Product Requirements Document
Use Cases Specification

SDA-4

SWEN90007 SM2 2020 Project

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https://github.com/AkhmetzhanKussainov/SWEN90007_2020

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Revision History

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19/8	0.100-D<1>	Filled in details for UC001, 002	Paritosh Wadhavane
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Contents

1. Introduction

1.1 Proposal

This document specifies the SWEN90007 project use cases, describing the flow of events, inputs and outputs of each use case to be implemented.

1.2 Target Users

This document is mainly intended for SWEN90007 students and teaching team.

1.3 Conventions, terms and abbreviations

This section explains the concept of some important terms that will be used throughout this document. These terms are detailed alphabetically in the following table.

Term	Description
LMS	Learning Management System

2. Actors

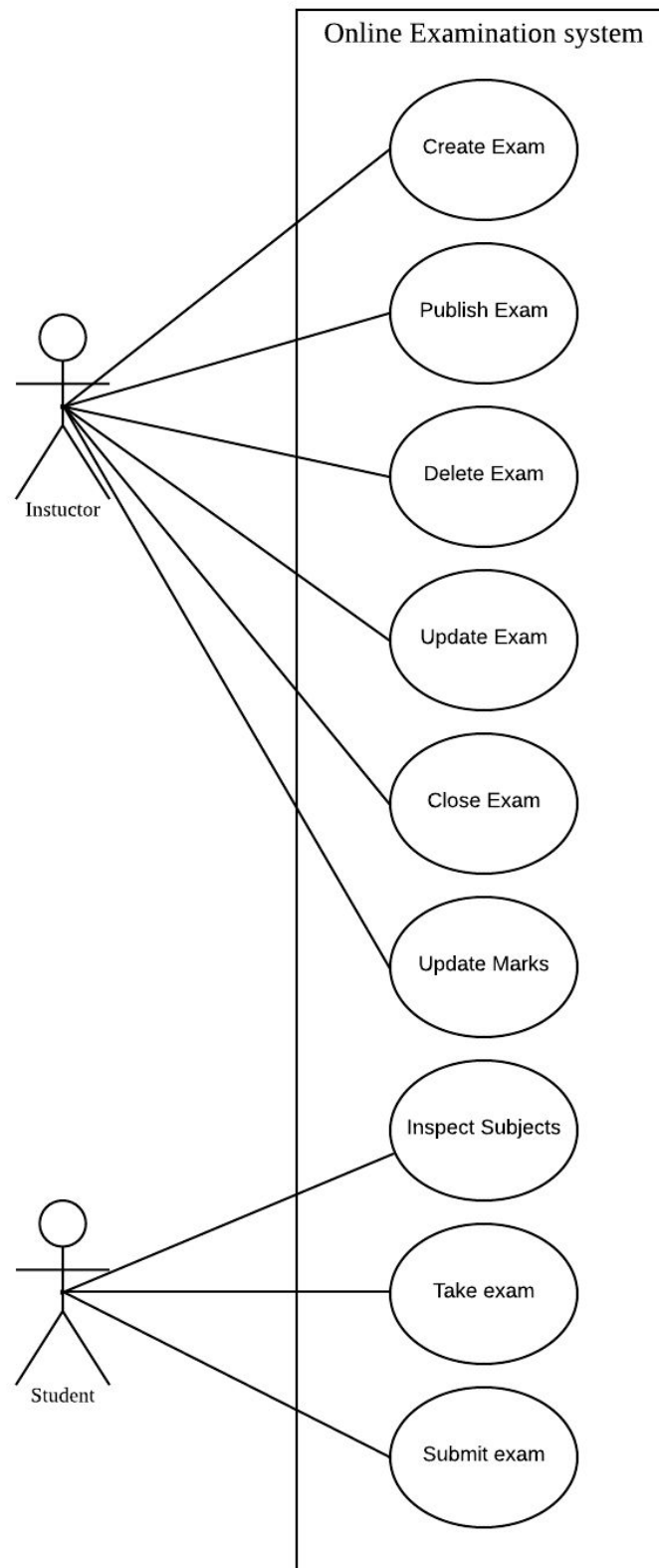| Actor	Description
Administrator	The administrator of this system. Use functions related to subjects.
Instructor	The instructor of subjects. Use functions related to exams.
Student	Students use this system to take exams.

3. Use Cases

Image 1. Use case diagram

[UC001] Instructor creates an exam

Pre-conditions

The instructor creating the exam, teaches the subject and has access to the subject.

Actors

Instructor

Brief Description

The instructor creates an exam under the Subject they undertake.

Main Event Flow

1. Instructor selects a subject
2. Instructor selects, "create an exam"
3. Instructor gives a title to the exam
4. Instructor clicks on, "create a question"
5. Instructor writes the question text
6. Instructor chooses the question type - short answer or multiple choice
7. In case of multiple choice question, the instructor enters answer option and clicks on "add another option" until they are done with all answer options
8. Instructor enters a numerical value in the "marks" slot.
9. Instructor repeats step 3 to 5 until he/she finishes with all the questions they want in the exam.
10. Instructor clicks on "Save Exam"
11. The System saves the Exam data under the Subject

Alternative Flows

[AF01] The exam has the same title as an existing exam under the same subject.

1. The instructor clicks on "Save Exam" button
2. The exam is not saved but the progress is maintained
3. An error notifies the instructor that the same title exam exists under the same subject
4. The instructor decides to either change the title of the exam or click on "Delete Exam"
5. If the instructor changes the title of the exam to a title not used under the subject before and clicks on "Save Exam" then save the exam under that title
6. If the instructor clicks on "Delete Exam", delete the exam progress.

[AF02] The instructor only gives one option for a multiple choice question

1. The instructor clicks on "Save Exam" button
2. The exam gives an error warning under the invalid multiple choice question with the text - "At least 2 options are necessary for this question type. Please rectify"

3. The instructor goes to the question, clicks on "add another option" and enters another answer option.
4. The instructor clicks on "Save Exam" again and if other errors don't occur, the exam will be saved.

[AF03] The instructor wants to delete a question
1. The instructor can click on the serial number of the question they want to delete from the bottom of the page
2. Once the question loads the instructor can click on the delete button at the left bottom of the question
3. The instructor clicks yes on the warning error, "Are you sure you want to delete this question?"

Exception Flow
[EF01] One or more questions don't save
4. The system will show an error message, "There seems to be some error, please do not reload or quit" and will not clear the progress made with the question. The system will automatically retry every 5 seconds until 2 minutes and ask to retype the question if the error persists.

Post-conditions
An unpublished exam is created under the title chosen by the instructor.

3.2 Instructor publishes an exam

[UC002]   Instructor publishes an exam

Pre-conditions
The exam is unpublished. The instructor changing the status of the exam is an instructor for that subject.

Actors
Instructor

Brief Description
The instructor publishes an exam under a Subject they undertake.

Main Events Flow
1. Instructor selects a Subject
2. Instructor clicks on the "Exams" section
3. Instructor clicks on an exam in the "Unpublished" status
4. Instructor clicks on status dropdown and chooses "Publish"

5. The system shows a warning message, "Are you sure you want to Publish this exam? A exam published cannot be reverted to Unpublished status, you can still update or delete the exam if no student has submitted and no student is taking the exam at the time of update/delete "
6. If the Instructor chooses "No" button, the status of the exam remains unchanged and the instructor is taken to the screen with list of exams
7. If the Instructor chooses the "Yes" button, the status of the exam is changed to "Published" and a notification is sent to all the students/instructors about the exam status update.

Alternative Flows

[AF01] If another Instructor publishes the exam while an instructor is in the process of publishing the exam

1. The instructor clicks on the status dropdown for the exam
2. The instructor chooses "Publish" status
3. The system shows a warning message, "Are you sure you want to Publish this exam? A exam published cannot be reverted to Unpublished status, you can still update or delete the exam if no student has submitted and no student is taking the exam at the time of update/delete "
4. If the instructor chooses on the "Yes" or "No" button they are notified with a message, "This exam was already published successfully by Instructor X at time T." and the exam status remains unchanged.

[AF02] If another instructor is updating the exam while an instructor is in the process of publishing the exam

1. The instructor clicks on the status dropdown for the exam
2. The instructor chooses "Publish" status
3. The system shows a warning message, "Are you sure you want to Publish this exam? A exam published cannot be reverted to Unpublished status, you can still update or delete the exam if no student has submitted and no student is taking the exam at the time of update/delete "
4. If the Instructor chooses "No" button, the status of the exam remains unchanged and they are taken to the screen with list of exams
5. If the instructor chooses on the "Yes" button they are notified with a message, "This exam is currently being updated by Instructor X, please wait until they finish updating before you can Publish." and the exam status remains unchanged.

[AF02] If another Instructor deletes the exam while an instructor is in the process of publishing the exam

1. The instructor clicks on the status dropdown for the exam
2. The instructor chooses "Publish" status
3. The system shows a warning message, "Are you sure you want to Publish this exam? A exam published cannot be reverted to Unpublished status, you can still update or delete the exam if no student has submitted and no student is taking the exam at the time of update/delete "
4. If the instructor chooses on the "Yes" or "No" button they are notified with a message, "This exam was deleted successfully by Instructor X at time T." and the exam status is changed to "Deleted".

Exception Flow

[EF01] The status of the Exam does not change to Published

1. The system will show an error message, "There seems to be some issue while changing the status of this exam, please try again later."

Post-conditions

The exam is published and could be viewed by students who have taken the course.

3.3   Instructor Delete an Exam

[UC003]Instructor deletes an exam

Pre-conditions

There exists an exam and the lecturer has privileges to make changes to the exam.

Actors

Instructor

Brief Description

The Instructor is able to delete an exam that is not going to be used in the future if he has the permission, and the exam should not be started/submitted by any student.

Main Events Flow

1. Instructor selects the exam he wants to delete.
2. Instructor selects, "delete the exam"[EF1]
3. The system shows a warning message asking whether to delete the exam or not.
4. Instructor selects "Yes"[AF2]
5. The system deletes the exam.

Alternative Flows

[AF01] Cancel the deletion.

1. Instructor select "No"
2. The system returns back to the exam page.

Exception Flow

[EF01] At least one student who is taking the exam or at least one student who has submitted the exam.

1. The system shows a message that the exam cannot be deleted and prohibit further action.

Post-conditions

The exam is removed from the database.

3.4   Instructor updates an exam

[UC004] Instructor updates an exam

Pre-conditions

There exists an exam and the instructor has privileges to make changes to the exam.

Actors

Instructor

Brief Description

The instructor is able to update the exam if he/she has a permission to change the exam and it has not been started/submitted by any student.

Main Events Flow

1. Instructor selects the exam he wants to update. Check conditions for [AF01] and [AF02]. If the exam does not exist in the system, go to [EF01]
2. The system shows the exam editor page.
3. Instructor makes changes to the questions he/she wants to update.
4. Instructor clicks "Save Exam" to save those changes. Check for [AF03] and [AF04] conditions
5. The system saves and updates those changes. If the update was failed, go to [EF02]
6. The system saves the name of the Instructor who has changed the question and the date it was changed.

Alternative Flows

[AF01] There is at least one student who is taking the exam.

1. Instructor tries to update the exam
2. The system checks for started exams and notifies the instructor about the fact that student has already started the exam

[AF02] There is at least one student who has submitted the exam

1. Instructor tries to update the exam
2. The system checks for submitted exams and notifies the instructor about the fact that exam was already submitted.

[AF03] Mandatory field not filled

1. The instructor did not fill the mandatory field for the exam update and the system notifies the instructor that the exam cannot be updated

[AF04] The content type is not valid for the exam question

1. The instructor put the wrong content type into the system, so the system notifies the instructor about the invalid data type.

Exception Flow

[EF01] The exam does not exist in the system.

1. Instructor tries to update the exam which is not stored in the database
2. The system identifies that there is no instance of the exam
3. The system notifies the instructor that the exam does not exist in the system.

[EF02] The exam failed to update after the instructor has made the changes

1. Instructor tries to update the exam and receives a failed response from the database.
2. The system has recorded the failure of exam updates.
3. The system notifies the instructor that exam has failed to update

[EF03] There is unknown exception that occurred in the system during the exam update

1. The system records the failed attempt and notifies the instructor about an unknown error.

Post-conditions

The exam was updated successfully and updated into the database for retrieving. The exam was unchanged if a student had started or submitted the exam already.

3.5   Student submits exam

[UC005] Student submits exam

Pre-conditions

Student has successfully started the exam

Actors

Student

Brief Description

The student is able to submit the exam which was created and made available for submission.

Main Events Flow

1. Student has completed the exam and is ready to submit it
2. Student submits the exam using "Submit the exam" button
3. The system has recorded the student answers and stored them into the database.

Alternative Flows

[AF01] Student stops the submission.

    1. Student decide to stop the exam submission

    2. System saves the current student exam progress and stores them into the database

[AF02] Instructor closed the exam before student submission

    1. Instructor closed the exam

    2. The system automatically creates a new submission with all questions marked as unanswered [UC006].

[AF03] Student tried to submit the same exam more than once

    1. Student tries to submit the exam which was already submitted by the same student

    2. The system identifies that the exam was already submitted

    3. The system notifies that the student cannot submit the same exam more than once

Exception Flow

[EF01] Student has entered the empty input in the answer field.

    1. The student tried to submit the exam question with empty fields

    2. The system identifies that the question remained unanswered

    3. The system notifies the student about an unanswered question and asks to approve the submission.

[EF02] There is unknown exception occurred in the system during the exam submission process

    1. The system records the failed attempt and notifies the student that exam was not submitted successfully.

Post-conditions

The exam was submitted by the student and stored into the database for the instructor to mark the exam for [UC007].

3.6   Instructor close exam

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[UC006] Instructor close exam

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Pre-conditions

Instructor has navigated to an open and published exam.

Actors

Instructor

Brief Description

The instructor closes the exam. This will affect students in [UC05].

Main Events Flow

1. Instructor closes the exam
2. System prompts instructor to confirm decision and instructor confirms - [EF01], [EF02]
3. The system submits the exam for all students - [EF02]
4. System changes status of exam to closed
5. System informs instructor the exam was successfully closed and all the results were submitted

Exception Flow

[EF01] Instructor does not confirm decision

1. System prompts instructor to confirm decision but instructor cancels

[EF02] Another instructor has already closed the exam

2. System prompts informs instructor the exam has already been closed

Post-conditions

For students who had already submitted exams at time of closure, their submissions are unchanged. Other students (whether they have not started, or already started) have a submission generated with every question recorded as "unanswered". Exams that have been closed cannot be attempted by students anymore.

3.7   Instructor Update Marks

[UC007] Instructor update Marks

Pre-conditions

The exam has been closed and the instructor has the ability to manage the exam.

Actors

Instructor

Brief Description

The instructor is able to give and update marks to the exam once the exam is closed if he is permitted.

Main Events Flow

1. Instructor selects a closed exam.
2. The system shows all the students in a table in the subject and their marks.[AF1]
3. Instructor selects a student to give marks for each question.

4. The system shows the "detail view" of that question.
5. Instructor assigns a mark to each question.
6. Instructor clicks the "Save mark" button.[AF2]
7. The system shows a warning message to save the mark.
8. Instructor clicks "Yes". [AF3]
9. The system calculates the total marks, records the mark and shows the student page.
10. Repeat 3 to 9 until all the students have been marked.
11. Instructor clicks the "Save" button to save all the marks for students. [AF4]
12. The system shows a warning message to save all marks.
13. Instructor clicks"Yes". [AF5]
14. The system records these marks.

Alternative Flows
[AF1] Instructor give marks in the table view
1. Instructor directly give marks in the table view
2. Repeat 1 until all the students have been marked.
3. Go to [UC007] Main Events Flow step 11.

[AF2] Cancel the Marking on specific student
1. Instructor clicks "Back to student table".
2. The system shows a warning that the marking has not been saved.
3. If the instructor clicks "Yes", then the system would not save the marks and back to table view. Otherwise, the system shows a detail page.

[AF3] Cancel the save of a specific student
1. Instructor clicks "Cancel".
2. The system shows the detail view.

[AF4] Cancel the Marking
1. Instructor clicks "Cancel".
2. The system shows a warning that the marks of all the students have not been done.
3. If the Instructor clicks "YES", the system would only save the marks that have been added. Otherwise, the system would go back to table view.

[AF5] Cancel the Save for all students
1. Instructor clicks "Cancel".
2. The system shows the table view.

Post-conditions
The mark has been changed or nothing has been changed.

3.8   Inspect Subject

[UC008] Student inspects subjects

Pre-conditions
The Student is logged-in and authenticated.

Actors
Student

Brief Description
A student is able to see the published exams for each subject they are enrolled in. If the student has already taken an exam and the marks are finalised, those will be displayed.

Main Events Flow
1. System shows only subjects student is enrolled in [EF01]
2. Student selects subject
3. System shows all exams for subject that are published - [AF01]
4. Student selects exam
5. System shows exam information. If time is correct, the exam is open and the student has not attempted it, then the system gives the option to start. - [AF02]

Alternative Flows
[AF01] No exam for subject
1. system informs user instructor has not created an exam
2. user navigates back to view available subjects (continues to main flow step 2)

[AF02] Exam submission made
1. System shows exam information. If the student's mark has been finalised, the system displays it.

Exception Flow
[EF01] student not enrolled in any subjects
3. System informs user they are not enrolled in any subjects

Post-conditions
Students can only view subjects they have access to. Students cannot modify exams. Students can only view published exams. Students can see and access all exams for a subject (that they are enrolled in).

3.9   Student takes exam

[UC009] Student takes exam

Pre-conditions

The exam has "Published" status and is not closed. The student has enrolled in the subject and has navigated to the exam. The time is within the time bounds of the exam. The student hasn't submitted the same exam before.

Actors

Student

Brief Description

The student takes an exam, is able to see one question at a time, answer it, and navigate to other questions.

Main Events Flow

1.   The student starts their exam
2.   System displays exam information and conditions and prompts student to agree to conditions
3.   Student indicates agreement with conditions
4.   System records time student starts exam
5.   System displays first question information and answer field
6.   The student selects the answer to multiple choice question [AF1] [AF2]
7.   Student navigates to next question [AF3]
8.   System displays next question and answer field
9.   The student repeats 5,6 until exam submission

Alternative Flows

[AF1] The student wants to skip the question

1.   Student navigates to next question

[AF2] The student wants to change the answer to a previous question

1.   The student navigates to previous question
2.   System displays previous question information and answer field
3.   Student repeats step 1 until desired question is reached
4.   The student changes the answer

[AF3] The last exam question has been answered

1.   Student navigates to previous question

Post-conditions

The student was only able to see one question on the screen at a time. The exam was not saved before submission.