# Software Requirements Specification

**for**

# Course Forum

**Version 1.0 approved**

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**2nd February,2017.**

# Table of Contents

# Document Approval

The following Software Requirements Specification has been accepted and approved by the following:

| Signature | Printed Name | Title | Date |
|---|---|---|---|
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# 1. Introduction

## 1.1 Purpose

The purpose of this document is to present a detailed description of the course management system. It will explain the purpose and features of the system, the interfaces of the system will do, the constraints under which it must operate and how the system will react to external stimuli. This document is intended for both stakeholders and developers of the system.

## 1.2 Scope

Its domain is to use it for large domain for efficient useful service for university, faculty and schools in university in each course to access to link e-learning to show course and its useful service.

## 1.3 Definitions, Acronyms, and Abbreviations

SHS : Student Homework Submission.
SIS : Student Information System.
SGT : Group Grading Template.
AIS : Academic Information System.
CMS : Course Management System.

## 1.4 References

INTERNET, TAS,IBM REQUESTPRO,INSTRUCTOR.

## 1.5 Overview

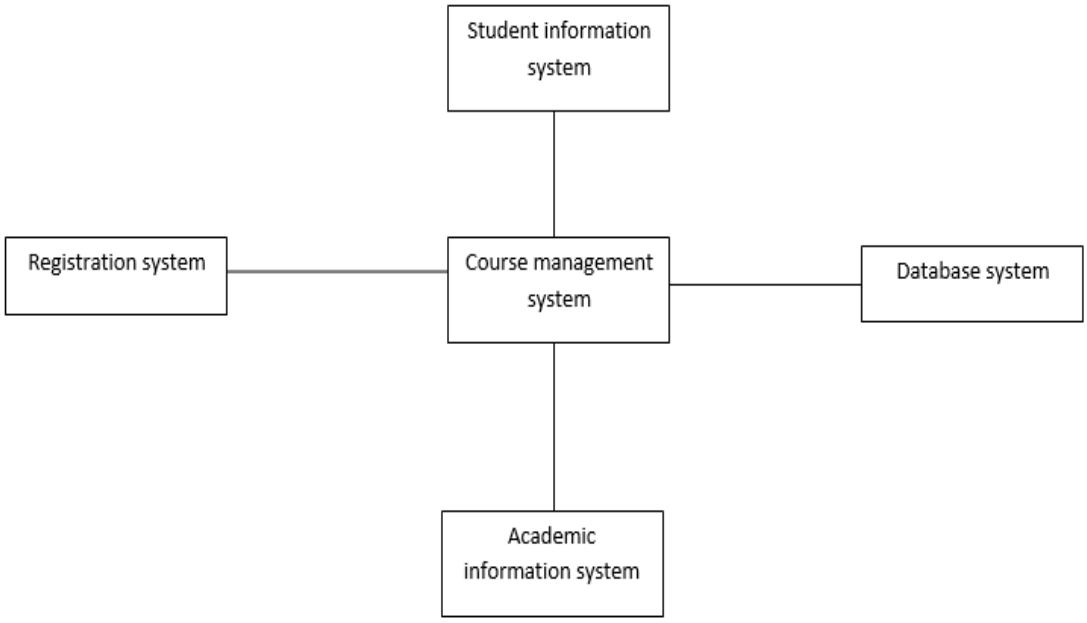
The next chapter, the Overall Description section, of this document gives an overview of the functionality of the product. It describes the informal requirements and is used to establish a context for the technical requirements specification in the next chapter.
The third chapter, Requirements Specification section, of this document is written primarily for the developers and describes in technical terms the details of the functionality of the product.

Both sections of the document describe the same software product in its entirety, but are intended for different audiences and thus use different language.

# 2. General Description

## 2.1 Product Perspective

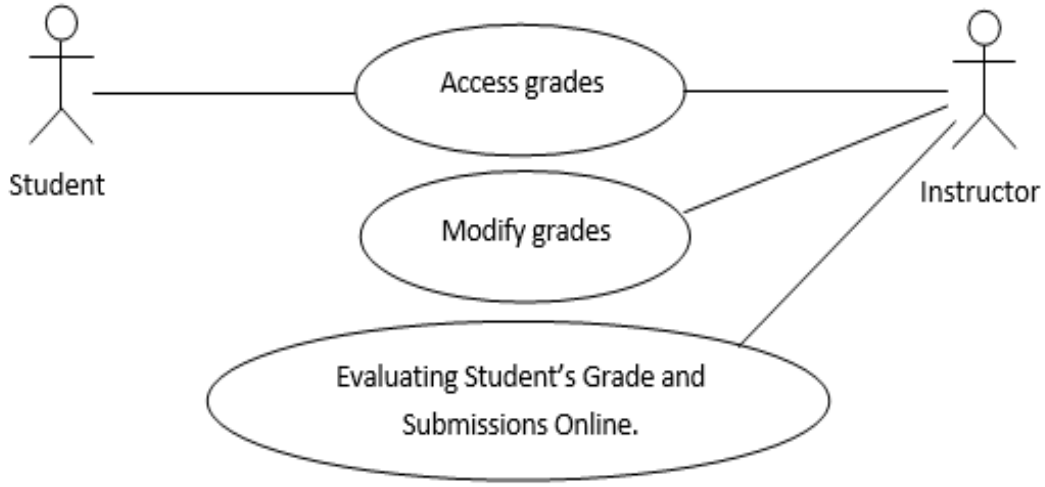
The system will be operating within university environment. This environment has another systems that will interact with this system so we need interfaces between this systems.




## 2.2 Product Functions

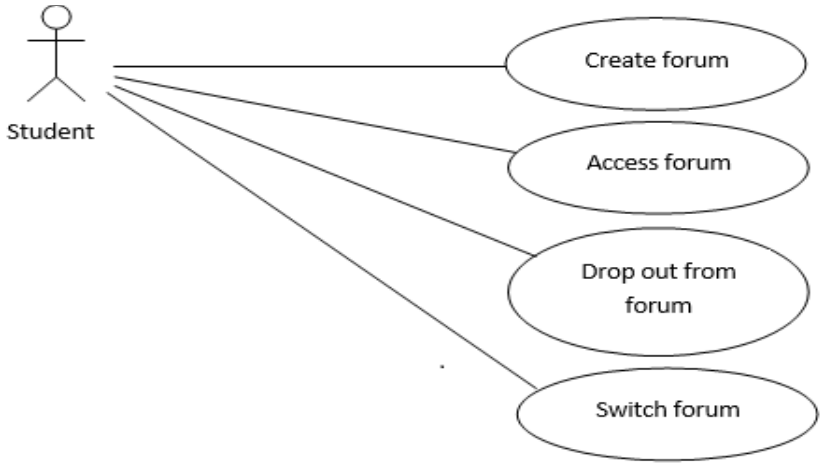
2.2.1 The system shall be able to Create Courses.


2.2.2 The system shall be capable of Managing Student Grades.

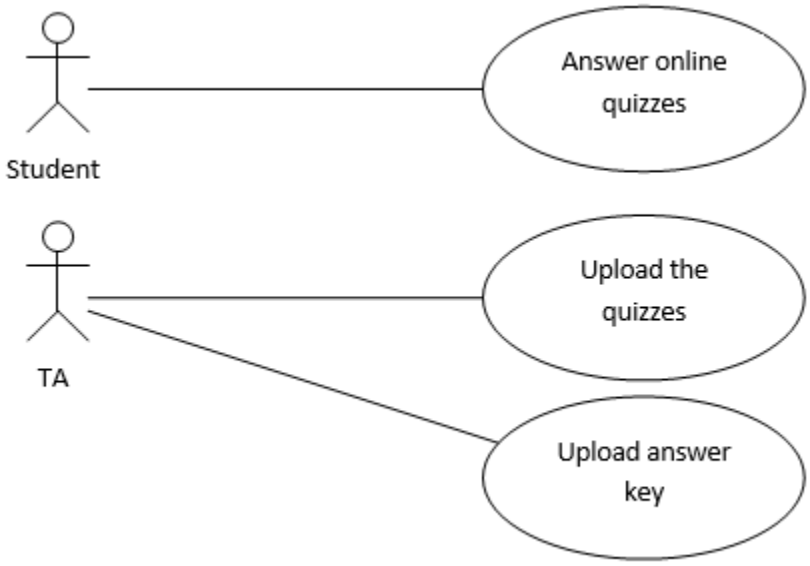



2.2.3 The system shall be capable of automatically accepting Homework Submissions.


2.2.4 The system shall support Group Management features especially important for courses with group projects, this is especially important for large classes.




2.2.5 The system should provide Online Forums.




## 2.3 User Characteristics

The student expected to be Internet literate Once he/she can log in the system and navigate between WebPages he/she can use basic functionality of the system.Instructor expected to be internet literate and be able use more complex functionality of the system.

## 2.4 General Constraints

2.4.1 The system shall use oracle8i database for all data management tasks.

2.4.2 Django framwork is used with Python.

2.4.3 Handshake protocol used is TCP/IP.

### 2.5 Assumptions and Dependencies

Student themselves has to create account and we assume information provided by them on their profile are genuine. No dependencies on other systems.

# 3. Specific Requirements

# 3.1 External Interface Requirement

### 3.1 External Interface Requirement

#### 3.1.1 User Interface
It must interfaces icons or wizard and it is user friendly.

#### 3.1.2 Hardware Interface
Its must be pc computer to link to course management.

#### 3.1.3 Software Interface
We can use any browser to able  to show and interact with the course forum system.

#### 3.1.4 Communication Interface
We must  user interface rather than commadline.

## *3.2* Use Cases

### *3.2.1 Use Case 1*

| | |
|---|---|
| **Use Case Name** | Upload Solution Of Homework Submission |
| **Brief Description** | In this case the student can upload homework submission in his/her account. |
| **Actor** | Student. |
| **Precondition** | Logged in the system.<br>Logged in his/her account using username and password. |
| **Basic flow** | 1. Check user information.<br>2. Choose SHS link.<br>3. Choose Attachment link.<br>4. Choose the file that have the solution of submission.<br>5. The system shall check the deadline to receive the solution of submission. |
| **Alternative flow** | In step 1, if the user information not accepted, then:<br>1. The system show message that show that you should have to enter valid username and password.<br>In step 5, if student late on the deadline to receive the solutions, then:<br>1. The system shall prevent the student to upload the file. The system shall give mark zero to this student.<br>2. Send the grade to student account and SIS. |
| **Post condition** | The file that has the solution shall send to instructor account. |

### *3.2.2 Use Case 2*

| | |
|---|---|
| **Use Case Name** | Evaluating Student's Homework Submissions Online. |
| **Brief Description** | In this case instructor can evaluate student's homework submissions online and enter specific grade for each student based on the evaluation. |
| **Actor** | Course instructor |
| **Precondition** | Logged in the system.<br>Logged in his/her account by using username and password |
| **Basic flow** | 1. Verify user information.<br>2. Choose SHS link.<br>3. the system order the submissions based on serial number for each student.<br>4. Instructor choose specific submission and evaluate it.<br>5. Choose SGT link.<br>6. Fill grading template. |

| | |
|---|---|
| **Alternative flow** | In step 1, if the user information not accepted, then:<br>1. The system show message that show that you should have to enter valid username and password.<br>In step 6, if the user enter grade out of the range of Homework Submissions, then:<br>1. The system shall not accept the grade.<br>2. Show message that show that the user should have to enter grade within the range, (from 1-10). |
| **Post condition** | 1. The system shall send grades and any comment with it to student account .<br>2. The system shall send grade to SIS. |

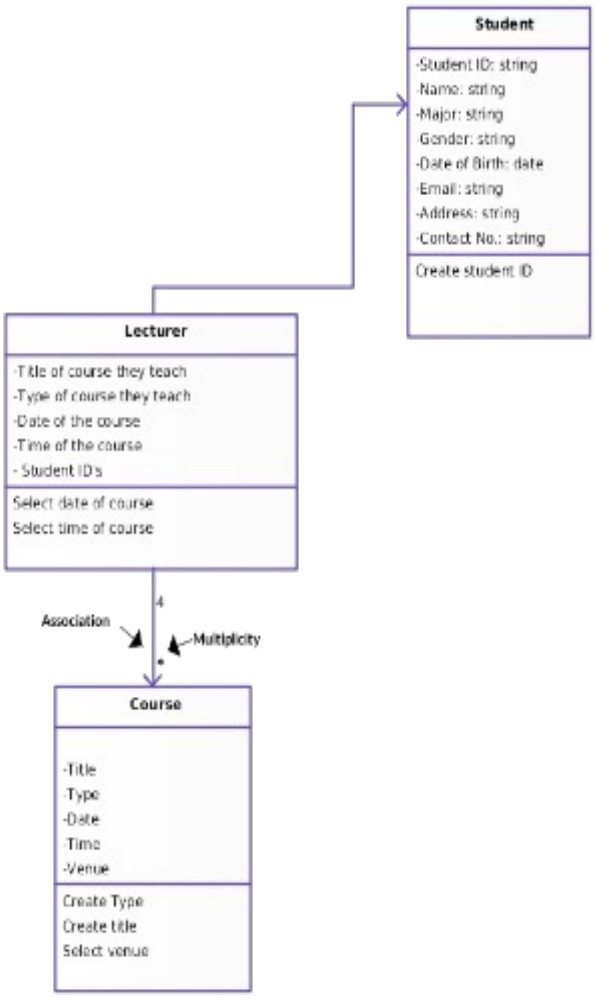
### 3.2.3 Use Case 3

| | |
|---|---|
| **Use Case Name** | Create Group |
| **Brief Description** | In this case students can create and participate in one group in order to work together in large Homework Submissions like project and store in there group. |
| **Actor** | Student. |
| **Precondition** | Logged in the system.<br>Logged in his/her account by using username and password |
| **Basic flow** | 1. Verify user information.<br>2. Choose Group link.<br>3. Choose create group link.<br>4. Choose one from the listed groups.<br>5. The system shall check if user participate in another group.<br>6. Check the number of members for the chosen group.<br>7. The system shall show to user group password and username.<br>8. The system shall store student serial number and his/her name in group information. |
| **Alternative flow** | In step 1, if the user information not accepted, then:<br>1. The system show message that show that you should have to enter valid username and password.<br>In step 5, if the user participate in another group, then:<br>1. The system shall prevent user to participate in this group.<br>2. Show message that show that the user is member of another group, so he/she cannot participate in this group.<br>In step 6, if the number of members for this group is in the maximum number, then:<br>1. The system shall prevent user to participate in this group.<br>2. Show message that show that the user must looking for another group. |
| **Post condition** | The user is member of this group and can access it in any time. |

### 3.1.4 Use Case 4

| | |
|---|---|
| **Use Case Name** | Upload Answer Keys |
| **Brief Description** | In this case student can answer Quizzes online and get his/her grade immediately after he/she finish answer the quizzes. |
| **Actor** | student |
| **Precondition** | Logged in the system.<br>Logged in his/her account using username and password. |
| **Basic flow** | 1. Check the user information.<br>2. Choose Quizzes link.<br>3. Begin answer the quizzes.<br>4. The system shall compare student answer with answer key.<br>5. If the student answer and answer key identical the system give specific mark for this question .<br>6. The system shall collect the student marks.<br>7. Choose finish button. |
| **Alternative flow** | In step 1, if the user information not accepted, then:<br>1. The system show message that show that you should have to enter valid username and password.<br>In step 5, if the student answer and answer key not identical, then:<br>1. The system shall give zero for this question.<br>2. If the student dose not answer question the system shall give zero for this question. |
| **Post condition** | 1. The student shall see his/her grade after he/she choose finish link.<br>2. The system shall store the grade in student account and instructor account.<br>3. The system shall send the grades to SIS. |

### 3.1.5 Classes / Objects



## 3.2 Non-Functional Requirements

### 3.3.1 Performance

**Response Time**

Average response time shall be less than 2 second.

**Throughput**

The system shall accommodate 1000 booked per minute.

**Recovery Time**

In case of a system failure, redundant system shall resume operations within 30 seconds.
Average repair time shall be less than 1 hour.

**Start-up/Shutdown Time**

The system shall be operational within 1 minute of starting-up.

**Capacity**

The system accommodate 4000 concurrent users.

**Utilization of Resources**

The system shall store in the database no more than one million transactions.
If the database grows over this limit, old transaction shall be backed up and deleted from the operational database.

### 3.2.4 Reliability

The system shall not be down more 2 times in year.

### 3.2.5 Availability

The system shall be available throughout the year 24/7.

### 3.2.6 Security

Firewall Protection: The course management software system shall run inside a firewall.
Support different roles: The system shall support different roles for users, such as Instructors, Students, and administrative staff, the user logged in with given role should only be allowed access consistent with that role. For example a student shall only be allowed to see he/she grades not to modify it.

### 3.2.7 Maintainability

The system shall be easily maintainable and any updates, security patches must be updated easily on it.

### 3.2.8 Portability

The system should be portable online on any browser and should be available on any mobile platform.

## 3.3 Design Constraints

The system design must be modular such that it can interact with any other systems in the University domain.

## 3.4 Logical Database Requirements

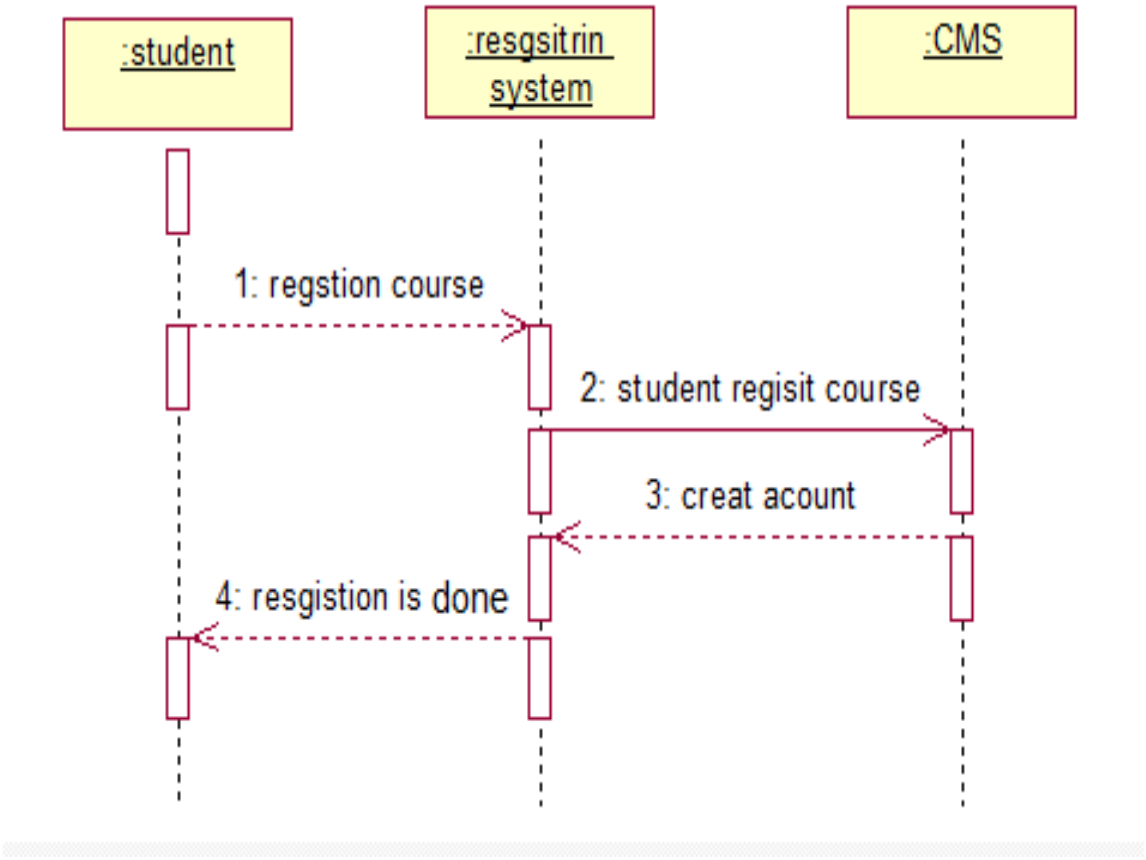
Used OracleI8 Database.

## 3.5 Other Requirements

3.6.1 System shall work on the particular requirement and follow all regularities posted by government, university, etc.
3.6.2 Resource Limitation
The system shall not store more than 1 million transactions in the database. If the database is over the limits, the old data should be backed up.

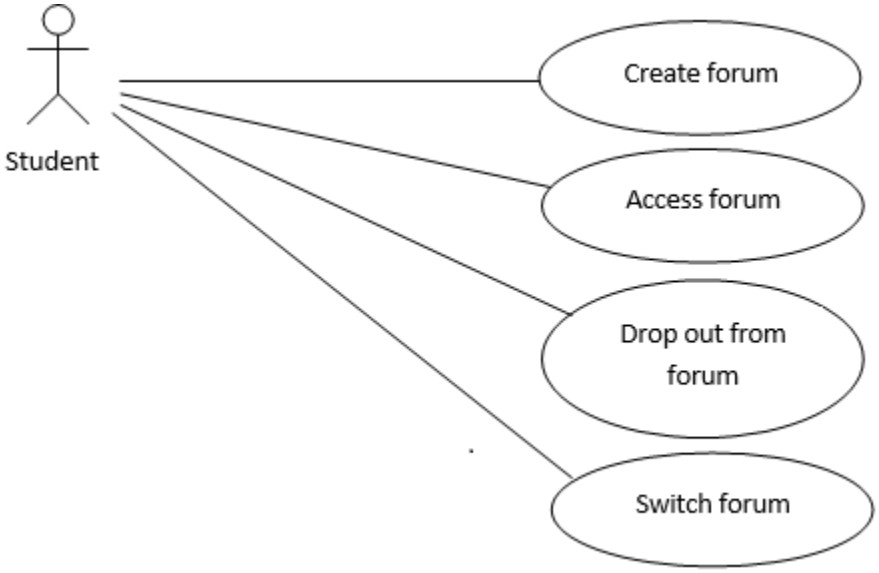
# 4 Analysis Models

## 4.1 Sequence Diagrams

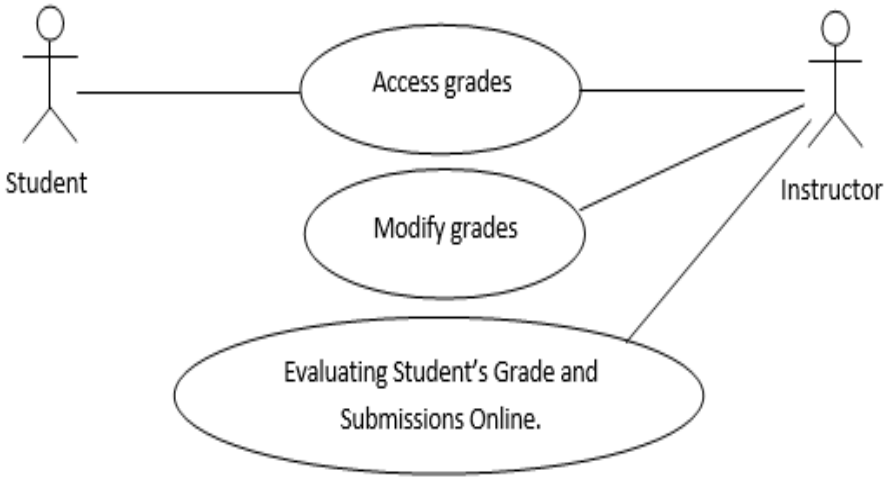



Sequence Diagram for course registration

## 4.2 State-Transition Diagrams (STD)




State-Transition for discussion forum.




State-Transition for grades management

# 5 Change Management Process

The model we are using is iterative so new updates will reflect on the document and newer versions will be released.

# A. Appendices

## A.1 Appendix 1

**Teaching Assistant :**
The person who assist the instructor.
**System Administrator:**
The person responsible for upkeep configuration on the system.
**Secondary University System:**
Other University systems which are interacting with the course forum.

## A.2 Appendix 2

**UGC:**
University Grants Commision
**AICTE:**
All India Council for Technical Education