

Requirements specification for processing claims

1. General description of business process

a) A general description of the business process and a description of the performance metrics generated by this process, The course is constructed by a tutor or multiple tutors that are enrolled in a specific course.

- 1.) Initial process -The process begins when a student is enrolled in a specific course. Students are given lectures, study materials, quizzes and tasks to accomplish. If a student accomplishes a task and quiz the course completion percentage increases.
- 2.) Evaluation - the process where all grades from quizzes and assignments are evaluated and saved in an overall grade from a given course. Platform measures time spent on every individual course.
- 3.) Survey - Students after finishing the course (no matter if a grade was positive) give an opinion about the course.

Main goals of organization

- a. **The increase of course average completion rates by 4% compared to the previous year.**
- b. **Improvement of the average student grades by 8% by the end of the semester compared to the previous year average.**

b. Typical questions

What are the most time consuming courses on the platform?

What are the most popular courses on the platform?

What is the average completion rate for courses on the platform?

What factors influence user satisfaction with the platform?

How can the platform be improved to increase engagement?

How can the platform be improved to increase average grades?

How can the platform be improved to increase completion rates?

What is the percentage of students passing a course?

What is the average student Grade Point Average?

Which courses have the best opinions?

c. Data:

Data for the e-learning platform can be extracted from various sources, including e-learning platform database, course enrollment and completion data and engagement metrics such as time spent on the specific courses Some tutors store information in Excel sheets.Survey data containing reviews, opinions about course is stored in Excel sheet.

2. Data sources

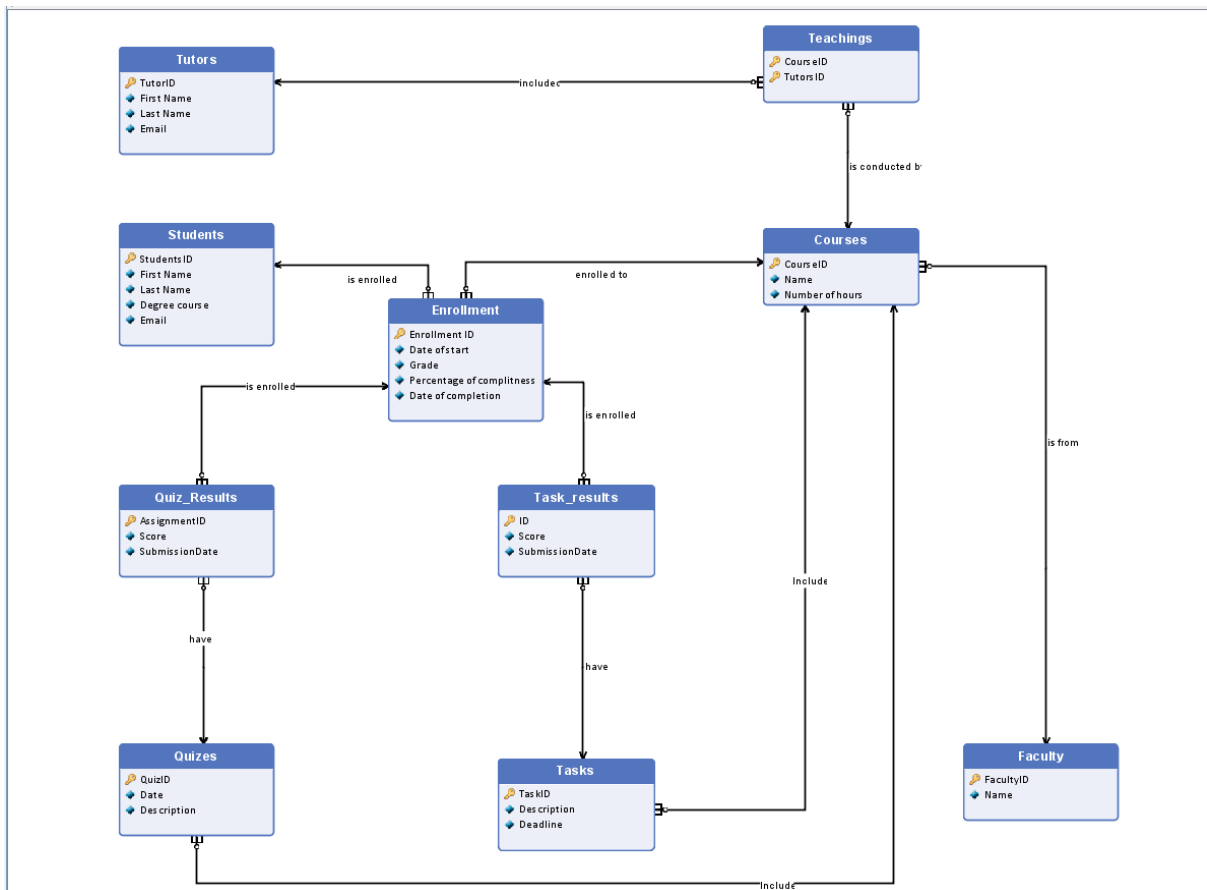


Table Name	Attribute	Attribute Type	Description
Enrollments	Collection of all enrolments to courses		
	Enrollment_ID	String – 20	PK - Enrollment identification number
	Start_date	Date	Date of starting the course
	Grade	Numerical	In scale (2 to 5) numerical grade which was given by

			a tutor after the course
	Percentage	Numerical	Percentage of completing the course
	Fininsh_date	Date	Date of completion of the whole course
	Time_spent	Numerical	Number of minutes spend on course
	FK_Student	String - 7	FK pointing on a student which is enrolled to the course
	FK_Course	String – 5	FK pointing on a course on which student is enrolled
Students	Student identified by student id, first name and surname		
	Student_ID	String - 7	PK The index number of the student
	NameAndSurname	String - 80	Name and surname of the student
	Email	String - 20	The email address of the student
Courses	Course conducted on e-learning platform		
	Course_ID	String - 5	PK
	Name	String - 20	The actual name of the course
	Description	String - 300	Brief description about the content of the course
	FK_Faculty	String - 5	Foreign key pointing to faculty which is assigned to
	NoOfHours	Numerical	Number of hours that course is planned for

Quiz_results	Implementation of many to many relationship between enrolments and quizzes. It shows a score of the quiz for particular quiz and enrolment.		
	ID	String - 20	PK
	Score	Numerical	The score which was obtained during quiz
	SubmissionDate	Date	Date of the submission of the quiz
	FK_Enrollments	String – 20	FK pointing at the Enrollment
	FK_Quizes	String - 15	FK pointing at the quiz from which score was obtained
Task_results	Implementation of many to many relationship between enrolments and tasks. It shows a score obtained from the task for particular enrolment.		
	ID	String - 20	PK
	Score	Numerical	The score which was obtained during task
	SubmissionDate	Date	Date of the submission of the task
	FK_Enrollments	String – 20	FK pointing at the Enrollment
	FK_Tasks	String - 15	FK pointing at the task from which score was obtained
Quizes	The collection of all quizzes on the elearning platform		
	Quiz_ID	String - 15	PK
	Deadline	Date	The deadline for participating the quiz
	Description	String - 300	Brief description about rules and subject of the quiz

	FK_Course	String – 5	FK pointing on a course from which quiz was held
Tasks	The collection of all tasks conducted on the elearning platform		
	Task_ID	String - 15	PK
	Deadline	Date	Deadline for uploading the task
	Description	String - 300	Instruction of the task
	FK_Course	String – 5	FK pointing on a course from which task was conducted
Tutors	The collection of all tutors conducting courses		
	Tutor_ID	String - 4	PK
	NameAndSurname	String - 80	Name and surname of the tutor
	Email	String - 30	Email address of the tutor
Teachings	The effect of many to many relation between tutors and courses		
	FK_Course	String – 5	FK Course part of composite key
	FK_Tutor	String - 4	FK Tutor part of composite key
Faculty	Collection of all faculties on the university		
	Faculty_ID	String - 5	PK
	Name	String - 30	Name of the faculty

Excel

Sheet 1 Survey (Feedback information about course after the end of the semester, row 1 is a header row)

- A. EnrollmentID- Enrollment identification number
- B. Date of start (format. yyyy-mm-dd) - date of enrolling to the course
- C. Date of finish(format yyyy-mm-dd)
- D. Satisfaction how course was presented by tutor(scale from 1 - 10) - rating
- E. How hard was it to complete the course (scale from 1 - 10)
- F. How do you rate content of the course (scale from 1 - 10)
- G. How do you rate cooperation with the tutor (scale from 1 -10)
- H. How do you rate the number of hours for this course (scale from 1-10)
- I. What can be changed in course (maximum 200 chars) - users' opinion about the course in a plain, unstructured text.

3. Scenarios of Analytical problems

How does the number of hours of classes affect the grade for a given course?

- Compare the average grade of courses with the biggest/lowest number of hours and the smallest.
- Find the average completion rate for the courses with the biggest/lowest number of hours
- Find the number of hours of courses with the best average rating from the survey.
- What is the average grade for the courses where the rating for the number of hours during the course is the best?
- What was the number of hours for the courses with the highest hardness rate?
- What is the number of hours of classes in relation to time spent on an online course platform?

Why was there an increase or decrease of average grade in a given course?

- Compare average grades from previous years.
- Which faculty has the lowest/highest average grade?
- How many students have been attending this course with the highest/lowest average grade in this time period?
- What is the content rate level of courses with the lowest/highest average grade?
- Find the tutor rate level from survey to courses with the lowest/highest average grade.
- Compare average course grades from different universities.

green - queries which demand information from excel sheet

blue - queries which demand additional information which we do not possess

4. Data needed for analytical problems

Analytical problem: "How does the number of hours of classes affect the grade for a given course?"

1. Compare the average grade of courses with the biggest/lowest number of hours and the smallest

- Grade - grade obtained from a course. table enrollments
- Number of hours - number of hours spent on classes. table courses
- Course - course name. table courses

2. Find the average completion rate for the courses with the biggest/lowest number of hours

- Percentage - percentage of completing a course. table enrollments
- Number of hours - number of hours spent on classes. table courses
- Course - course name. table courses

3. Find the number of hours of courses with the best average rating from the survey.

- Number of hours - number of hours spent on classes. table courses
- Content rate - rate of the course. column E excel sheet

4. What is the average grade for the courses where the rating for the number of hours during the course is the best?

- Grade - grade obtained from a course. table enrollments
- Time rate - rate of the number of hours during course. column I excel sheet

5. What was the number of hours for the courses with the highest hardness rate?

- Number of hours - number of hours spent on classes. table courses
- Hardness - measure of hardness conducted in the survey. column F excel sheet

6. What is the number of hours of classes in relation to time spent on an online course platform?

- Number of hours - number of hours spent on classes. table courses
- Time spent on course - time spent on course measured by external program

Analytical problem: Why was there an increase or decrease of average grade in a given course?

1. Compare grades from previous years.

- Finishing date - date when the course was completed, table enrollments
- Grade - grade obtained from a course. table enrollments
- course - course name, table courses

2. Which faculty has the lowest average grade?

- faculty name - name of the faculty where course was conducted at - table faculties
- grade - final grade that student received from a given course, table enrollments

3. How many students have been attending this course with the highest/lowest average grade in this time period?

- course - course name, table courses
- enrolments id - it is created when a student enrolls to a course, table enrollments
- date of enrollment - date when student entered a course, table enrollments

- date of finishing the course, table enrollments
4. What is the content rate level of courses with the lowest/highest average grade?
- content rate - result from survey about rating course content scale (1-10) - column G Excel sheet
 - course name - name of the course which was rated and the grade was obtained from - table courses
 - grade - overall grade obtained
5. Find the tutor rate level from survey to courses with the lowest/highest average grade.
- tutor rate - cooperation rate with the tutor by student scale (1-10)- column H Excel sheet.
 - course name - name of the course which was taught by particular tutor - table courses
 - grade - grade obtained in particular course - table enrollments
6. Compare average course grades from different universities.
- Grade - grade obtained from a course. table enrollments
 - Grades from different universities - grades obtained in different universities in a given semester from similar courses - no such information.

We suggest introducing additional information about time that the user has spent in session on a particular course.

The time is measured when the user is in session of a particular course. Can be null if a user does not give permission to gain this information.

- What is the number of hours of classes in relation to time spent on an online course platform?