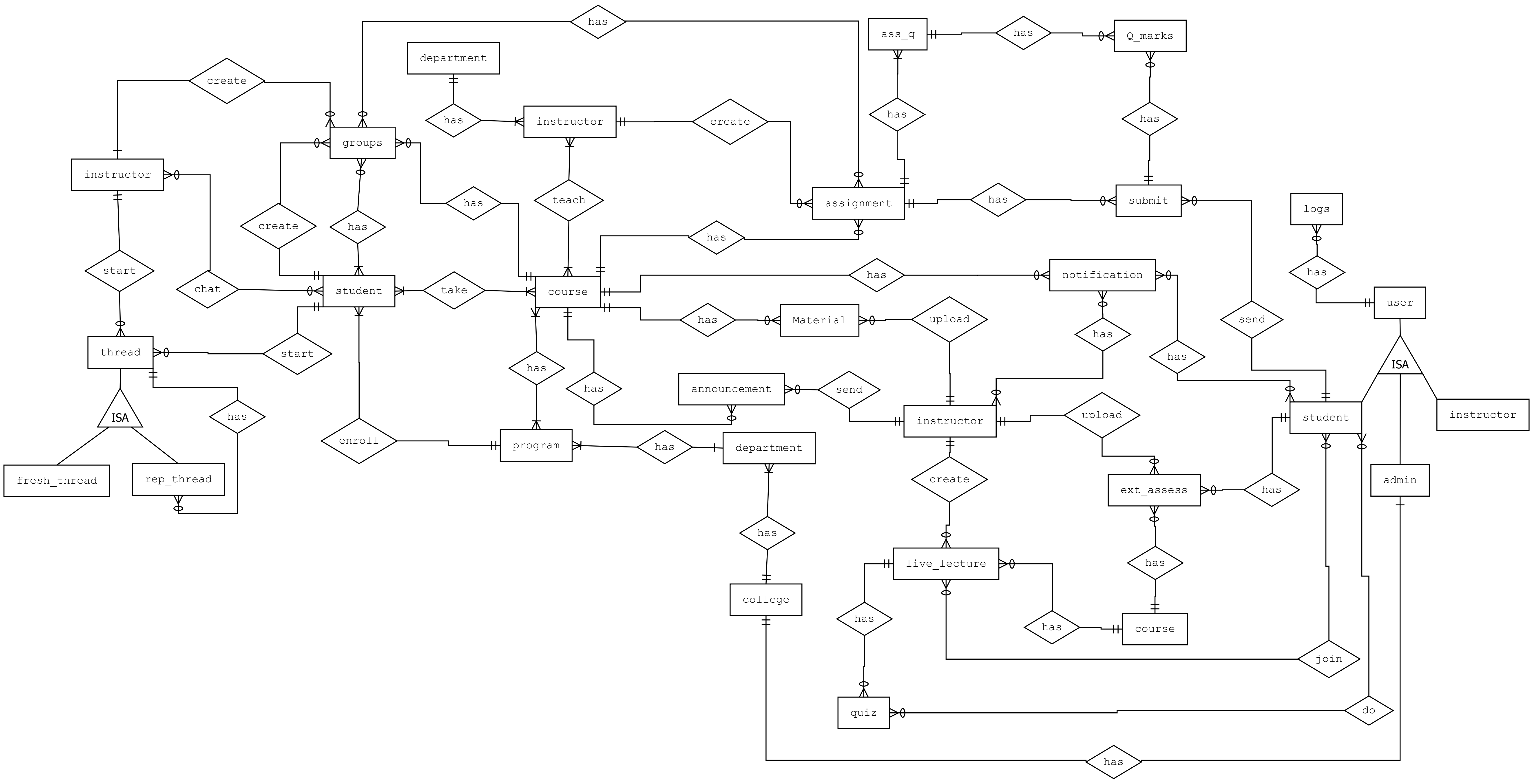
CIVE electronic classroom management system version II

Developer database complete reference

1st may, 2021

Entity relationship diagram



Database tables and attributes

User

userID	username	email	phoneno	password	Auth-token	Verification-token	status	Created-at	Updated-at

Instructor

instructorID	userID	departmentID	Full_name	sex	PP

Course

Course_code	CourseName	Course_credit	Course_semester	Course_duration	Course_status

Student

Reg_no	userID	programCode	fname	midname	lname	sex	F4_index_no	YOS	DOR	status

College

College_ID	College_name	College_abbrev

Department

departmentID	College_ID	Department_name	Depart_abbrev

Program

programCode	departmentID	Prog_Name	Prog_duration	capacity

Groups

groupID	GroupName	course_code	Reg_no	instructorID	Creator_type	Created_date	Created_time

Thread

ThreadID	Reg_no	instructorID	Starter_type

Rep_thread

repID	ThreadID	Parent_thread	content	repdate	reptime

Fresh_thread

freshID	Thread_ID	threadTitle	Thread_desc	Thread_date	Thread_time

Assignment

assID	instructorID	course_code	assName	assType	assNature	Ass_desc	submitMode	startDate	finishDate	Total_marks	fileName

Material

Material_ID	instructorID	course_code	title	Material_type	Upload_Date	Upload_time	filePath

Announcement

annID	instructorID	course_code	content	Ann_date	Ann_time

Notification

Notif_ID	course_code	title	content	Notif_date	Notif_time

Live_lecture

lectureID	InstructorID	course_code	title	lectureDate	startTime	endTime	LateEntryMaxTime	status

Quiz

quizID	lectureID	Total_marks	duration	Quiz_file	status

Ext_assess

assessID	instructorID	Reg_no	course_code	title	Total_marks	score

Logs

logID	userID	object	activity	logdate	logtime

Admin

adminID	userID	collegeID

Submit

submitID	Reg_no	assID	FileName	score	Submit_date	Submit_time	comment

Q_marks

qmarkID	submitID	assq_ID	Q_score	comment

Assq

assq_ID	assID	qno	Total_marks

Instructor_course

IC_ID	course_code	instructorID

Program_course

PC_ID	course_code	programCode

Student_course

SC_ID	Reg_no	course_code

Group_assignment

GA_ID	groupID	assID

Student_group

SG_ID	Reg_no	groupID

chat

chatID	Reg_no	instructorID	chatText	chatDate	chatTime	status

Student-notification

SN_ID	Reg_no	Notif_ID

Student_lecture

SL_ID	Reg_no	lectureID	participationStatus

Student_quiz

SQ_ID	Reg_no	quizID	score

Instructor_notification

IN_ID	instructorID	Notif_ID

Data dictionary

User (stores all users of the system)

<table>
<tr><th>SN</th><th>Field name</th><th>datatype</th><th>Field size</th><th>constraint</th><th>source</th><th>description</th><th>example</th></tr>
<tr><td>1</td><td>userID</td><td>integer</td><td>unlimited</td><td>Primary key</td><td>-</td><td>The unique identifier for each user of the system</td><td>1002</td></tr>
<tr><td>2</td><td>username</td><td>string</td><td>30</td><td>Not null</td><td>-</td><td>The user name of the system user</td><td>T/UDOM/2020/00789, thewinner016@gmail.com</td></tr>
<tr><td>4</td><td>phoneno</td><td>string</td><td>15</td><td></td><td>-</td><td>The mobile phone number of the user</td><td>+255755189736</td></tr>
<tr><td>5</td><td>password</td><td>string</td><td>255</td><td>Not null</td><td>-</td><td>The encrypted login password of the user</td><td>x@wwxx-\3411\\\||#####</td></tr>
<tr><td colspan="8">Note: add all other fields required by the framework</td></tr>
</table>

Instructor (stores all instructors)

SN	Field name	datatype	Field size	constraint	source	description	example
1	instructorID	integer	unlimited	Primary key	-	The unique identifier for each instructor	1007
2	userID	integer	-	Foreign key	user	The user identification number of an instructor	0089
3	DepartmentID	integer	-	Foreign key	department	The college department identifier in which the instructor belongs	2
4	Full_name	string	30	Not null	-	The instructor's full name	Dr. khalidi hassan
5	gender	string	7	Not null	-	The instructor's gender	male
6	PP	string	10	-	-	The instructor's optional profile picture	Pic/Thewinner.jpg

Course (stores all courses)

SN	Field name	datatype	Field size	constraint	source	description	example
1	Course_code	string	7	Primary key	-	The code that uniquely identifies each course in a department	CP123
2	courseName	string	150	Not null	-	The course name of each course in a department	Introduction to high level programming
3	Course_credit	integer	-	Not null	-	The total credits for each course	10
4	Course_semester	integer	-	Not null	-	the academic semester in which the course is active	2
5	Course_duration	integer	-	-	-	The total number of hours allocated for each course until it finishes	42
6	Course_status	string	10	-	-	The status of the course whether it is ongoing or finished	ongoing

Student (stores all students)

SN	Field name	datatype	Field size	constraint	source	description	example
1	Reg_no	string	20	Primary key	-	The student's registration number that uniquely identifies them	T/UDOM/2020/00920
2	userID	integer	-	Foreign key	user	The user unique identification number for each student	50089
3	programCode	string	10	Foreign key	program	The code that uniquely identifies the program in which the student is enrolled in	BSC CIS3
4	fname	String	10	Not null	-	The student's registered first name	khalid
5	midname	string	10	Not null	-	The student's registered middle name or initial	Hassan/ h.
6	lname	string	10	Not null	-	The student's registered last name	hassan
7	gender	string	7	Not null	-	The student's gender	male
8	F4_index_no	string	20	-	-	The student's optional form four index number	S003/2000/2005
9	YOS	integer	-	Not null	-	The student's year of study	3
10	DOR	date	-	Not null	-	The date on which the student has been registered on this platform	1/7/2022
11	status	string	10	Not null	-	The student's current status whether he has postponed, discontinued, or active	active

College (stores all colleges)

SN	Field name	datatype	Field size	constraint	source	description	example
1	CollegeID	integer	-	Primary key	-	The unique identifier for each college	7
2	College_name	string	50	Not null	-	The college name for each college	College of informatics and virtual education
3	College_abbrev	string	10	-	-	The college's official abbreviation	CIVE

Department (stores all departments of the college)

SN	Field name	datatype	Field size	constraint	source	description	example
1	departmentID	integer	-	Primary key	-	The unique identifier for each department in a college	4
2	CollegeID	integer	-	Foreign key	college	The college identifier in which the department belongs	7
3	Department_name	string	100	Not null	-	The department name for each department	Department of computer science and engineering
4	Depart_abbrev	string	10	-	-	The department's name abbreviation	DoCSE

Program (stores all programs of the department)

SN	Field name	datatype	Field size	constraint	source	description	example
1	programCode	string	10	Primary key	-	The unique identification code for each program in a department or college	BSC CIS3
2	departmentID	integer	-	Foreign key	department	The department identifier in which the program belongs	6
3	Prog_name	String	100	Not null	-	The program name for each program in a department	Bachelor of science in computer science
4	Prog_duration	integer	-	Not null	-	Duration in number of years for a program to finish or for one to graduate	4
5	capacity	integer	-	-	-	The capacity in number of students that can be enrolled in a program for a single academic year	900

Groups (stores all student groups)

SN	Field name	datatype	Field size	constraint	source	description	example
1	groupID	int	-	Primary key	-	The unique identifier for each student's group	809
2	groupName	string	10	Not null	-	The group name for each existing group	Group 1
3	course_code	string	7	Foreign key	course	The course's unique identifier of the course in which the group has been created	CP123
4	Reg_no	string	20	Foreign key	student	The registration number of the student who created the group	T/UDOM/2020/00978
5	instructorID	int	-	Foreign key	instructor	The unique identifier of the instructor who created the group	3304
6	Creator_type	string	10	Not null	-	The creator type of the group whether it's an instructor or a student	instructor
7	Created_date	date	-	Not null	-	The date on which the group has been created	2/4/2021
8	Created_time	time	-	Not null	-	The time at which the group has been created	12:00:00

Thread (stores all threads of the forum)

SN	Field name	datatype	Field size	constraint	source	description	example
1	threadID	integer	-	Primary key	-	The unique identifier of each thread in a forum	100045
2	Reg_no	string	20	Foreign key	student	The registration number of the student who started the thread in the forum	T/UDOM/2020/00900
3	instructorID	integer	-	Foreign key	instructor	the unique identifier of the instructor who started the thread	5567
4	Starter_type	string	10	Not null	-	The type of the starter of the thread whether it is an instructor or student	instructor

Rep_thread (stores all reply threads of the forum)

SN	Field name	datatype	Field size	constraint	source	description	example
1	repID	integer	-	Primary key	-	The unique identifier of thread replies in the forum	9000
2	threadID	integer	-	Foreign key	thread	The thread unique identifier of a reply thread. A reply thread becomes a main thread too and should also take a main thread identifier	7890
3	Parent_thread	integer	-	Foreign key	thread	The unique identifier of the main thread for which this reply is.	7589
4	content	string	500	Not null	-	The textual content of the reply	The solution for your problem is not related to the course
5	repdate	date	-	Not null	-	The date on which this reply has been made	2/11/2021
6	reptime	time	-	Not null	-	The time at which this reply has been made	20:00:00

Fresh_thread (stores all new threads of the forum)

SN	Field name	datatype	Field size	constraint	source	description	example
1	freshID	integer	-	Primary key	-	The unique identifier of the fresh/new thread in the forum	1002
2	threadID	integer	-	Foreign key	thread	The thread identifier of this fresh thread in the thread table	1003
3	threadTitle	string	200	Not null	-	The title of the fresh thread	Programming for old people
4	Thread_desc	string	1000	Not null	-	The textual description of the thread or the content of the thread	Should old people involve themselves In any programming?
5	Thread_date	date	-	Not null	-	The date on which this thread has been created	2/3/2022
6	Thread_time	time	-	Not null	-	The time at which this thread has been created	20:00:00

Assignment (stores all assignments)

SN	Field name	datatype	Field size	constraint	source	description	example
1	assID	integer	-	Primary key	-	The unique identifier of each assignment	1004
2	instructorID	integer	-	Foreign key	instructor	The identifier of the instructor who created this assignment	302
3	course_code	string	7	Foreign key	course	The course code for the course for which this assignment has been created	Cp123
4	assName	string	10	Not null	-	The name or title of the assignment	Assignment 1 or lab 1 or programming assignment…
5	assType	string	10	Not null	-	The type of the assignment whether it is an individual or group assignment	individual
	assNature	string	10	Not null	-	The nature of the assignment whether it is a lab assignment , assignment etc	lab
6	Ass_desc	string	1000	-	-	A textual description of the given assignment or assignment question	Write a program to delete a file in a computer
7	submitMode	string	10	Not null	-	The submission mode of the assignment whether it is a single submission or accepts resubmission	Single submission
8	startDate	datetime	-	Not null	-	The starting date and time of the assignment	22/5/2022
9	finishDate	datetime	-	Not null	-	The ending date of the assignment	23/5/2022
10	Total_marks	integer		Not null	-	The total marks for the assignment	40
11	FileName	string	20	-	-	The file name of the attached assignment file if any	Ass1.pdf

Material (stores all class materials)

SN	Field name	datatype	Field size	constraint	source	description	example
1	Material_ID	integer	-	Primary key	-	The unique identifier of material files	2900
2	instructorID	integer	-	Foreign key	instructor	The unique identifier of the instructor who uploaded the material	1008
3	Course_code	string	7	Foreign key	course	The course code for which the material has been uploaded	Cp123
4	title	string	100	Not null	-	The title of the material	Programming for dummies, lecture 3
	Material_type	string	15	Not null	-	The type of the material whether it is a tutorial, video, book, research paper,…	book
5	Upload_date	date	-	Not null	-	The date on which the material has been uploaded	3/5/2020
6	Upload_time	time	-	Not null	-	The time at which the material has been uploaded	22:00:00
7	fileName	string	20	Not null	-	The name of the uploaded file	Lecture1.pptx

Announcement (stores all announcements)

SN	Field name	datatype	Field size	constraint	source	description	example
1	annID	integer	-	Primary key	-	The unique identifier for each announcement	121
2	instructorID	integer	-	Foreign key	instructor	The identifier of the instructor providing this announcement	300
3	course_code	string	7	Foreign key	course	The course code of the course to which this announcement is dedicated	Cp213
4	content	string	255	Not null	-	The textual content of the announcement	
5	Ann_date	date	-	Not null	-	The date on which the announcement was posted	22/2/2021
6	Ann_time	time	-	Not null	-	The time at which the announcement was posted	22:00:00

Notification (stores all notifications)

SN	Field name	datatype	Field size	constraint	source	description	example
1	Notif_ID	integer	-	Primary key	-	The unique identifier of each notification	122
2	Course_Code	string	7	Foreign key	course	The course code of the course whose students this notification is dedicated to	Cp213
3	title	string	20	Not null	-	The title of the notification	Assignment marked
4	content	string	100	Not null	-	The content of the notification	Your assignment has been marked see your score
5	Notif_date	date	-	Not null	-	The date on which the notification was sent	22/3/2021
6	Notif_time	time	-	Not null	-	The time at which the notification was sent	10:00:00

Live_lecture (stores all live lectures)

SN	Field name	datatype	Field size	constraint	source	description	example
1	lectureID	intege	-	Primary key	-	The unique identifier for each lecture	123
2	instructorID	integer	-	Foreign key	instructor	The identifier of the instructor who created this lecture	1233
3	Course_Code	string	7	Foreign key	course	The course code of the course for which this lecture has been created	Cp300
4	title	string	200	Not null	-	The title or subject of the lecture	Arrays initialization in c++
5	date	date	-	Not null	-	The specified date on which this lecture will be conducted	22/1/2021
6	startTime	time	-	Not null	-	The time at which the lecture starts	10:00:00
7	endTime	time	-	Not null	-	The time at which the lecture will end	12:00:00
8	lateEntryMaxTime	integer	-	-	-	The maximum duration in minutes after which there is no more entries in the lecture	15
9	status	string	10	Not null	-	The current status of the lecture whether it is upcoming, ongoing, finished, postponed or cancelled	upcoming

Quiz (stores all quizzes)

SN	Field name	datatype	Field size	constraint	source	description	example
1	quizID	integer	-	Primary key	-	The unique identifier of the quiz	233
2	lectureID	integer	-	Foreign key	Live_lecture	The identifier of the lecture for which this quiz wa created	34
3	Total_marks	integer	-	Not null	-	The total marks for the quiz	50
4	duration	integer	-	Not null	-	The duration in minutes for the quiz	120
5	quiz_file	string	15	Not null	-	The quiz file name	Quiz1.html
6	status	string	10	Not null	-	The quiz current status whether is finished, ongoing, upcoming	finished

Ext_assess (stores all external assessments)

SN	Field name	datatype	Field size	constraint	source	description	example
1	assessID	integer	-	Primary key	-	The unique identifier of the external assessment	345
2	instructorID	integer	-	Foreign key	instructor	The identifier of the instructor who uploaded the assessment	234
3	Reg_no	string	20	Foreign key	-	The identifier of the student associated with this external assessment record	T/UDOM/2020/20390
4	Course_code	string	7	Foreign key	course	The course code of the course for which this assessment has been uploaded	Cp213
5	title	string	20	Not null	-	The title or name of the assessment being uploaded	Lab assessment, test one
6	Total_marks	integer	-	Not null	-	The total marks allocated for this assessment	50
7	score	Floating number	5	Not null	-	The student individual score of this assessment	40

Logs (stores all logs of the system)

SN	Field name	datatype	Field size	constraint	source	description	example
1	logID	integer	-	Primary key	-	The unique identifier of each log record	34
2	userID	integer	-	Foreign key	user	The identifier of the user associated with this log record	345
3	object	string	10	Not null	-	The object of the system affect by the user activity	material
4	activity	string	15	Not null	-	The activity type performed by the user on the system objects: delete, update,	delete
5	logdate	date	-	Not null	-	The date on which the activity was performed	22/01/2021
6	logtime	time	-	Not null	-	The time at which the activity was performed	22:00:00

Admin (stores all administrators of the system)

SN	Field name	datatype	Field size	constraint	source	description	example
1	adminID	integer	-	Primary key	-	The unique identifier for each admin	123
2	userID	Integer	-	Foreign key	user	The user identifier of the admin of the system	344
3	collegeID	integer	-	Foreign key	college	The college identifier to which the admin is assigned to	7

Submit (stores all student assignment submits)

SN	Field name	datatype	Field size	constraint	source	description	example
1	submitID	integer	-	Primary key	-	The unique identifier of each student submit	123
2	Reg_no	string	20	Foreign key	student	The registration number of the student who submitted this	T/UDOM/2020/20342
3	assID	integer	-	Foreign key	assignment	The assignment identifier of the assignment for which the student has submitted for	234
4	FileName	string	20	Not null	-	The file name of the file associated with this submit	Assignment1.pdf
5	score	Floating number	5	-	-	The student's score result for this assignment submit	30.5
6	Submit_date	date	-	Not null	-	The date on which the student submitted this	22/1/2022
7	Submit_time	time	-	Not null	-	The time at which the student submitted this	23:00:00
8	comment	string	200	-	-	The comment provided by the instructor after marking this submit	I wonder the reason why you easily fail a takeaway assignment.

Q_marks (stores marks of each assignment question)

SN	Field name	datatype	Field size	constraint	source	description	example
1	qmarkID	integer	-	Primary key	-	The unique identifier for each question marks record	245
2	submitID	integer	-	Foreign key	submit	The identifier of the submit to which this mark belongs	233
3	Assq_ID	integer	-	Foreign key	assq	The identifier of the assignment question for which this mark is given	12
4	Q_score	Floating number	5	-	-	The score given for this question	20
5	comment	string	200	-	-	The comment given by the instructor after marking this question	You should not be that stupid dividing a number by 0

Assq (stores all assignment questions)

SN	Field name	datatype	Field size	constraint	source	description	example
1	Assq_ID	integer	-	Primary key	-	The unique identifier for the question	122
2	assID	integer	-	Foreign key	assignment	The identifier of the assignment to which the question belongs	234
3	qno	integer	-	Not null	-	The question number in the assignment	3
4	Total_marks	integer	-	Not null	-	The total marks for each question in the assignment	40

Instructor_course (stores all instructor courses)

SN	Field name	datatype	Field size	constraint	source	description	example
1	IC_ID	integer	-	Primary key	-	The unique identifier of each record	2344
2	Course_code	string	7	Foreign key	course	The course code of the course to which the instructor is assigned	Cp800
3	instructorID	integer	-	Foreign key	instructor	The instructor identifier of the instructor who is assigned to the course	122

Program_course (stores all program courses)

SN	Field name	datatype	Field size	constraint	source	description	example
1	PC_ID	integer	-	Primary key	-	The unique identifier of each record	900
2	Course_code	string	7	Foreign key	course	The course code of the course that is assigned to the program	Cp700
3	programCode	string	10	Foreign key	program	The program code of the program to which the course belongs	DM1700

Student_course (stores all student courses)

SN	Field name	datatype	Field size	constraint	source	description	example
1	SC_ID	integer	-	Primary key	-	The unique identifier of each record	123
2	Reg_no	String	20	Foreign key	student	The registration number of the student assigned to the course	T/UDOM/2019/20304
3	Course_code	string	7	Foreign key	course	The course code of the course to which the student is assigned	Cp890

Group_assignment (stores all group assignments)

SN	Field name	datatype	Field size	constraint	source	description	example
1	GA_ID	integer	-	Primary key	-	The unique identifier of each record	234
2	groupID	integer	-	Foreign key	group	The identifier of the group to which the assignment has been assigned to	345
3	assID	integer	-	Foreign key	assignment	The identifier of the assignment that has been assigned to the group	34

Student_group (stores all students group members)

SN	Field name	datatype	Field size	constraint	source	description	example
1	SG_ID	integer	-	Primary key	-	The unique identifier of each record	123
2	Reg_no	String	20	Foreign key	student	The registration number of the student assigned to the group	T/UDOM/2020/00300
3	groupID	integer	-	Foreign key	group	The identifier of the group to which the student has been assigned	123

Chat (stores all chats between a student and an instructor)

SN	Field name	datatype	Field size	constraint	source	description	example
1	chatID	integer	-	Primary key	-	The unique identifier of each chat record	123
2	Reg_no	string	20	Foreign key	student	The registration number of the student who has sent or received a message	T/UDOM/2021/20154
3	instructorID	integer	-	Foreign key	instructor	The identifier of the instructor who has sent or received a message	678
4	chatText	string	500	Not null	-	The textual message sent or received by the parties	Did you submit the assignment or should I put there 0?
5	chatDate	date	-	Not null	-	The date on which the message has been sent	22/01/1970
6	chatTime	time	-	Not null		The time at which the message was sent	20:00:00
7	status	string	10	Not null	-	The current status of the message whether it is sent, delivered/seen, deleted,	delivered

Student_notification (stores all student notifications)

SN	Field name	datatype	Field size	constraint	source	description	example
1	SN_ID	integer	-	Primary key	-	The unique identifier of each record	123
2	Reg_no	String	20	Foreign key	student	The registration number of the student to which the notification is dedicated	789
3	Notif_ID	integer	-	Foreign key	notification	The identifier of the notification that's sent to the student	2

Student_lecture (stores all student attended live lectures)

SN	Field name	datatype	Field size	constraint	source	description	example
1	SL_ID	integer	-	Primary key	-	The unique identifier of each record	23
2	Reg_no	string	20	Foreign key	student	The registration number of the student who participated in the lecture	T/UDOM/2020/60004
3	lectureID	int	-	Foreign key	Live_lecture	The identifier of the lecture in which the student participated	123
4	participationStatus	string	10	Not null	-	The student's lecture participating status whether is partial, full	full

Student_quiz (stores all student quizzes)

SN	Field name	datatype	Field size	constraint	source	description	example
1	SQ_ID	integer	-	Primary key	-	The unique identifier of each record	123
2	Reg_no	String	20	Foreign key	student	The registration number of the student who has done the quiz	T/UDOM/2020/00908
3	quizID	integer	-	Foreign key	quiz	The identifier of the quiz that a student did	123
4	score	Floating number	3	-	-	The score of the student for the quiz	50.2

Instructor_notification (stores all instructor notifications)

SN	Field name	datatype	Field size	constraint	source	description	example
1	IN_ID	integer	-	Primary key	-	The unique identifier of each record	123
2	instructorID	integer	-	Foreign key	instructor	The instructor identifier to whom the notification Is sent	123
3	Notif_ID	integer	-	Foreign key	notification	The identifier of the notification that has been sent to the instructor	234

Database implementation (MYSQL, engine InnoDB)

```
create table user
(
 userID int primary key auto_increment,
 username varchar(30) not null,
 phoneno varchar(15),
 password varchar(255) not null
);
create table college
(
 collegeID int primary key auto_increment,
 college_name varchar(50) not null,
 college_abbrev varchar(10) not null
);
create table department
(
 departmentID int primary key auto_increment,
 collegeID int,
 department_name varchar(100) not null,
 depart_abbrev varchar(10),
 constraint colkey foreign key(collegeID) references college(collegeID) on delete cascade on update cascade
);
create table instructor
(
 instructorID int primary key auto_increment,
 userID int,
 departmentID int,
 full_name varchar(30) not null,
 gender varchar(7) not null,
 PP varchar(10),
 constraint userkey1 foreign key(userID) references user(userID) on delete set null on update cascade,
 constraint depkey1 foreign key(departmentID) references department(departmentID) on delete cascade on update cascade
);
create table course
(
 course_code varchar(7) primary key,
 courseName varchar(150) not null,
 course_credit int not null,
 course_semester int not null,
 course_duration int,
 course_status varchar(10)
);
create table program
(
 programCode varchar(10) primary key,
 departmentID int,
 prog_name varchar(100) not null,
 prog_duration int not null,
 capacity int,
 constraint depkey2 foreign key(departmentID) references department(departmentID) on delete cascade on update cascade
);
create table student
(
 reg_no varchar(20) primary key,
 userID int,
 programCode varchar(10),
 fname varchar(10) not null,
 midname varchar(10) not null,
 lname varchar(10) not null,
 gender varchar(7) not null,
 f4_index_no varchar(20),
 YOS int not null,
 DOR date not null,
 status varchar(10) not null,
 constraint userkey2 foreign key(userID) references user(userID) on delete set null on update cascade,
 constraint programkey1 foreign key(programCode) references program(programCode) on delete cascade on update cascade

);
```

```
create table groups
(
 groupID int primary key auto_increment,
 groupName varchar(10) not null,
 course_code varchar(7),
 reg_no varchar(20),
 instructorID int,
 creator_type varchar(10) not null,
 created_date date not null,
 created_time time not null,
 constraint coursekey1 foreign key(course_code) references course(course_code) on delete cascade on update cascade,
 constraint studkey1 foreign key(reg_no) references student(reg_no) on delete set null on update cascade,
 constraint instructorkey1 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade
);
create table thread
(
 threadID int primary key auto_increment,
 reg_no varchar(20),
 instructorID int,
 starter_type varchar(10) not null,
 constraint studkey2 foreign key(reg_no) references student(reg_no) on delete restrict on update cascade,
 constraint instructorkey3 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade
);

create table rep_thread
(
  repID int primary key auto_increment,
  threadID int,
  parent_thread int,
  content varchar(500) not null,
  repdate date not null,
  reptime time not null,
  constraint threadkey1 foreign key(threadID) references thread(threadID) on delete cascade on update cascade,
  constraint threadkey2 foreign key(parent_thread) references thread(threadID) on delete cascade on update cascade
);
create table fresh_thread
(
 freshID int primary key auto_increment,
 threadID int,
 threadTitle varchar(200) not null,
 thread_desc varchar(1000) not null,
 thread_date date not null,
 thread_time time not null,
 constraint threadkey3 foreign key(threadID) references thread(threadID) on delete cascade on update cascade

);
create table assignment
(
 assID int primary key auto_increment,
 instructorID int,
 course_code varchar(7),
 assName varchar(10) not null,
 assType varchar(10) not null,
 assNature varchar(10) not null,
 ass_desc varchar(1000),
 submitMode varchar(10) not null,
 startDate datetime not null,
 finishDate datetime not null,
 total_marks int not null,
 fileName varchar(20),
 constraint instructorkey4 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint coursekey3 foreign key(course_code) references course(course_code) on delete cascade on update cascade
);
create table material
(
 material_ID int primary key auto_increment,
 instructorID int,
 course_code varchar(7),
 title varchar(100) not null,
 material_type varchar(15) not null,
 upload_date date not null,
 upload_time time not null,
 fileName varchar(20) not null,
 constraint instructorkey5 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint coursekey4 foreign key(course_code) references course(course_code) on delete cascade on update cascade
);
```

```
create table announcement
(
 annID int primary key auto_increment,
 instructorID int,
 course_code varchar(7),
 content varchar(255) not null,
 ann_date date not null,
 ann_time time not null,
 constraint instructorkey6 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint coursekey5 foreign key(course_code) references course(course_code) on delete cascade on update cascade

);
create table notification
(
 notif_ID int primary key auto_increment,
 course_code varchar(7),
 title varchar(20) not null,
 content varchar(100) not null,
 notif_date date not null,
 notif_time time not null,
 constraint coursekey6 foreign key(course_code) references course(course_code) on delete cascade on update cascade
);
create table live_lecture
(
 lectureID int primary key auto_increment,
 instructorID int,
 course_code varchar(7),
 title varchar(200) not null,
 lectureDate date not null,
 startTime time not null,
 endTime time not null,
 lateEntryMaxTime int,
 status varchar(10) not null,
 constraint instructorkey7 foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint coursekey7 foreign key(course_code) references course(course_code) on delete cascade on update cascade

);
create table quiz
(
 quizID int primary key auto_increment,
 lectureID int,
 total_marks int not null,
 duration int not null,
 quiz_file varchar(15) not null,
 status varchar(10) not null,
 constraint lecturekey1 foreign key(lectureID) references live_lecture(lectureID) on delete set null on update cascade
);
create table ext_assess
(
 assessID int primary key auto_increment,
 instructorID int,
 reg_no varchar(20),
 course_code varchar(7),
 title varchar(20) not null,
 total_marks int not null,
 score decimal(5,2) not null,
 constraint studk foreign key(reg_no) references student(reg_no) on delete cascade on update cascade,
 constraint instr foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint coursekey8 foreign key(course_code) references course(course_code) on delete cascade on update cascade
);
create table logs
(
 logID int primary key auto_increment,
 userID int,
 object varchar(10) not null,
 activity varchar(15) not null,
 logdate date not null,
 logtime time not null,
 constraint userlogkey foreign key(userID) references user(userID) on delete restrict on update cascade
);
create table admin
(
 adminID int primary key auto_increment,
 userID int,
 collegeID int,
 constraint userlogkey2 foreign key(userID) references user(userID) on delete set null on update cascade,
 constraint collegekey2 foreign key(collegeID) references college(collegeID) on delete cascade on update cascade
);
```

```
create table submit
(
 submitID int primary key auto_increment,
 reg_no varchar(20),
 assID int,
 fileName varchar(20) not null,
 score decimal(5,2) not null,
 submit_date date not null,
 submit_time time not null,
 comment varchar(200),
 constraint studk22 foreign key(reg_no) references student(reg_no) on delete cascade on update cascade,
 constraint asskey foreign key(assID) references assignment(assID) on delete cascade on update cascade
);
create table assq
(
 assq_ID int primary key auto_increment,
 assID int,
 qno int not null,
 total_marks int not null,
 constraint asskey2 foreign key(assID) references assignment(assID) on delete cascade on update cascade
);
create table q_marks
(
 qmarkID int primary key auto_increment,
 submitID int,
 assq_ID int,
 q_score decimal(5,2),
 comment varchar(200),
 constraint submitkey foreign key(submitID) references submit(submitID) on delete cascade on update cascade,
 constraint qkey foreign key(assq_ID) references assq(assq_ID) on delete cascade on update cascade
);

create table instructor_course
(
 IC_ID int primary key auto_increment,
 course_code varchar(7),
 instructorID int,
 constraint instrc foreign key(instructorID) references instructor(instructorID) on delete cascade on update cascade,
 constraint cozk foreign key(course_code) references course(course_code) on delete cascade on update cascade
);

create table program_course
(
 PC_ID int primary key auto_increment,
 course_code varchar(7),
 programCode varchar(10),
 constraint pcd foreign key(programCode) references program(programCode) on delete cascade on update cascade,
 constraint cozk2 foreign key(course_code) references course(course_code) on delete cascade on update cascade
);
create table student_course
(
 SC_ID int primary key auto_increment,
 reg_no varchar(20),
 course_code varchar(7),
 constraint cozk3 foreign key(course_code) references course(course_code) on delete cascade on update cascade,
 constraint studckey2 foreign key(reg_no) references student(reg_no) on delete cascade on update cascade
);
create table group_assignment
(
 GA_ID int primary key auto_increment,
 groupID int,
 assID int,
 constraint gasskey foreign key(assID) references assignment(assID) on delete cascade on update cascade,
 constraint gkey foreign key(groupID) references groups(groupID) on delete cascade on update cascade
);
create table student_group
(
 SG_ID int primary key auto_increment,
 reg_no varchar(20),
 groupID int,
 constraint gkey2 foreign key(groupID) references groups(groupID) on delete cascade on update cascade,
 constraint gstudkey foreign key(reg_no) references student(reg_no) on delete cascade on update cascade
);
```

```
create table chat
(
 chatID int primary key auto_increment,
 reg_no varchar(20),
 instructorID int,
 chatText varchar(500) not null,
 chatDate date not null,
 chatTime time not null,
 status varchar(10) not null,
 constraint instrchatkey foreign key(instructorID) references instructor(instructorID) on delete set null on update cascade,
 constraint chatstudkey foreign key(reg_no) references student(reg_no) on delete restrict on update cascade

);
create table student_notification
(
 SN_ID int primary key auto_increment,
 reg_no varchar(20),
 notif_ID int,
 constraint notstudkey foreign key(reg_no) references student(reg_no) on delete cascade on update cascade,
 constraint notifkey foreign key(notif_ID) references notification(notif_ID) on delete cascade on update cascade
);
create table student_lecture
(
 SL_ID int primary key auto_increment,
 reg_no varchar(20),
 lectureID int,
 participationStatus varchar(10) not null,
 constraint lecstudkey foreign key(reg_no) references student(reg_no) on delete cascade on update cascade,
 constraint lecturekey2 foreign key(lectureID) references live_lecture(lectureID) on delete cascade on update cascade
);
create table student_quiz
(
 SQ_ID int primary key auto_increment,
 reg_no varchar(20),
 quizID int,
 score decimal(5,2),
 constraint quizstudkey foreign key(reg_no) references student(reg_no) on delete cascade on update cascade,
 constraint quizkey foreign key(quizID) references quiz(quizID) on delete cascade on update cascade
);
create table instructor_notification
(
 IN_ID int primary key auto_increment,
 instructorID int,
 notif_ID int,
 constraint notifinstr foreign key(notif_ID) references notification(notif_ID) on delete cascade on update cascade,
 constraint instrnotif foreign key(instructorID) references instructor(instructorID) on delete cascade on update cascade
);
```