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# **BMIS 441 02: Database Management [Fall 2021]**

## **SQL Assignment #4 - Normalization**

For this assignment, your grade will be granted in such way:

100-very good , 90-good, 80-somewhat good, 70-not good.

| Due Date: | Sep 26 at 23:59 |
| --- | --- |
| Points: | 100 |

Graded on Sep 27 at 09:16

Your Submission:

| Submission Score: | 100 / 100 (100.00%) |
| --- | --- |
| Grade Time: | Sep 27 at 09:16 |
| Submitted On: | Sep 26 at 21:48 |

An organization wanted to record employees' information, including employeeID, employee name, child SSN, and child's name.

| EmpID | EmpName | ChildSSN | ChildName |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

1. Please use the textual notation to represent this relation and mark the EmpID as the primary key.

***FD: EmpID ---> EmpName, ChildSSN, ChildName***

1. Based on the description of #1, let's further explain the situation.  
   Each employee may have many children, but not both parents working at this company. In other words, each child is associated with only one employee.   
   Can you identify the relationship between Employee and Child? Type here.

***The relationship between Employee and Child is the name.***

1. Furthermore, if we know the child's SSN, we would know his/her name. In other words, there's functional dependency between the SSN and name.   
   Which is the determinant? Type here.

***The determinant is the Child SSN, because names can be the same in some cases.***

1. Let's suppose no attribute contains multi values.   
   According to this information, which normal form does this relation conform to?

***This relation would conform to the First Normal Form because each attribute would only contain one value.***

1. Look at the relation you wrote down for #1 (EmpID is the primary key).  
   Does it violate the second normal form? Why?

***It doesn't violate the Second Normal Form because there's no composite keys in this table.***

1. Does it violate the third normal form? Why?

***It does violate the Third Normal Form because ChildName and ChildSSN are transitively connected to EmpID.***

1. Can you normalize the relation you wrote for #1 to make it satisfy the 3rd normal form? Note: you may need more than one relation.   
   Remember to underline the primary key and state the foreign key (e.g., course id is the foreign key).

***FD: EmpID ---> EmpName, ChildSSN  
ChildSSN is Foreign Key   
ChildSSN ---> ChildName***

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