SQL Server Store Procedure Exercise

11/4/2020

Instructions:

Create a T-SQL stored procedure according to the requirements below. Pay attention to the details of the table definitions to augment the requirements.

Stored Procedure Requirements

* Input parameter for the staging date
* Ensure that output from query execution showing number of affected rows is turned off
* Print output statements
  + Print output at the beginning of the procedure that shows the date/time, ‘BEGIN’, procedure name, and parameter value
  + Print output to show each student name as it is being processed
  + Print output at the end to show the date/time, ‘END’, and procedure name
* Error handling block to cover all procedure operations
  + If there is a transaction in process roll it back
  + Throw the error to be available to the calling application
* Process classes from ClassStage where StageDate equals input parameter
  + Insert classes from ClassStage to Class for any class that does not exist
* Use a cursor to process records from StudentClassStage where StageDate equals input parameter
  + For each distinct Student in the cursor results
    - Insert the Student if it does not exist
    - Insert all of the StudentClass records that do not exist
    - Use a transaction to ensure that all records related to a single student are committed together
* Show a query result at the end with all students that had any classes added. Showing StudentID, Student full name, Total count of \*all\* Classes (not just new ones), Time of first class, Time of last class. Only include students whose first class is prior to 5pm. Sort by Student LastName
* Format code for readability; add comments if they help to understand the code better

Table Definition Reference

ClassStage

* StageDate date not null
* ClassKey varchar(8) not null
* ClassName varchar(30) not null
* ClassTime time not null

StudentClassStage

* StageDate date not null
* AccountNumber varchar(10) not null
* FirstName varchar(30) not null
* LastName varchar(30) not null
* ClassKey varchar(8) not null

Class

* ClassID int identity not null; primary key
* ClassKey varchar(8); unique index
* ClassName varchar(30) not null
* ClassTime time not null
* CreateDT smalldatetime not null; default getdate()

Student

* StudentID int identity not null; primary key
* AccountNumber varchar(20) not null; unique index
* FirstName varchar(30) not null
* LastName varchar(30) not null
* CreateDT smalldatetime not null; default getdate()

StudentClass

* StudentID int not null; FK to Student
* ClassID int not null; FK to Class
* CreateDT smalldatetime not null; default getdate()

Sample Data

|  |  |  |  |
| --- | --- | --- | --- |
| ClassStage |  |  |  |
| StageDate | ClassKey | ClassName | ClassTime |
| 8/16/2020 | HIST-100 | American History I | 12:00 |
| 8/16/2020 | HIST-101 | American History II | 12:00 |
| 8/16/2020 | LANG-100 | English I | 10:00 |
| 8/16/2020 | LANG-101 | English II | 10:00 |
| 8/16/2020 | MATH-100 | Algebra I | 08:00 |
| 8/16/2020 | MATH-101 | Algebra II | 08:00 |
| 8/16/2020 | PE-100 | Weight Training | 14:00 |
| 8/16/2020 | PE-101 | Nutrition and Fitness | 14:00 |
| 8/17/2020 | HIST-200 | World History I | 12:00 |
| 8/17/2020 | HIST-201 | World History II | 12:00 |
| 8/17/2020 | LANG-200 | French I | 10:00 |
| 8/17/2020 | LANG-201 | French II | 10:00 |
| 8/17/2020 | MATH-200 | Calculus I | 08:00 |
| 8/17/2020 | MATH-201 | Calculus II | 08:00 |
| 8/17/2020 | PE-200 | Swimming | 14:00 |
| 8/17/2020 | PE-201 | Golf | 14:00 |
| 8/18/2020 | HIST-500 | Night History I | 20:00 |
| 8/18/2020 | LANG-500 | Night English I | 19:00 |
| 8/18/2020 | MATH-500 | Night Algebra I | 18:00 |

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| --- | --- | --- | --- | --- |
| StudentClassStage |  |  |  |  |
| StageDate | AccountNumber | FirstName | LastName | ClassKey |
| 8/16/2020 | 1000-1001 | John | Able | LANG-100 |
| 8/16/2020 | 1000-1001 | John | Able | MATH-100 |
| 8/16/2020 | 1000-1001 | John | Able | PE-100 |
| 8/16/2020 | 1000-2002 | Mary | Bell | HIST-100 |
| 8/16/2020 | 1000-2002 | Mary | Bell | LANG-100 |
| 8/16/2020 | 1000-2002 | Mary | Bell | MATH-100 |
| 8/16/2020 | 1000-2002 | Mary | Bell | PE-100 |
| 8/16/2020 | 1000-3003 | Ted | Cross | HIST-101 |
| 8/16/2020 | 1000-3003 | Ted | Cross | MATH-101 |
| 8/16/2020 | 1000-3003 | Ted | Cross | PE-101 |
| 8/16/2020 | 1000-4004 | Bob | Johns | HIST-101 |
| 8/16/2020 | 1000-4004 | Bob | Johns | LANG-101 |
| 8/16/2020 | 1000-4004 | Bob | Johns | MATH-101 |
| 8/17/2020 | 2000-1001 | Donna | Doe | HIST-200 |
| 8/17/2020 | 2000-1001 | Donna | Doe | LANG-200 |
| 8/17/2020 | 2000-1001 | Donna | Doe | MATH-200 |
| 8/17/2020 | 2000-2002 | Larry | Leed | HIST-201 |
| 8/17/2020 | 2000-2002 | Larry | Leed | LANG-201 |
| 8/17/2020 | 2000-2002 | Larry | Leed | MATH-201 |
| 8/17/2020 | 2000-2002 | Larry | Leed | PE-201 |
| 8/18/2020 | 3000-1001 | Barry | White | HIST-500 |
| 8/18/2020 | 3000-1001 | Barry | White | LANG-500 |
| 8/18/2020 | 3000-1001 | Barry | White | MATH-500 |
| 8/18/2020 | 3000-2002 | Ellen | Snow | HIST-500 |
| 8/18/2020 | 3000-2002 | Ellen | Snow | LANG-500 |
| 8/18/2020 | 3000-2002 | Ellen | Snow | MATH-500 |
| 8/18/2020 | 1000-4004 | Bob | Johns | PE-101 |
| 8/18/2020 | 2000-1001 | Donna | Doe | PE-200 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Class |  |  |  |  |
| ClassID | ClassKey | ClassName | ClassTime | CreateDT |
| 1 | HIST-100 | American History I | 12:00 | 8/15/2020 10:02 |
| 2 | LANG-101 | English II | 10:00 | 8/15/2020 10:02 |
| 3 | MATH-100 | Algebra I | 08:00 | 8/15/2020 10:02 |
| 4 | HIST-200 | World History I | 12:00 | 8/15/2020 10:02 |
| 5 | LANG-200 | French I | 10:00 | 8/15/2020 10:02 |
| 6 | HIST-500 | Night History I | 20:00 | 8/15/2020 10:02 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Student |  |  |  |  |
| StudentID | AccountNumber | FirstName | LastName | CreateDT |
| 1 | 1000-1001 | John | Able | 8/15/2020 10:03 |
| 2 | 1000-3003 | Ted | Cross | 8/15/2020 10:03 |
| 3 | 3000-1001 | Barry | White | 8/15/2020 10:03 |

|  |  |  |
| --- | --- | --- |
| StudentClass |  |  |
| StudentID | ClassID | CreateDT |
| 1 | 1 | 8/15/2020 10:03 |
| 2 | 2 | 8/15/2020 10:03 |
| 3 | 6 | 8/15/2020 10:03 |