

Backend Developer Assignment

Picture a customer that has a source system that provides data about employees, now they change the source system to something else and they have transferred all the employees to the new system. What we want to make sure is that we get the exact same data content from the new source as we did from the old one.


The customer has arranged two tables as shown in the picture below, where *SourceTable1* contains the data from the old system and *SourceTable2* contains the data from the new system.

They expect the tables to contain the same employees and want to know all differences between the two tables.

- What employees exist in *SourceTable2* and not in *SourceTable1*? (i.e. added employees)
- What employees have been removed from *SourceTable1*, meaning exist in *SourceTable1*, but not in *SourceTable2*? (i.e. removed employees)
- Has any of the fields changed?

Let's consider the example below:

Table Schema:

	Column Name	Data Type
	socialsecuritynumber	nvarchar(50)
	Firstname	nvarchar(50)
	Lastname	nvarchar(50)
	Department	nvarchar(50)

SourceTable1:

DNI-INTERNAL.LCS_....SourceDataTable1 X DNI-INTERNAL.LCS_....SourceDataTa				
	socialsecurityn...	Firstname	Lastname	Department
	01010101	Kari	Nordmann	Sales
	01010102	Jack	Jackson	Support
	01010103	Nils	Nilsen	Sales

SourceTable2:

DNI-INTERNAL.LCS_....SourceDataTable2 X DNI-INTERNAL.LCS_....SourceDataTa				
	socialsecurityn...	Firstname	Lastname	Department
	01010101	Kari	Nordman	Support
	01010104	Esther	Doe	Support
	01010103	Nils	Nilsen	Sales

For example, here is the report based on the example above:

Added employees:

- 01010104 (Esther Doe)

Removed employees:

- 01010102 (Jack Jackson)

Changes:

- 01010101 - Lastname has been changed from 'Nordmann' to 'Nordman'
- 01010101 - Department has been changed from 'Sales' to 'Support'

Note that, the program that you build, should work on any table as long as the schema is shared between the two tables meaning the two tables have the same database schema. So, input parameters can be *TableName1*, *TableName2* and what column is the primary key.

For example:

*MatchTables.exe -TableName1 SourceTable1 -TableName2 SourceTable2 -Primarykey
SocialSecurityNumber*

Software Stack

Let's assume that, our company is extensively using C# in other parts of this project. So, if C# can be used for building this application, then that will be considered as a plus.

Special Instructions

- Commit to GitHub from the initial setup.
- Provide access to “[cefalolab](#)” user to your repositories for code review purpose.
- Commit early and often. Don't commit everything after finishing the assignment. By looking into your commit message, we will try to get an idea how you approached the problem.
- Try to make sure, your implemented functionalities are as complete as possible based on the provided use cases and other corner cases.
- Make sure to provide necessary instruction and script to initialize the database.
- Unit testing is optional, but nice to have.
- Provide a readme file which will contain how to build and run your application.