient.
5. Student doubts for a question cannot be resolved during the exam.
6. Feels the Need for pagination in the question list.
7. We can't roll back a response which was accidently submitted by the student.
8. No way to get feedback.
9. No detailed analysis report for the professor to compare the performance of students.
10. It will be good if we jumble the questions and options both to avoid plagiarism.
11. No Plagiarism checks making it difficult to catch the defaulters.

12. Different platforms used for managing the course. Need for all-in-one software solution.

CLOSE STAGE

We thanked the end-users for their participation.

REFLECT STAGE

We generated some ideas for requirements of our software from the observations we recorded

1. Should be easy to use and intuitive
2. There should be features to mark questions for review and different colour coding for answered, unanswered, to-be-reviewed questions.
3. There is a need for reminders to submit exams and also a feature of auto submitting at the deadline.
4. There is a need for virtual calculators.
5. There should be an option for resetting the previously attempted questions.
6. There should be confirmation pop-up while submitting the exam and also summary of attempted/not attempted questions.
7. Feedback at the end of exam.
8. Live doubt session during the exam.
9. Features for distributing questions in different pages.
10. Features for jumbling the questions and options.
11. Course creation and Exam management should be on the same platform.
12. Course Chatroom for interaction between students and instructors.
13. Plagiarism report for each test.
14. Exam Attempt Summary should be provided.
15. Auto-Evaluation with just a click.
16. Detailed Analysis among the peers.
17. Should be adaptable to different work systems
18. It should have the facility to provide feedback on the software.
19. Feature to compare progress with peers
20. Re-evaluation Requests

AFFINITY DIAGRAM

INTERACTION AMONG USERS	TEST ENVIRONMENT & EVALUATION	TEST PERFORMANCE ANALYSIS	PLAGIARISM AVOIDANCE	PERFORMANCE
Chat rooms for course announcements and one to one doubt clearance.	**Countdown Timer** with timely submission reminders	**Marks Distribution Graphs** for better analysis	**Jumbling** Questions and options	**Interactive** Design to make it more engaging
Live Test Doubt Room to raise queries during the exam.	**Marking Questions for Review** helps to go back to a familiar question again.	**List of best performers** to know where you stand in the batch	**Pagination** of questions which makes it difficult for the students to cheat.	Both **Laptop and Mobile Compatible**
Feedbacks at the end of each test.	**Live Test Attempt Summary** to always have a track of questions during tests	Detailed **Performance Report**	**Detailed Plagiarism Reports** to help instructors catch the defaulters	**User Feedback** on the software to prevent bugs/issues.
Email notifications to keep users up-to-date.	**Virtual exam-tools** like calculator & whiteboard will be useful	**Better Comparison** among peers		
Easy re-evaluation of exams based on modified answers.	**Auto-Evaluation** reduces workload, time as well as human errors	Use of **best Performance metrics**		