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# Product Requirements Document

## Use Cases Specification

**SDA Wombat**  
SWEN90007 SM2 2020 Project

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### Git repository

[https://github.com/Galaxy888/SWEN90007\\_Project](https://github.com/Galaxy888/SWEN90007_Project)

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### Revision History

Date	Version	Description	Author
10/08/2020	01.00-D1	Initial draft	All team members
11/08/2020	01.00-D2	Added use cases 1-4	Haobei Ma
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# 1. Introduction

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## 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
UoM	University of Melbourne
App	Application

# 2. Actors

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Actor	Description
Instructor	The instructor can create and mark exams as well as publish results for the students to see.
Student	The student's main priority is to take the exams and review their results.
Administrator	The administrator can add subjects to the application. The administrator can also view the list of all subjects and their associated details, including instructors, students, and exams. (This role will not be displayed in the user case diagram)

## 3. Use Cases

### 3.1 Basic Visualizations



## 3.2 Specific user cases

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### [UC000] Warning page

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#### Pre-conditions

An exception occurs and the website displays a warning message.

#### Main Events Flow

1. The user uses the system.
2. The system receives some inappropriate operations.
3. The exception occurs and the page displays the warning message.

#### Exception Flow

##### [EF01] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however does not recognize the error.

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### [UC001] Create Exam

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#### Pre-conditions

The instructor can only create an exam for the subject he teaches.

#### Main Events Flow

1. The instructor selects a subject
2. The instructor selects the menu option to create *Exam*
3. The system displays all exam types
4. The instructor selects the exam type
5. The system displays fields for the instructor to create questions
6. The instructor creates the questions
7. The instructor clicks 'create exam' to complete creating the exam-[AF01][AF03](save/submit)
8. The system updates the data and displays a confirmation message – [AF02]

#### Alternative Flows

##### [AF01] Cancel the operation

1. The lecturer decides not to create an exam and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

##### [AF02] Exam cannot be created

1. The system displays a message informing that the exam cannot be created due to unforeseen circumstances and logs the exception -[EF01]

**[AF03] Invalid Question Format**

1. The system identifies a question containing an invalid content and displays a message informing that the question is in an invalid format.

**[AF04] Mandatory field not filled**

1. The system identifies a record containing at least one mandatory field unfilled and displays a message informing the instructor to complete the mandatory field

**Exception Flow****[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however does not recognize the error.

**Additional Information**

This user case contains three data element: Question\_id, Question\_type, Question\_content

**Exam Fields**

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Question_id	The id of the question of the exam	Integer	✓	✓		✓	This field is the primary key of each question.
Question_type	The type of the question	Integer		✓	✓	✓	The question has two types: multiple choice and short answer question
Question_content	The content of the question	String		✓	✓	✓	The question contains the content and it is stored as

							a string type data.
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### Post-conditions

The system now contains the exam along with all the questions stored in it. The instructor should see a notification that the exam has been successfully created. If the instructor views the list of exams for that subject, he should see the exam he had just created being in an “unpublished” state.

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## [UC002] Update Exam

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### Pre-conditions

The instructor has created the exam. No students are currently taking or have submitted the exam in question

### Main Events Flow

1. The instructor selects a subject
2. The instructor selects the menu option to *Update Exam*
3. The system displays all the exams available to the instructor
4. The instructor selects the exam he wants to update
5. The system displays the questions within the exam
6. The instructor edits the exam-[AF03][AF04]
7. The instructor clicks ‘Save Exam’ to complete updated the exam-[AF01][AF02]
8. The system updates the data and displays a confirmation message – [AF05]

### Alternative Flows

#### [AF01] Cancel the operation

1. The lecturer decides not to update the exam and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

#### [AF02] Exam cannot be updated

1. The system displays a message informing that the exam cannot be created due to unforeseen circumstances and logs the exception -[EF01]

#### [AF03] Mandatory field deleted

1. The system identifies a record containing at least one mandatory field deleted and not refilled and displays a message informing the instructor to complete the mandatory field.



**[AF04] Invalid Content type**

1. The system identifies a record containing an invalid content and displays a message informing the instructor to fix the error.

**[AF05] Exam cannot be updated**

1. The system displays a message informing that the exam cannot be updated due to unforeseen circumstances and logs the exception -[EF01]

**Exception Flow****[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however does not recognize the error.

**[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

**Post-conditions**

The system now contains the newly updated exam, with the old exam being deleted. The instructor should see a notification that the exam has been successfully updated. If the instructor views the list of exams for that subject, he should see the newly updated exam with the old exam being removed from the list. .

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**[UC003] Delete Exam**

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**Pre-conditions**

The instructor has created the exam. No students are currently taking or have submitted the exam in question

**Main Events Flow**

1. The instructor selects a subject
2. The instructor selects the menu option to *Delete Exam*
3. The system displays all the exams available to the instructor
4. The instructor selects the exam he wants to delete
5. The system displays a confirmation message
6. The instructor clicks confirm - [AF01]
7. The system deletes the exam and displays a confirmation message - [AF02]

**Alternative Flows****[AF01] Cancel the operation**

1. The lecturer decides not to delete the exam and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

**[AF02] Exam cannot be deleted**

1. The system displays a message informing that the exam cannot be created due to unforeseen circumstances and logs the exception -[EF01]

**Exception Flow****[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however does not recognize the error.

**[EF02] Known Exception**

2. The system logs the exception that has happened during the application execution. Go to [UC000]

**Post-conditions**

The system has now removed the updated exam from the list of exams. The instructor should see a notification that the exam has been successfully deleted. If the instructor views the list of exams for that subject, he should not be able to see the old exam.

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**[UC004] View Exam**

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**Pre-conditions**

The instructor has created the exam.

**Main Events Flow**

1. The instructor selects a subject.
2. The instructor selects the menu option to *View Exam*
3. The system displays all the exams available to the instructor to view
4. The instructor selects the exam he wants to view
5. The system displays the exam contents- [AF02]

**Alternative Flows****[AF01] Exam cannot be viewed**

1. The system displays a message informing that the exam cannot be created due to unforeseen circumstances and logs the exception -[EF01]

**Exception Flow****[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however does not recognize the error.

### **[EF02] Known Exception**

3. The system logs the exception that has happened during the application execution. Go to [UC000]

### **Post-conditions**

The system now displays the content of the exam that is being viewed.

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## **[UC005] Publish Exam**

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### **Pre-conditions**

The instructor can publish the exam to the system after the exam has been created which status is “unpublished”

### **Main Events Flow**

1. The instructor opens the exam list
2. The instructor chooses one of the unpublished exam from the list
3. The instructor clicks ‘publish’ button to publish the exam-[AF01]
4. The system updates the data and displays a confirmation message

### **Alternative Flows**

#### **[AF01] Cancel the operation**

1. The lecturer decides not to publish an exam and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

### **Exception Flow**

#### **[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however not recognized

### **[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

### **Post-conditions**

The status of the chosen exam becomes “published” and the students can view this exam in their exam lists.

### **Additional Information**

This user case contains one data element: Exam\_status.

### Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Exam_status	The status of the exam	Boolean	✓		✓	✓	The status exam decides whether the exam is formally published to the students.

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### [UC006] Access Subjects

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#### Pre-conditions

The instructor can have access to the subjects they teach.

#### Main Events Flow

1. The instructor has been assigned to the subjects by the Administrator
2. The instructor choose the one of the subject from the lists
3. The instructor clicks 'enter' button to access the subject-[AF01]
4. The instructor enter the subjects page successfully and view all exams

#### Alternative Flows

##### [AF01] Cancel the operation

1. The instructor decides not to access the subject and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

#### Exception Flow

##### [EF01] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized

##### [EF02] Known Exception

1. The system logs the exception that has happened during the application execution. Go to [UC000]

#### Post-conditions

The instructors can view all detailed information about the subjects they are assigned to.

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## **[UC008]View Student Answers and Mark Exam**

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### **Pre-conditions**

The instructor can view the exam details of each student after they submitted their answers

### **Main Events Flow**

1. The instructor has entered the subjects page and views the exam that has been held.
2. The instructor can view the studies list who has completed the exam.
3. The instructor choose one of the students and click 'enter' button to access the answer of this students-[AF01]
4. The instructor view each of the answers of the questions and give the marks -[AF02][AF03]

### **Alternative Flows**

#### **[AF01] Cancel the operation**

1. The instructor decides not to enter the subjects and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

#### **[AF02] Roll back the operation**

1. The instructor decides to roll back the operation and re-mark the question.
2. This alternative flow is terminated and the main event flow is not continued.

#### **[AF03] Write some comments**

1. The instructor decides to write some comments about this question.
2. This alternative flow is terminated and the main event flow is not continued.

### **Exception Flow**

#### **[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however not recognized

#### **[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

### **Post-conditions**

The subject of the student has been marked and the student gets the grade.

### Additional Information

This user case contains one data element: Question\_mark.

### Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Question_mark	The mark of each question of one exam	String	✓		✓	✓	One exam grade contains multiple question marks and the final grade is sum by each question mark.

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### [UC009]Close Exam

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#### Pre-conditions

If the exam has not been submitted by any student and if there is no student currently taking the exam, the instructor can close the exam.

#### Main Events Flow

1. The instructor chooses one exam that has not been submitted by any student or no student takes the exam.
2. The instructor can click 'enter' button to close this exam-[AF01]
3. The exam is moved from the exam list of the subject -[AF02]

#### Alternative Flows

##### [AF01] Cancel the operation

1. The instructor decides not to enter the subjects and clicks cancel.
2. This alternative flow is terminated and the main event flow is not continued.

##### [AF02] Roll back the operation

1. The instructor decides to roll back the operation and the exam will be back to the list.
2. This alternative flow is terminated and the main event flow is not continued.

#### Exception Flow

**[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however not recognized.

**[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

**Post-conditions**

The exam has been deleted and is removed from the exam list.

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**[UC010] Student Takes exam**

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**Pre-conditions**

The student should have access to this subject. The exam should have a status of “published”. The student has not provided a submission for this exam.

**Main Events Flow**

1. The student selects the subject he/she has access to
2. The system displays all of the subject’s exams
3. The student selects one of the exam he has yet to take
4. The system displays fields for one exam question
5. The student answers the question
6. The student presses next button - [AF01]
7. The system displays the next question
8. The student update the question answer
  - a. The student repeats steps 5-8 until no questions are left. -[AF02]
9. The student click submit button -[AF03]
10. The system displays that the exam has been successfully submitted

**Alternative Flows****[AF01] View Previous Question**

1. The student presses the previous button
2. The student is taken to the previous question.
3. The student views/updates the previous question
4. Main flow continues from step 6

**[AF02] Student Submits Exam Before All Questions Are Completed**

1. The student decides to submit the exam before completing all questions
2. A notification will appear to confirm with the student if he wishes to submit the exam when there are unanswered questions.
3. If the student clicks cancel, the student is taken back to the Main Flow.

4. If the student clicks confirm, the exam is submitted. Main Flow is terminated.

### [AF03] Student Did Not Submit Exam Before Time Limit

1. The system displays a timeout to the student.
2. The system auto-submits the exam.
3. Main flow is terminated.

### Exception Flow

#### [EF01] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized

#### [EF02] Known Exception

4. The system logs the exception that has happened during the application execution. Go to [UC000]

### Post-conditions

The system now contains the exam that the student has finished. The student should see a notification that the exam has been successfully submitted. Now the student is able to view the exam results

### Additional Information

This user case contains four data elements: Question\_status, Answer\_id, Answer\_type, Answer\_content

### Exam Fields

Field	Description	Type (Length)	Mandatory	Unique	Editable	Filtered	Details
Question_Status	The status of the question	Integer	✓		✓	✓	The status of the question records whether the question has been answered or not
Answer_id	The id of the answer of the exam	Integer	✓	✓		✓	This field is the primary key of



							each answer.
Answer_type	The type of the answer	Integer	✓			✓	The answer has two types: multiple choice and short answer
Answer_content	The content of the answer	String			✓	✓	The answer contains the content and it is stored as a string type data.

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### [UC011] Student View exam results

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#### Pre-conditions

The student should have access to this subject and have submitted the exam. The instructor has also marked the exam.

#### Main Events Flow

1. The student selects the subject he/she has access
2. The system displays all of the subject's exams
3. The student selects one of the exam he/she has finished
4. The system displays the exam results

#### Exception Flow

##### [EF01] Unknown Exception

1. The system logs the runtime exception that has happened during the application execution however not recognized

##### [EF02] Known Exception

1. The system logs the exception that has happened during the application execution. Go to [UC000]

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### [UC012] User Logs In

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## **Pre-conditions**

The user has details to an account on the website

## **Main Events Flow**

1. The user navigates to the website
2. The system displays the website's home page -[AF01]
3. The user clicks login
4. The system displays the login page
5. The user enters their credentials and clicks login -[AF02]
6. The system displays the user's home page -[AF03]

## **Alternative Flows**

### **[AF01] Website is down**

1. The website is not accessible

### **[AF02] Incorrect Credentials**

1. The user has incorrectly entered their information
2. A message will be displayed indicating that no such user could be found within the database
3. Main flow continues from step 5

### **[AF03] Mandatory field not filled**

1. The user has not filled in a mandatory field
2. A message will be displayed indicating that not all fields have been filled in
3. Main flow continues from step 5

## **Exception Flow**

### **[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however not recognized.

### **[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

## **Post-conditions**

The system now shows the user's information of the user that has logged in.

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## [UC013] User Logs Out

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### **Pre-conditions**

The user has logged in on the website

### **Main Events Flow**

1. The user clicks log out
2. The system displays a popup asking user to confirm if they wish to logout
3. The user clicks confirm -[AF02]
4. The system logs the user out and brings the user back to the home page.

### **Alternative Flows**

#### **[AF01] User Cancels the Operation**

1. The user clicks cancel when asked for confirmation
2. The system cancels the operation and user remains logged in

### **Exception Flow**

#### **[EF01] Unknown Exception**

1. The system logs the runtime exception that has happened during the application execution however not recognized.

#### **[EF02] Known Exception**

1. The system logs the exception that has happened during the application execution. Go to [UC000]

### **Post-conditions**

The user is now logged out of the website.