



Group 2

Project Number 6

Automated Classroom Performance Evaluation System

Group Members

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Medium-fidelity vertical prototype

We have chosen 3 representative use cases-:

1. Attempt an Exam (For a student)
2. Performance Analysis (For a student)
3. Creating an Exam (For an instructor)

All the prototypes are present in the google drive link given below. We have submitted prototypes in video format showing all clicks and navigating through all the pages related to that particular functionality.

https://drive.google.com/drive/folders/1avlx8lB3gpED-1Daajt_EwbM_FTVEvqH?usp=sharing

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Early Evaluation - Cognitive Walkthrough

Task 1: Attempting an End-Semester Examination by a student

You are a fresher(B.Tech 1st year student) at IIT Guwahati and you are taking the MA101 end-sem exam. Due to a pandemic created by COVID-19, you have to attempt the MA101 end-sem exam on the portal made by your institute.

Interface level Task:-

- 1) Select User (Student or an Instructor or a TA).
- 2) Login using your username and password.
- 3) Select the course MA101 from the course list.
- 4) Select End-Sem exam from the listed exams in the selected course page.
- 5) Read the instructions carefully and begin the exam.
- 6) Navigate through sections and attempt the given questions by selecting the options.
- 7) View your attempt summary, type feedback and then submit the exam.
- 8) Confirm the final submission and enter the feedback you want to give for the examination.

Questions for evaluator :-

- 1) Did you face any difficulty in filling the login credentials before starting the exam?
- 2) Are you able to locate the course and the exam you are looking for?
- 3) Did you find any difficulty in marking the questions for review and reviewing it again in between the exam ?
- 4) Did you find it easy to navigate through sections and different Questions during the examination ?
- 5) Did you find it easy to reset your response to attempted questions?
- 6) Are you able to easily find the questions you had left unattempted or marked for review questions just by one click in the attempt summary?
- 7) Did you face any difficulty in attempting and submitting the exam?

Feedback :-

Feedback is given by the following users

- 1) Aditya Rajendra Kandeekar

- 2) Anant Bansal
- 3) Eshwar Nukala

FeedBack given by Aditya Rajendra Kandeekar:

- a. I entered my credentials and was able to log in without any difficulty.
- b. Yes all the courses were clearly visible and I could easily find my course but it would be better If I could search my course and go to it directly.
- c. Marking for a review feature worked great and helped me a lot.
- d. Yes, it was easy to navigate between sections and Questions.
- e. Yes, it was easy to reset.
- f. Colour codes of the attempt summary were quite easy to understand. Single click system was a very good feature to add.
- g. No difficulties were faced during submission and attempt.

FeedBack given by Anant Bansal:

- a. Login process is very smooth.
- b. Yes, I was able to see all the courses easily without any confusion and difficulty, but it would be better if the font is a little bigger.
- c. Functionality of the review button is very good, it helped me a lot.
- d. Yes, the navigation was really easy.
- e. Yes, the reset feature is really great.
- f. Due to the use of different colors it was really to differentiate between the questions, and the single click system saved a lot of time.
- g. Submission and attempting process is really easy and quick, I have faced no difficulty.

FeedBack given by Eshwar Nukala:

- a. No, it was quite a smooth process.
- b. I was able to find my course easily but it would be better if there is a search bar for the same.
- c. I have not faced any difficulty in marking the questions for review, but it would be better if the color of the Mark for review button is a little bright.
- d. It was really easy to navigate between questions and sections, structure and design is very good.
- e. Resetting is very easy and comfortable.
- f. Yes, it was easy for me to find my unattempted and marked questions, color coding is really helpful.
- g. Both submit and attempt processes are without difficulties.

Feedback Analysis:-

- a) There is no difficulty in login.

- b) Font size of course title should be increased for better visibility and a search option should be there.
- c) The review feature is working great.
- d) Navigation is working completely fine.
- e) Reset function is working great.
- f) There is no issue in this single click review feature, everything is good.

Potential solution for problems identified:-

- a) We are going to increase the font size of course title by 5, so that it is clearly visible.
 - b) Also increase the font size of remaining buttons in the bottom(reset,next).
 - c) We will create a search bar so that the course and exam searching becomes easier.
 - d) Making the “Mark for Review” button yellow in color.
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Task 2: Analyze and compare exam performance

Now, it is the time to analyze your performance and devote your time to your weak topics as you have got your performance evaluated as soon as the examination time is over. Now you have to analyze your MA101 end-sem performance.

Interface level Task:-

- 1) Select the course MA101 from the course list.
- 2) Select the end-sem exam from the listed exams in the selected course page.
- 3) Tap the **Analysis** button to see your performance in the exam. You will get a comparative view of your performance in the examination. You can also tap on **Download Report** button to download the report as pdf.
- 4) Tap the **Your Responses** button to navigate through your responses in the exam.
- 5) Navigate through sections and go through your responses to the given questions and their correct answers.
- 6) Tap the **Best Performers** button to get the list of best performers in the given exam.

Questions for evaluator :-

- 1) Is it easy to find who performed best in this exam?
- 2) Are the factors (like mean marks , exam difficulty) in the analysis report helpful for evaluating your performance correctly?
- 3) Is it easy to traverse through all the questions while going through your responses?
- 4) Is displaying your marks to every other person comfortable to you?
- 5) Were you able to find the marks you scored in the exam easily?
- 6) Are you able to differentiate between the correct response and your response clearly?

Feedback :-

Feedback is given by the following users

- 1) Aditya Rajendra Kandekar
- 2) Anant Bansal
- 3) Eshwar Nukala

FeedBack given by Aditya Rajendra Kandekar:

- a. Yes, the button to show that was very helpful.
- b. Yes, all the techniques used, especially the idea of using graphs to analyze my performance was really great.
- c. Yes, navigation was pretty easy.
- d. No, I think that displaying marks should be anonymous and only the common details like mean marks and exam difficulty should be visible to everyone.
- e. Yes, locating the marks I scored was very easy.
- f. Yes, color coding was great to represent my response and the correct response.

FeedBack given by Anant Bansal:

- a. Yes, it was easy to display the best performer only with a single click.
- b. Yes it was great but some features like (showing the possible rank if a particular question was attempted correctly) would have been really great.
- c. Yes, navigation was comfortable.
- d. Yes, I am comfortable with it because it grooms healthy competition among the classmates.
- e. Ye, it was pretty easy to locate my score.
- f. Yes, the color coding was great as it involved red color for wrong answers and green for correct.

FeedBack given by Eshwar Nukala:

- a. It can be mixed with the detailed analysis report to make it more feasible.
- b. Yes, they were pretty helpful and all the techniques used gave me a great insight into my

performance and helped me improve.

c. Navigation was really good.

d. No, I am uncomfortable in sharing my score with others because people start judging on the basis of marks scored and this is bad for my mental health.

e. Yes, it was an easy and a single-click process.

f. Color coding was really helpful to know the correct but a detailed explanation with it could be helpful.

Feedback Analysis:-

a) Detailed answers to each question can also be added to the question-wise analysis to help the students to know the answer directly.

b) More features as pointed by Anant can be added in the performance analysis report to make it more descriptive and helpful for the students.

Potential solution for problems identified:-

a) Adding the detailed answer to each and every question in the question wise analysis report for a better understanding of all the students.

b) More heuristics will be added in the detailed analysis report like getting probable rank if the question was attempted correctly and include heuristics to rate the strength in a particular topic based on the current and previous exams.

c) As the visual methods of analyzing performance are more appealing to the user, we can add more visuals like bar charts and pie charts to improve upon the analyzing part.

Task 3: Creating an Examination for students

The first step is creation of an exam that will be attempted by the students. Due to covid situation the MidSem Examination needs to be online so the task now is to create the CS101 MidSem Exam consisting of only MCQs and Short Answer Questions.

Interface level Task

- 1) Select Instructor as user type.
- 2) Enter the correct login credentials.
- 3) Select course as MA101.

- 4) Create a new exam by tapping the create exam button.
- 5) Add the details of the examination like Exam Name, Date, Exam Duration, Exam Start Time and Instructions. There is an extra option of question randomization. Tick the checkbox to randomize questions.
- 6) Now create the question set by adding Multiple/Single choice questions and fill in the blanks.
- 8) More than one section can be added by using the corresponding button.
- 9) Also add answers to the created mcq or short answer question.
- 10) Submit the question paper. You will see a confirmation of successful creation of paper.

Questions for evaluator :-

- 1) Is locating the course page and adding the exam handy and comfortable?
- 2) Did you face any difficulty in adding single/multiple choice questions?
- 3) Did you face any difficulty in adding Fill in the Blanks questions?
- 4) Did you face any difficulty in randomising the questions?
- 5) Was the platform easily navigable?
- 6) Was adding the details of the exam handy enough?

Feedback :-

Feedback is given by the following users

- 1) Aditya Rajendra Kandekar
- 2) Anant Bansal
- 3) Eshwar Nukala

FeedBack given by Aditya Rajendra Kandekar:

- a. Yes, locating was easy, and I have faced no difficulty while adding exams.
- b. No, I have faced no difficulty. Adding MCQ questions is very handy.
- c. No, adding a short answer question was pretty easy, without any difficulty.
- d. Yes randomizing questions was very easy, all you need is just one tick.
- e. Yes the platform is easily navigable, structure is nicely defined.
- f. Yes, adding the details of the exam is pretty handy.

FeedBack given by Anant Bansal:

- a. Yes it was very easy to locate and adding exams is easy and handy enough.
- b. Adding MCQ questions is easy, but I would suggest adding the feature of partially correct MCQ's.
- c. No, I have faced no difficulty in doing that.
- d. Yes, randomising the question set was very easy.
- e. Yes, I have faced no difficulty while navigating through the sections.

f. I have faced no problem in adding, but I would be better if the user can review the details before the submission.

FeedBack given by Eshwar Nukala:

- a. To locate it was very easy.
- b. Adding MCQ was quite easy.
- c. Adding Short answer questions was easy also the feature to detect non-case sensitive answers were very good.
- d. Yes, randomising the question set was very easy and helps in avoiding cheating.
- e. I think that more back and next buttons would make the platform more better and navigable.
- f. Adding details was very easy but no option to review everything again.

Feedback Analysis:-

- a) In MCQ partially correct answers should be given partial marks in some cases.
- b) Option to review the details of examination and questions must be added.
- c) Partially correct answers could not be evaluated in this and were given negative marks. So, there should be a feature to evaluate partially correct answers.

Potential solution for problems identified:-

- a) Professors will be able to add partially answerable MCQs and students will receive partial marks in that query if the partial marking function is introduced and applied.
- b) In short response questions, the answer must be tested separately, and students must be warned not to make any spelling errors when typing the answer.
- c) A button to check the exam specifics and questions should be included.