
Product Requirements Document

Use Cases Specification

SWEN90007 Semester 2, 2020

Group - Super Girls

1049113 Jianjing Yao (jianjingy)

jianjingy@student.unimelb.edu.au

1054195 Lu Wang (lw2)

lu.wang4@student.unimelb.edu.au

1095044 XuelingLiu (xuelingl1)

xuelingl1@student.unimelb.edu.au



SCHOOL OF
COMPUTING &
INFORMATION
SYSTEMS

Revision History

Date	Version	Description	Author
06/08/2020	01.00-D01	Add detailed use cases of account module and exam module	Jianjing Yao Xueling Liu
08/08/2020	01.00-D02	Add detailed use cases of subject module	Lu Wang
11/08/2020	01.00-D03	Create the use case diagram (ucd - version 1)	Jianjing Yao
12/08/2020	01.00-D04	Refine the use case diagram (ucd - version 2)	Xueling Liu
15/08/2020	01.00-D05	Apply the template into the document; Add the contents of Introduction; Adjust the overall format and create doc - version 1	Lu Wang
17/08/2020	01.00-D06	Modify the details according to supervisor's advices; Slightly change the grammar and text format; Modify the use case diagram (ucd - version 3); Create doc - version 2	Lu Wang Jianjing Yao Xueling Liu
20/08/2020	01.00-D07	Add use case of known exception and unknown exception	Lu Wang
21/08/2020	01.00-D08	Complete the final version of the document (doc – version 3)	Lu Wang Jianjing Yao Xueling Liu

Contents

1. Introduction.....	4
1.1 <i>Project Overview</i>	4
1.2 <i>Target Users.....</i>	4
1.3 <i>Conventions, terms and abbreviations.....</i>	4
1.4 <i>Git Repository.....</i>	4
1.5 <i>Git Release Tag.....</i>	4
2. Actors	4
3. Use Case Diagram.....	5
4. Use Cases.....	5
4.1 <i>Exceptions.....</i>	5
4.2 <i>Subject Module.....</i>	7
4.3 <i>Exam Module.....</i>	9

1. Introduction

1.1 Project Overview

This project is about an online examination application. The aim is to manage the exams online from the perspective of students and instructors. Based on the requirements given by the teaching team of SWEN90007, students can take exams of associated subjects and check results. Instructors can manage exams, including creating, editing, publishing and marking exams.

In this document, target users and conventions are introduced in section 1. Git repository and git release tag are also involved, which are used to ensure the version control during the development. Actors that are listed in section 2 are roles who can perform actions within the system. Use case diagram is shown in section 3, followed by detailed description of each use case in section 4.

1.2 Target Users

This document is designed for team Super Girls, teaching team of SWEN90007, and potential end users who may use this online exam application in the learning management system (LMS).

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
OEA	Online Exam Application
LMS	Learning Management System

1.4 Git Repository

https://github.com/Olivia0012/SWEN90007_2020_SuperGirls

1.5 Git Release Tag

https://github.com/Olivia0012/SWEN90007_2020_SuperGirls/releases/tag/SWEN90007_2020_Part1_SuperGirls

2. Actors

Actor	Description
Instructor	The instructor is a role who can manage exams of associated subjects by creating exams, editing exams, publishing exams, and assigning marks to submissions.
Student	The student is a role who is able to take exams of associated subjects, and check their marks of their exams.

3. Use Case Diagram

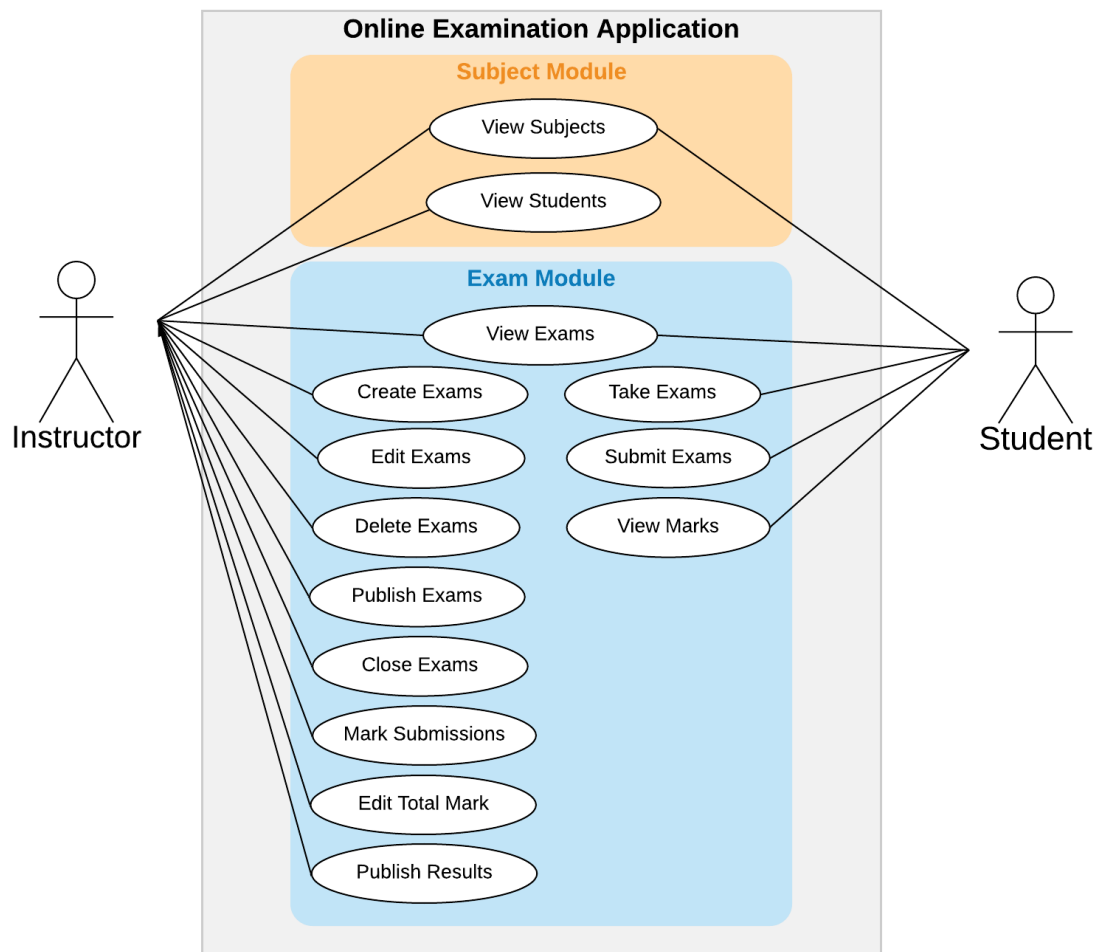


Figure 1 Use Case Diagram

Figure 1 shows the use case diagram. In the OEA, there are three modules, namely account module, subject module and exam module. In each module, there are different use cases which are designed for instructors and students.

4. Use Cases

4.1 Exceptions

[UC000-1] Known Exception

Pre-conditions

The known exceptions shall be raised by any operation in the system.

Main Events Flow

The system identifies one of the following exceptions:

1. No connection to the server [SF01]
2. Security Exception [SF02]

3. Out of Memory Exception [SF03]
4. Missing Resource Exception [SF04]
5. SQL Exception [SF05]
6. IO Exception [SF06]
7. Class Not Found Exception [SF07]

Sub Flows

[SF01] No connection with the server

The system identifies no released results, and displays a message to inform that. The system identifies that one of the following servers is not available or the connection has a timeout.

1. Database server
2. Application server
3. The system displays the respective message error
4. This error is registered in the exception log

[SF02] Security Exception

When a user tries to access a page, the system identifies one of the following scenarios.

1. A non authenticated user
2. A user with no privileges to access a page or perform an action (list, edit, delete or add)
3. The user session was expired

[SF03] Out of Memory Exception

There is insufficient space to allocate an object in the Java heap.

[SF04] Missing Resource Exception

The needed resource cannot be found.

[SF05] SQL Exception

While executing queries on database related to SQL syntax.

[SF06] IO Exception

While using file input/output stream related exception

[SF07] Class Not Found Exception

When the JVM cannot find a class it needs.

[UC000-2] Unknown Exception

Pre-conditions

The unknown exceptions are raised by classes inheriting RuntimeException in the system.

Main Events Flow

The system identifies one of the exceptions as follows.

1. Arithmetic Exception [SF01]

2. Null Pointer Exception [SF02]
3. Number Format Exception [SF03]
4. Index Out of bounds Exception [SF04]

Sub Flows

[SF01] Arithmetic Exception.

Dividing a number by zero can cause this exception.

[SF02] Null Pointer Exception

Performing an operation on a null value variable can cause this exception.

[SF03] Number Format Exception

The wrong formatting of any value may cause NumberFormatException.

[SF04] Index Out of bounds Exception

Wrong index operation can cause this exception.

4.2 Subject Module

[UC001] View subjects

Pre-conditions

The instructor or the student logs in to the system and has the permission to view all associated subjects in the system.

Main Events Flow

1. The instructor or the student selects the option to see all subjects.
2. The OEA displays all associated subjects. – [AF01] [AF02] [EF01] [EF02]

Alternative Flows

[AF01] No associated subject

1. The instructor or the student selects the option to see all subjects.
2. The instructor or the student gets a reminder indicating that there is no associated subject.

[AF02] Invisible associated subject

1. The instructor or the student selects the option to see all subjects.
2. Some associated subjects are invisible. – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor or the student selects the option to see all associated subjects. If the instructor or the student is not associated with any subject, the OEA displays a message.

Subject Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Subject number	The number of the subject (e.g. SWEN90007)	String (20)	✓	✓			
Subject name	The name of the subject	String (50)	✓	✓			

[UC002] View students

Pre-conditions

The instructor logs in to the system and has the permission to see all students of a subject.

Main Events Flow

1. The instructor selects the option to see all subjects.
2. The OEA displays all associated subjects.
3. The instructor selects the option to see all students of a subject.
4. The OEA shows all students. – [AF01] [EF01] [EF02]

Alternative Flows

[AF01] No student in this subject

1. The instructor selects the option to see all students of a subject.
2. The instructor gets a message indicating that there is no student in this subject.

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution. Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor can see all students of a subject.

Additional Information

The instructor can edit the total mark in the table.

Student Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Student name	The name of the student	Varchar (255)	✓				
Exam name	The exams that the student takes	Varchar (255)	✓	✓			
Status	The status of the submission	Integer	✓		✓		0-submitted; 1-marked; 2-released
Total mark	The total mark of an exam	Float			✓		

4.3 Exam Module

[UC003] View exams

Pre-conditions

The instructor or the student logs in to the system and should have the permission to see all exams of a subject.

Main Events Flow

1. The instructor or the student chooses a subject.
2. The instructor or the student selects the option to see all exams of this subject.
3. The OEA displays all exams of this subject. – [AF01] [EF01] [EF02]

Alternative Flows

[AF01] No exam of this subject

1. The instructor or the student selects the option to see all exams of a subject.
2. The instructor or the student gets a reminder indicating that there is no exam of this subject.

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor or student can see all exams of a subject. If there is no exam of this subject, the OEA displays a message.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam name	The exam name (e.g. quiz, final exam)	Varchar (255)	✓	✓			
Status	The status of this exam	Integer	✓		✓		0-Unpublished; 1-Open; 2-Closed

[UC004] Create Exams

Pre-conditions

The instructor logs in to the system and has the permission to create an exam.

Main Events Flow

1. The OEA displays all subjects associated with the instructor.
2. The instructor selects the menu option to create an exam for a specific subject.
3. The OEA displays exam creation information.
4. The instructor enters the title of an exam.
5. The instructor selects option to add questions.
6. The instructor chooses type for each question. – [AF01]
7. The instructor adds descriptions for each question. – [AF02] [AF03]
8. The instructor assigns marks to each question. – [AF04] [AF05]
9. The instructor selects the option to save questions. – [AF06] [AF07]
10. The OEA validates each field of questions. – [AF08]
11. The OEA displays questions on the exam. – [AF09]
12. The instructor selects the option to save the exam. – [AF10] [AF11]
13. The OEA displays this new exam. – [AF12]

Alternative Flows

[AF01] Types cannot be choosed

1. The OEA displays two types of questions.

2. The instructor cannot choose the type of questions. – [EF01] [EF02]

[AF02] Descriptions cannot be added

1. The instructor cannot enter descriptions. – [EF01] [EF02]

[AF03] Mandatory field of multiple-choice questions not filled

1. The instructor sets one option for multiple-choice questions.
2. The instructor selects the option to save descriptions.
3. The OEA displays a message informing that must set at least two options.

[AF04] Invalid content

1. The OEA identifies an invalid content.
2. The OEA displays a message informing the invalid content.

[AF05] Marks cannot be assigned

1. The instructor cannot assign marks to questions. – [EF01] [EF02]

[AF06] Cancel the operation of saving questions

1. The instructor does not choose the option to confirm the changes.
2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 12

[AF07] Questions cannot be saved

1. The instructor cannot save questions. – [EF01] [EF02]

[AF08] Mandatory field of questions not filled

1. The OEA displays a message informing that the question cannot be updated because at least one mandatory field unfilled.

[AF09] New questions cannot be displayed

1. The OEA does not display new questions. – [EF01] [EF02]

[AF10] Cancel the operation of saving an exam

1. The instructor does not choose the option to confirm the changes.
2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 3.

[AF11] Save and publish a new exam

1. The instructor chooses the option to save and publish a new exam.
2. The OEA displays a prompt window to confirm the operation.

[AF12] A new exam cannot be displayed

1. The OEA does not display a new exam. – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor visualizes the new exam of this subject. If an exam is published, students will see this exam in their system.

Additional Information

The default status of a new exam is “unpublished”.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Question Type	In a exam, there are two types of questions.	Integer	✓			✓	0 - a short answer question, 1- a multiple-answer question.
Question Description	Add a detailed description of a question	Varchar (2000)	✓		✓		For multiple-answer questions, can set options.
Question Mark	Assign marks to a question	Float	✓		✓		It is about setting the full score of a question. The score value must be non-negative
Exam Status	Three status of an exam	Integer	✓		✓	✓	0 - unpublished; 1-open; 2 - closed.

[UC005] Edit Exams

Pre-conditions

The instructor logs in to the system and has the permission to edit exams.

Main Events Flow

1. The OEA displays all subjects associated with the instructor.
2. The instructor selects the option to see all exams of a subject.
3. The OEA displays all exams related to this subject.
4. The instructor selects the option to edit an exam.
5. The OEA displays the exam editing information.
6. The instructor selects the option to edit some questions. – [AF01]
7. The instructor edits the type of some questions. – [AF02]
8. The instructor edits the descriptions of some questions. – [AF03] [AF04]
9. The instructor edits the mark of some questions. – [AF05] [AF06]
10. The instructor selects the options to save operation. – [AF07] [AF08] [AF09]
11. The OEA displays the latest version of questions on the exam. – [AF10].
12. The instructor confirms the exam editing operation. – [AF11] [AF12]
13. The OEA displays the latest version of an exam. – [AF13].

Alternative Flows

[AF01] Delete some questions

1. The instructor selects the option to delete some questions.
2. The OEA displays a prompt window to confirm the delete operation.
3. The execution flow continues from main flow step 6.

[AF02] Types cannot be edited

1. The OEA displays two types of questions.
2. The instructor cannot edit the type of questions. – [EF01] [EF02]

[AF03] Descriptions cannot be added

1. The instructor cannot edit descriptions. – [EF01] [EF02]

[AF04] Mandatory field of multiple-choice questions not filled

1. The instructor edits options for multiple-choice questions.
2. The instructor selects the option to save descriptions.
3. The OEA displays a message informing that must set at least two options.

[AF05] Invalid content

1. The OEA identifies an invalid content.
2. The OEA displays a message informing the invalid content.

[AF06] Marks cannot be edited

1. The instructor cannot edit marks of questions. – [EF01] [EF02]

[AF07] Cancel the operation of editing questions

1. The instructor does not chooses the option to confirm the changes.

2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 16.

[AF08] Questions cannot be saved

1. The instructor cannot save the modified questions. – [EF01] [EF02]

[AF09] Mandatory filed of questions not filled

1. The OEA displays a message informing that the question cannot be updated because at least one mandatory field unfilled.

[AF10] Modified questions cannot be displayed

1. The OEA does not display the latest version of questions on the exam. – [EF01] [EF02]

[AF11] Cancel the operation of editng an exam

1. The instructor does not chooses the option to confirm the changes.
2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 3.

[AF12] Save and publish a new exam

1. The instructor chooses the option to save and publish a new exam.
2. The OEA displays a prompt window to confirm the operation.

[AF13] Modified exam cannot be displayed

1. The OEA does not display the latest version of an exam. – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor visualizes the latest version of an exam.

Additional Information

If the exam has been published, after the instructor editing, the students will also see the latest version of an exam.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
-------	-------------	------------------	-----------	--------	----------	----------	---------

Question Type	In a exam, there are two types of questions.	Integer	✓			✓	0 - a short answer question, 1- a multiple-answer question.
Question Description	Add a detailed description of a question	Varchar (2000)	✓		✓		For multiple-answer questions, can set options.
Question Mark	Assign marks to a question	Float	✓		✓		It is about setting the full score of a question.
Exam Status	Three status of an exam	Integer	✓		✓	✓	0 - unpublished; 1- open; 2 - closed.

[UC006] Delete Exams

Pre-conditions

The instructor logs in to the system and has the permission to delete exams.

Main Events Flow

1. The OEA displays all subjects associated with the instructor.
2. The instructor selects the option to see all exams of a subject.
3. The OEA displays all exams related to this subject. – [AF01]
4. The instructor confirms to delete an exam. – [AF02]
5. The OEA updates the data and will not display the deleted exams in the OEA. – [AF03].

Alternative Flows

[AF01] No exam of this subject

1. The instructor selects the option to see all exams of a subject.
2. The instructor gets a reminder indicating that there is no exam of this subject.

[AF02] Exam cannot be deleted

1. The OEA displays a message informing that the exam cannot be deleted because the exam is published or closed.

[AF03] OEA displays deleted exams

1. The deleted exam has not been removed from the OEA. – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution. Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

If the exam has not been published, after deleting it, the instructor will no longer view it in the OEA.

Additional Information

Published and closed exams cannot be deleted.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam ID	The ID of an exam	Integer	✓	✓			The exam id will be deleted from the database, and all question ids related to this exam id will also be deleted.
Question ID	The ID of a question	Integer	✓	✓			

[UC007] Publish Exams

Pre-conditions

The instructor logs in to the system and has the permission to publish exams.

Main Events Flow

1. The OEA displays all subjects associated with the instructor.
2. The instructor selects the option to see all exams of a subject.
3. The OEA displays all exams related to this subject. – [AF01]
4. The instructor selects the option to publish an exam. – [AF02] [AF03] .
5. The OEA updates the status of this exam. – [AF04]

Alternative Flows**[AF01] No exam of this subject**

1. The instructor selects the option to see all exams of a subject.
2. The instructor gets a reminder indicating that there is no exam of this subject.

[AF02] Exams cannot be published

1. The OEA displays a message informing that the exam cannot be published because the exam is closed.

[AF03] Cancel the operation of publishing an exam

1. The instructor does not select the option to publish the exam.
2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 3

[AF04] Exams status cannot be updated

1. The OEA does not update the status of exams. – [EF01] [EF02]

Exception Flow**[EF01] Known Exception**

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor views the exam is published. Students can view this published exam in their system.

Additional Information

Once an exam has been published, it cannot be unpublished and deleted.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam Status	Three status of an exam	Integer	✓		✓	✓	0 - unpublished; 1- open; 2 - closed.

[UC008] Close Exams**Pre-conditions**

The instructor logs in to the system and has the permission to close exams.

Main Events Flow

1. The OEA displays all subjects associated with the instructor.
2. The instructor selects the option to see all exams of a subject.
3. The OEA displays all exams related to this subject. – [AF01]
4. The instructor selects the option to close an exam. – [AF02] [AF03]
5. The OEA updates the status of this exam. – [AF04]

Alternative Flows

[AF01] No exam of this subject

1. The instructor selects the option to see all exams of a subject.
2. The instructor gets a reminder indicating that there is no exam of this subject.

[AF02] Exams cannot be closed

1. The OEA displays a message informing that the exam cannot be closed because the exam is unpublished.

[AF03] Cancel the operation of editing an exam

1. The instructor does not select the option to close the exam.
2. The OEA displays a prompt window to confirm the cancel operation.
3. The execution flow continues from main flow step 3.

[AF04] Exams status cannot be updated

1. The OEA does not update the status of exams. – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor views the exam is published. Students cannot take the closed exam.

Additional Information

If the exam has been closed, it cannot be published and deleted.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam Status	Three status of an exam	Integer	✓				0 - unpublished; 1 - open; 2 - closed

[UC009] Take exams

Pre-conditions

The student logs in to the system and has the permission to take an exam.

Main Events Flow

1. The student chooses an exam to take. – [AF01]
2. The OEA displays this exam.
3. For the short-answer question, the student enters some texts as the answer. For the multiple-choice question, the student chooses an answer from the given choices. – [AF04] [AF05] [AF06] [AF07]
4. The student selects the option to see the previous question and the next question. – [AF02] [AF03]

Alternative Flows**[AF01] Exam is closed**

1. The student chooses an exam to take.
2. The OEA displays a message indicating that the exam is closed. – [EF01] [EF02]

[AF02] Student cannot move to the previous question

1. The student selects the option to see the previous question.
2. The OEA displays a message indicating that the student cannot move to the previous one. – [EF01] [EF02]

[AF03] Student cannot move to the next question

1. The student selects the option to see the next question.
2. The OEA displays a message indicating that the student cannot move to the next one. – [EF01] [EF02]

[AF04] Student cannot see the question description

1. The student wants to see the description of each question.
2. Some questions' description is not displayed in the screen. – [EF01] [EF02]

[AF05] Student cannot enter anything for short-answer question

1. The student wants to enter some text in the text box.
2. The student cannot enter anything. – [EF01] [EF02]

[AF06] Student cannot choose any answer of multiple-choice question

1. The student needs to select an answer from the given choices.
2. The student cannot choose any choice successfully. – [EF01] [EF02]

[AF07] Student can choose more than one answer of multiple-choice question

1. The student needs to select an answer from the given choices.
2. The student finds that more than one choice can be ticked. – [EF01] [EF02]

Exception Flow**[EF01] Known Exception**

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The student can enter the answer for short-answer question or choose the answer for multiple-choice question, and the student can move to the previous or the next question.

Additional Information

For the multiple-choice question, student should tick only one box among all choices. For the short-answer question, students should enter some texts.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam ID	The submission is associated with which exam.	Integer	✓	✓			
Student ID	Who submit this exam	Integer	✓	✓			
Question Number	The question number in that exam.	Integer	✓	✓			
Answer	The student's answer.	Varchar (2000)			✓		

[UC010] Submit exams

Pre-conditions

The student logs in to the system and should have the permission to submit an exam.

Main Events Flow

1. The student has finished to answer all questions in the exam.
2. The student selects the option to submit the exam. – [AF01]
3. The OEA displays a confirmation message.
4. The student confirms to submit the exam. – [AF02]
5. The OEA displays a message indicating that the exam is submitted successfully. – [EF01] [EF02]

Alternative Flows

[AF01] Close the browser without submitting

1. The student accidentally closes the web browser without submitting the exam.
2. The student does not have access to take that exam again.

[AF02] Cancel the operation

1. The student gets a confirmation message when he/she wants to submit the exam.
2. The student does not want to submit it and confirms the cancel operation.

Exception Flow**[EF01] Known Exception**

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The student submits an exam, and the answers are saved into the database. The instructor has the access to mark this submission.

Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam ID	The submission is associated with which exam.	Integer	✓	✓			
Student ID	Who submit this exam	Integer	✓	✓			
SubmissionID	The unique ID of the submission	Integer	✓	✓			

[UC011] Mark submissions**Pre-conditions**

The instructor should log in the system and have the permission to mark the submissions of the exam.

Main Events Flow

1. The instructor selects the menu option to view all submissions of an exam.
2. The OEA displays all submissions with students' information. – [AF01]

3. The instructor selects one submission.
4. The OEA displays the details of the submission.
5. The instructor marks questions – [AF02] [AF03]
6. The instructor gives comments for the answer.
7. The instructor confirms the marks of the submission. – [AF04] [AF05]
8. The OEA displays details of the submission with mark and comment of each answer as well as the total mark.

Alternative Flows

[AF01] No submission at the moment

1. The OEA displays a message informing no submission.
2. The execution flow continues from main flow step 1.

[AF02] Invalid content type

1. The OEA identifies an invalid content type and displays a message informing that.

[AF03] Invalid content

1. The OEA identifies an invalid content.
2. The OEA displays a message informing the invalid content

[AF04] At least one question hasn't been marked

1. The OEA identifies a record containing at least one mandatory field unfilled and displays a message informing that.

[AF05] Marks and comments cannot be updated

1. The OEA displays a message informing that marks and comments of the submission cannot be update because the server cannot be connected and logs the exception – [EF01] [EF02]

Exception Flow

[EF01] Known Exception

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The total score would be automatically calculated and displays for instructors and students who are associated to the exam. The student would be able to view the total mark, question mark and comments after the instructor publishes the score.

Submission Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
SubId	The submission Id is associated with each submission.	Integer	✓	✓			
qid	The question id in the database	Integer	✓	✓			
eid	The id of an exam.	Integer	✓	✓			
totalMark	The total mark of a submission	Float		✓	✓	✓	
mark	Mark of a question.	Float	✓	✓	✓		
comment	Comment of an answer.	Varchar (1000)			✓		

[UC012] Edit total mark

Pre-condition

The instructor logs in the system and should have permission to edit the total mark of a submission.

Main Events Flow

1. The instructor selects the menu option to view all submissions.
2. The OEA displays all submissions with student information.
3. The instructor edits the total mark of a submission. – [AF01] [AF02]
4. The OEA validates the field. – [AF03] [AF04]
5. The instructor confirms the editing.
6. The OEA updates the total mark and displays an editing confirmation message. – [AF05]

Alternative Flows

[AF01] The mark of released submissions cannot be updated

1. The OEA identifies the record that cannot be updated and displays a message informing that.

[AF02] Unable to enter the total mark

1. The OEA performs no reaction when editing the mark. – [EF01]

[AF03] Invalid content type

1. The OEA identifies an invalid content type and displays a message informing that.

[AF04] Invalid content

1. The OEA identifies an invalid content.
2. The OEA displays a message informing the invalid content.

[AF05] The total mark cannot be saved

1. The OEA displays a message informing that the total mark cannot be update because the server cannot be connected and logs the exception – [EF01] [EF02]

Exception Flow**[EF01] Known Exception**

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The instructor visualizes the updated total mark.

Additional Information

All instructors of a subject are able to edit the total mark, and all students should be allocated a total mark before publishing the results. Editing the total mark can only happen before releasing the results.

Submission Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
uId	Sutdent ID	Integer	✓	✓			
suid	Submission ID	Integer	✓	✓			
eid	The id of an exam.	Integer	✓	✓			
totalMark	The total mark of a submission	Float		✓	✓	✓	

[UC013] Publish results

Pre-conditions

All submissions of an exam have been marked, and the instructor should log in and should have permission to publish the results.

Main Events Flow

1. The instructor selects the menu option to view all submissions of an exam. – [AF01]
2. The OEA displays all submissions with student information.
3. The instructor confirms to publish the results. – [AF02] [AF03][AF04] [AF05]
4. The OEA updates the exam status and displays the publishing confirmation message. – [AF06]

Alternative Flows**[AF01] No submission at the moment**

1. The OEA displays a message informing no submission.
2. The execution flow continues from main flow step 1.

[AF02] At least one submission is not be marked.

1. The OEA identifies at least one students' submission have not be marked and displays a message to informing that.

[AF03] At least one student has not got a total mark.

1. The OEA identifies at least one student's total mark is empty and displays a message to informing that.

[AF04] The exam has not be closed.

1. The OEA identifies the exam is not closed that cannot be published and displays a message to informing that.

[AF05] Results have already be published

1. The OEA identifies the exam has be published and displays a message to informing that.

[AF06] Results cannot be published

1. The OEA displays a message informing that the results cannot be published because the server cannot be connected and logs the exception – [EF01] [EF02]

Exception Flow**[EF01] Known Exception**

1. The system logs some known exceptions that has happened during the application execution.
Go to [UC000-1]

[EF02] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The students attempting the exam can visualize the results with details, including total mark, mark of each question and the comments.

Additional Information

The exam can be published when all the submissions are marked, and the exam is closed.

Submission Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
eid	The id of an exam.	Integer	✓	✓			
status	The status of an exam	Integer	✓	✓	✓	✓	0: unpublished 1: open 2: closed

[UC014] View marks

Pre-conditions

The results of exams have been published, and the student should log in the system and have permission to view the mark.

Main Events Flow

1. The student selects the menu option to view marks.
2. The OEA displays all released exams. – [AF01]
3. The student selects one exam to view the results.
4. The OEA displays the results details. – [AF02]

Alternative Flows

[AF01] No released results at the moment

1. The OEA identifies no released results and displays a message informing that.

[AF02] Results can not be displayed

1. The OEA displays a message informing that the failed to load the results because the server cannot be connected and logs the exception. – [EF01] [EF02]

Exception Flow

[EF01] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-1]

[EF02] Known Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized. Go to [UC000-2]

Post-conditions

The associated student would be able to view the total mark, question mark and comments.

Additional Information

Students can not edit the marks.

Submission Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Question mark	Mark of each question	Float	✓	✓			
comment	Comments of each question	VarChar (2000)					Feedback from the instructor
totalMark	Total mark of a submission	Float	✓	✓			