

# Requirement Analysis

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## **OVERVIEW**

This is a system where instructors have different courses, and are able to post several assignments in different sections in each course. TA will collect students' homework and grade them. Students are able to submit homework for every assignment, and ask questions to TA.

### **STEP1:**

Different types of users:

- Instructor
- TA
- Student

### **STEP2:**

Activities performed with the software for each type of user:

#### **For Instructors:**

- Instructors should be able to edit courses' basic info, including TA's information, syllabus, rubric and so on.
- Instructors should be able to add/modify/delete course sections. (for example, if courses have four parts including c, c#, java, javascript, instructors should be able to add/modify these sections to classify/manage students' assignments)
- Instructors should be able to add a TA into class in the system.
- Instructors should be able to post/delete assignments and modify assignments' requirements (such as type of submitted file, due date, grade policy)
- Instructors should be able to view students' assignments and change grade.

#### **For TA:**

- TA should be able to view/download students' assignments
- TA should be able to grade students' assignments

- TA should be able to type a feedback to students' assignments to tell them which part in the assignment has problems.
- TA should be able to reply students' questions.

**For Students:**

- Students should be able to submit assignment in specific section
- Students should be able to download their submitted assignments
- Students should be able to view their grades
- Students should be able to contact TA for help

**STEP3:**

Data/non-functional constraints defined for each activity:

**Data Module:**

<table><tr><th>Student</th></tr><tr><td>Student Name</td></tr><tr><td>Student Email Address</td></tr><tr><td>Student Pawprint</td></tr></table>	Student	Student Name	Student Email Address	Student Pawprint	<table><tr><th>TA</th></tr><tr><td>TA Name</td></tr><tr><td>TA Email Address</td></tr><tr><td>TA ID</td></tr></table>	TA	TA Name	TA Email Address	TA ID	<table><tr><th>Section</th></tr><tr><td>Section Name</td></tr><tr><td>Section Description</td></tr><tr><td>Section Number</td></tr></table>	Section	Section Name	Section Description	Section Number								
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**For Instructors activities:**

- *Instructors should be able to edit courses' basic info, including Instructors' info, TA's information, syllabus, rubric and so on.*
  - Need access to 'Course Name', 'Course Number', 'Course Syllabus' in Course table, 'TA Name', 'TA ID' in TA table, and 'Instructor Name' In Instructor table

- Constraints could be 'Instructors should get instant respond when editing and all changes made should be stable/reliable'
  - Constraints could be 'these info may only be edited by instructors'
  - Constraints could be 'All changes should be able to be viewed by students immediately'
- *Instructors should be able to add/modify/delete course sections. (for example, if courses have four parts including c, c#, java, javascript, instructors should be able to add/modify these sections to classify/manage students' assignments)*
- Need access to 'Section Name', 'Section Number', 'Section Description' in Section Table
  - Constraints could be "Instructors should get instant respond when editing and all changes made should be stable/reliable"
  - Constraints could be 'these actions may only be performed by instructors'
  - Constraints could be 'Every unsuccessful attempt by instructors to change data should be recorded on an audit trail.'
- *Instructors should be able to add a TA into class in the system.*
- Need access to 'TA Name', 'TA Email Address', 'TA ID' in TA table
  - Constraints could be "info inserted should be secure and stable"
  - Constraints could be 'this action may only be performed by instructors'
  - Constraints could be 'Every unsuccessful attempt by instructors to change data should be recorded on an audit trail.'
- *Instructors should be able to post/delete assignments and modify assignments' requirements (such as type of submitted file, due date, grade policy)*
- Need access to 'Required File Name', 'Required File Type', 'Required File Max Size', 'Due Date', 'Grading Rubric' in Requirement table, and 'Course Name',

'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table

- Constraints could be 'info inserted should be secure and stable' and 'system should perform related actions immediately after instructors edit them (like limitation of file type and so on)'
- Constraints could be 'Every unsuccessful attempt by instructors to change data should be recorded on an audit trail.'
- Instructors should be able to view students' assignments and change grade
  - Need access to 'Submitted File Name', 'Submitted File Types', "Submitted File Size, 'Submitted Date', " Grade" in Assignment table, and 'Student Pawprint', 'Student ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'info inserted should be secure and stable'

**For TA activities:**

- *TA should be able to view/download students' assignments*
  - Need access to 'Submitted File Name', 'Submitted File Types', "Submitted File Size, 'Submitted Date', " Grade" in Assignment table, and 'Student Pawprint', 'Student ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'info inserted should be secure and stable'
  - Constraints could be 'Speed for things downloaded should be fast enough'
- *TA should be able to grade students' assignments*
  - Need access to 'Submitted File Name', 'Submitted File Types', "Submitted File Size, 'Submitted Date', " Grade" in Assignment table, and 'Student Pawprint',

'Student ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table

- Constraints could be 'info inserted should be secure and stable'
- *TA should be able to type a feedback to students' assignments to tell them which part in the assignment has problems.*
  - Need access to 'Submitted File Name', 'Submitted File Types', 'Submitted File Size', 'Submitted Date', 'Grade', 'Feedback' in Assignment table, and 'Student Pawprint', 'Student ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'feedback typed in should be secure and stable'
  - Constraints could be 'feedback should only be viewed by the students who received the feedback'
- *TA should be able to reply students' questions.*
  - Need access to 'Submitted File Name', 'Submitted File Types', 'Submitted File Size', 'Submitted Date', 'Grade', 'Feedback' in Assignment table, and 'Student Pawprint', 'Student ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'answer should be secure and stable'
  - Constraints could be 'view/answering questions may only be performed by TA'
  - Constraints could be 'answer should only be viewed by the students who asked the question'

**For Students activities:**

- *Students should be able to submit assignment in specific section*

- Need access to 'Submitted File Name', 'Submitted File Types', 'Submitted File Size', 'Submitted Date' in Assignment table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
- Constraints could be 'uploaded files should be secure and stable'
- Constraints could be 'submitting assignments may only be performed by students'
- Constraints could be 'Speed for uploading files should be fast enough'
- *Students should be able to download their submitted assignments*
  - Need access to 'Submitted File Name', 'Submitted File Types', 'Submitted File Size' in Assignment table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'info inserted should be secure and stable'
  - Constraints could be 'Speed for things downloaded should be fast enough'
- *Students should be able to view their grades*
  - Need access to 'Submitted File Name', 'Grade' in Assignment table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'grade info should be stable and should be changed on students' side immediately if TA regrade the assignment'
- *Students should be able to contact TA for help*
  - Need access to 'Submitted File Name', 'Grade', 'Feedback' in Assignment table, and 'TA Name', 'TA ID' in Student table, and 'Course Name', 'Course Number' in the Course table, and 'Section Number', 'Section Name' in the Section table
  - Constraints could be 'view/answering questions may only be performed by Students'
  - Constraints could be 'questions should only be viewed by the TA'

#### **STEP4:**

System requirements and constraints:

- Storage should be big enough to store all students' assignments
- CPU should be good enough to make the time for submitting assignments short, and give instant respond to every actions.
- System should be able to run on different operating systems/ devices, such as Windows, Linux, Mac, IOS, Android.
- System should have several service such as database service, high-speed internet support
- System should have a good architecture to make it stable and secure.