

Marmara University – Faculty of Engineering – Department of Computer Engineering

Fall 2021 – CSE3055 Database Systems**Example: Stored Procedure & Trigger**Consider the *University* database below.

Student				
SID	SName	Major	Year	Age
100	Jones	History	GR	21
150	Parks	Accounting	SO	19
200	Baker	Math	GR	50
250	Glass	History	SR	50
300	Baker	Accounting	SR	41
350	Russell	Math	JR	20
400	Rye	Accounting	GR	18
450	Jones	History	FR	24

Course				
CCode	CTime	Room	NbrSt	AvgTotal
BA200	MWF9	SC110	3	
BD445	MWF3	SC213	3	
BF410	MWF8	SC213	1	
CS150	MWF3	EA304	2	
CS250	MWF12	EB210	2	

Enrollment				
SID	CCode	Midterm	Final	Total
100	BD445	70	77	
150	BA200	65	89	
200	BD445	71	93	
200	CS250	93	98	
300	CS150	88	99	
400	BA200	100	78	
400	BD445	54	68	
400	BF410	47	69	
400	CS150	33	55	
400	CS250	86	87	
450	BA200	79	81	

Notes:

- *Course.NbrSt*: number of students taking that course.
- *Course.AvgTotal*: average of *Totals* of student-course enrollments from table *Enrollment* for a related course.
- *Enrollment.Total*: summation of 30% of *Midterm* and 70% of *Final*.

1) Implement a stored procedure *sp_UpdateAvgTotal* (*Course.CCode*) such that

- *exec sp_UpdateAvgTotal* (*Course.CCode*) updates the field *AvgTotal* of table *Course*.
 - The field *AvgTotal* is the average of *Totals* of student-course enrollments from table *Enrollment* for a related course. In order to calculate field *AvgTotal* of table *Course*, field *Total* of table *Enrollment* is first to be computed by adding 30% of *Midterm* and 70% of *Final*.
- Create a table for logging errors before creating *sp_UpdateAvgTotal*. Name the table as *Log*, table will have three fields: *LogID*, *CCode*, *ErrCode*.
 - The primary key will be *LogID*.
 - The field *LogID* will be an identity column, *CCode* will be corresponding *CCode* that is to be entered, and *ErrCode* will be "I" for "calling invalid course" (i.e. not available in table *Course*), "NC" for "no enrolled course" (i.e. not available in table *Enrollment*).
 - You have to enter appropriate records to the table *Log*. After these errors, the transaction will be rolled back.
 - Data types for the fields are as follows: *LogID* int; *CCode* varchar(8); *ErrCode* varchar(2).

2) Write a trigger that implements the following:

- When a record of student (*SID*) and course (*CCode*) is inserted, deleted or updated from the table *Enrollment*, update the field *NbrSt* field of table *Course*.
- The field *NbrSt* is the number of students that is enrolled to the related course.
- Hint: you can assume there is only one insertion, deletion or update at a time.