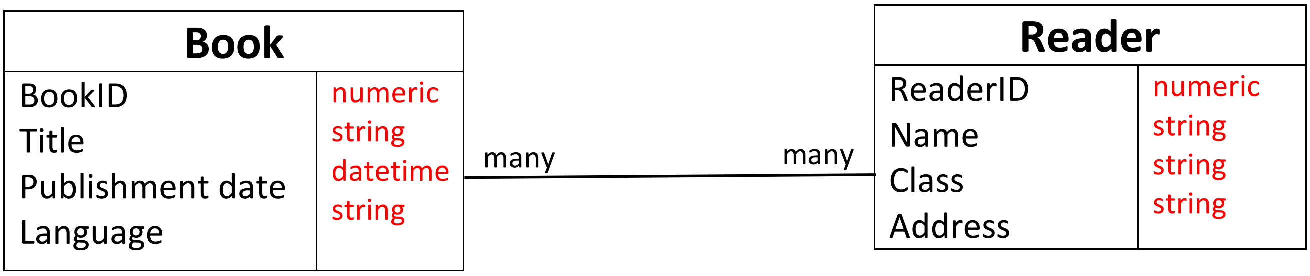
DATABASE – S4 PRACTICE-CORRECTION

Exercise 1

Q1 – Complete the **attributes type**s of Book and Read entities (5 points)
Q2 – Complete the **relation** between the Book and Reader entities (5 points)

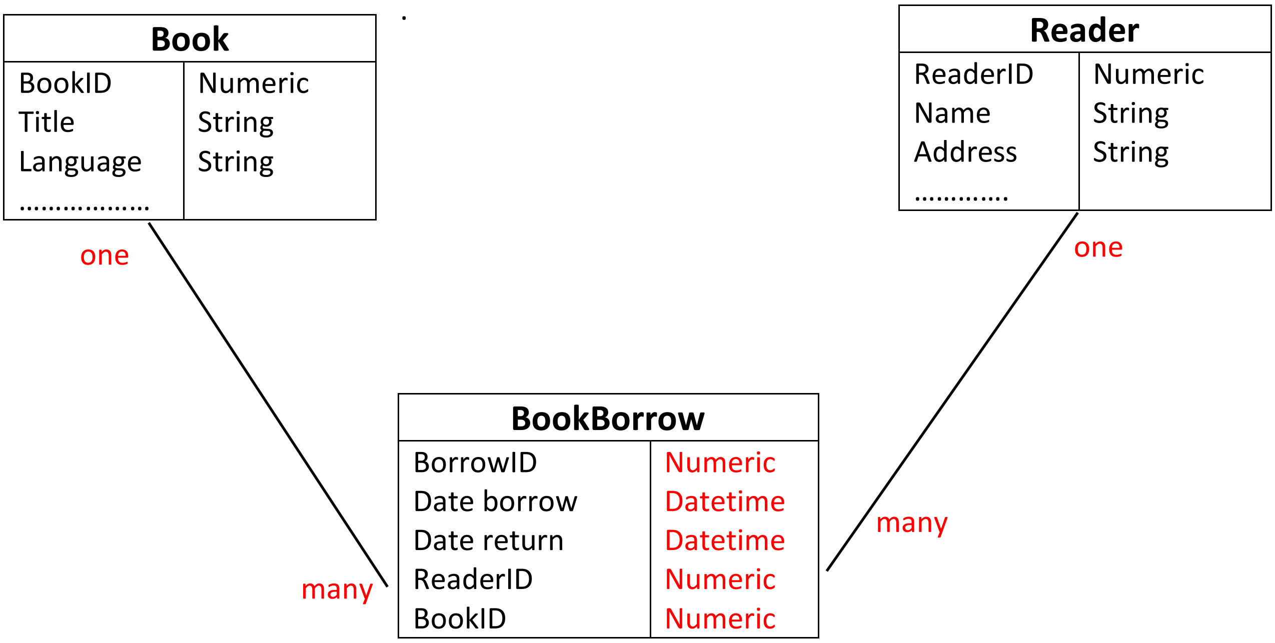


Book	
BookID	numeric
Title	string
Publishment date	datetime
Language	string

Reader	
ReaderID	numeric
Name	string
Class	string
Address	string

Q3 – We have created an **additional Associative table** to manage the previous relation between Book and Reader

- ⇨ Complete the missing parts!



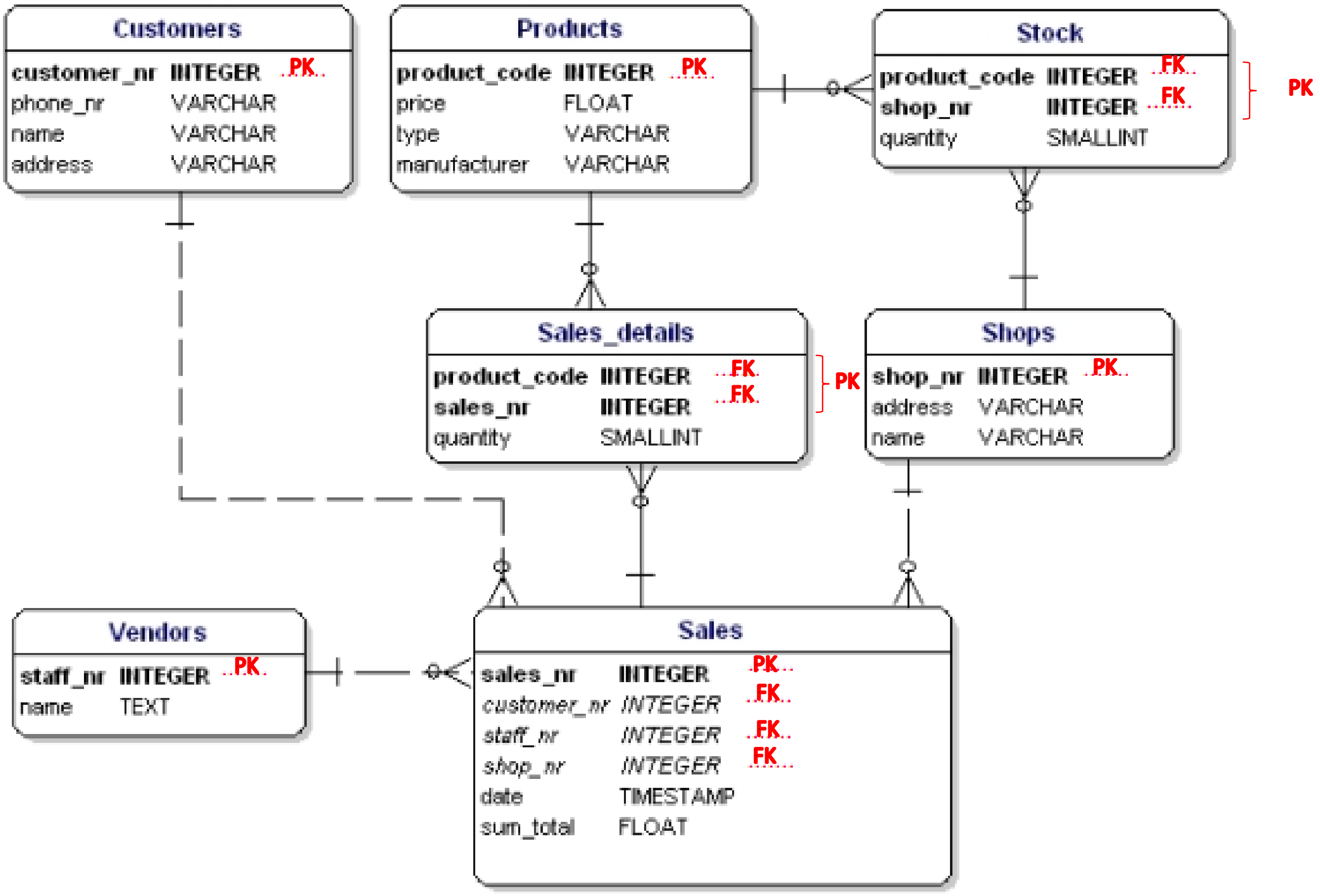
Book	
BookID	Numeric
Title	String
Language	String
………………	

Reader	
ReaderID	Numeric
Name	String
Address	String
………….	

BookBorrow	
BorrowID	Numeric
Date borrow	Datetime
Date return	Datetime
ReaderID	Numeric
BookID	Numeric

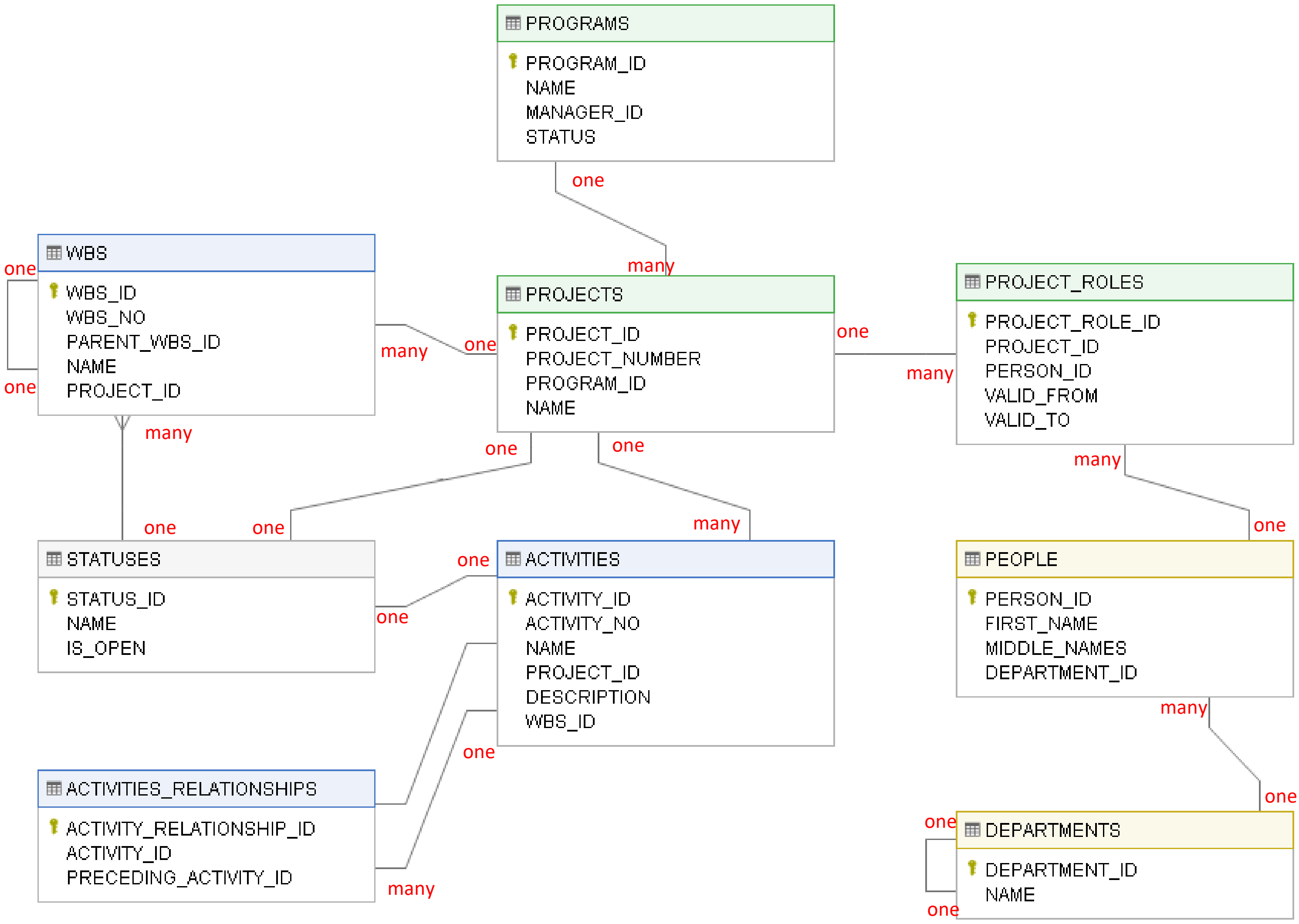
Exercise 2

Q1: complete the missing part of a model diagram below with PK as primary or FK foreign key.



Exercise 3

Q1: Complete the relation between each entity on the database relation model. Take for example the relation between **PROGRAMS** and **PROJECTS.**



Exercise 4: Google Classroom database

Google Classroom is the tool used to manage PNC classes, where the teacher can assign homework to the students of different classes.

Part 1: Data types

Q1: Complete the attributes types in the following tables

User	
user ID	**Numeric**
email	**String**
password	**String**
name	**String**
role	**String**

Classroom	
classroom ID	**Numeric**
name	**String**
section	**Numeric**
subject	**String**

Assignment	
assignment ID	**Numeric**
title	**String**
description	**String**
deadline	**Datetime**

Comment	
comment ID	**Numeric**
content	**String**
user ID	**Numeric**
assignment ID	**Numeric**

Part 2: Relation between the entities

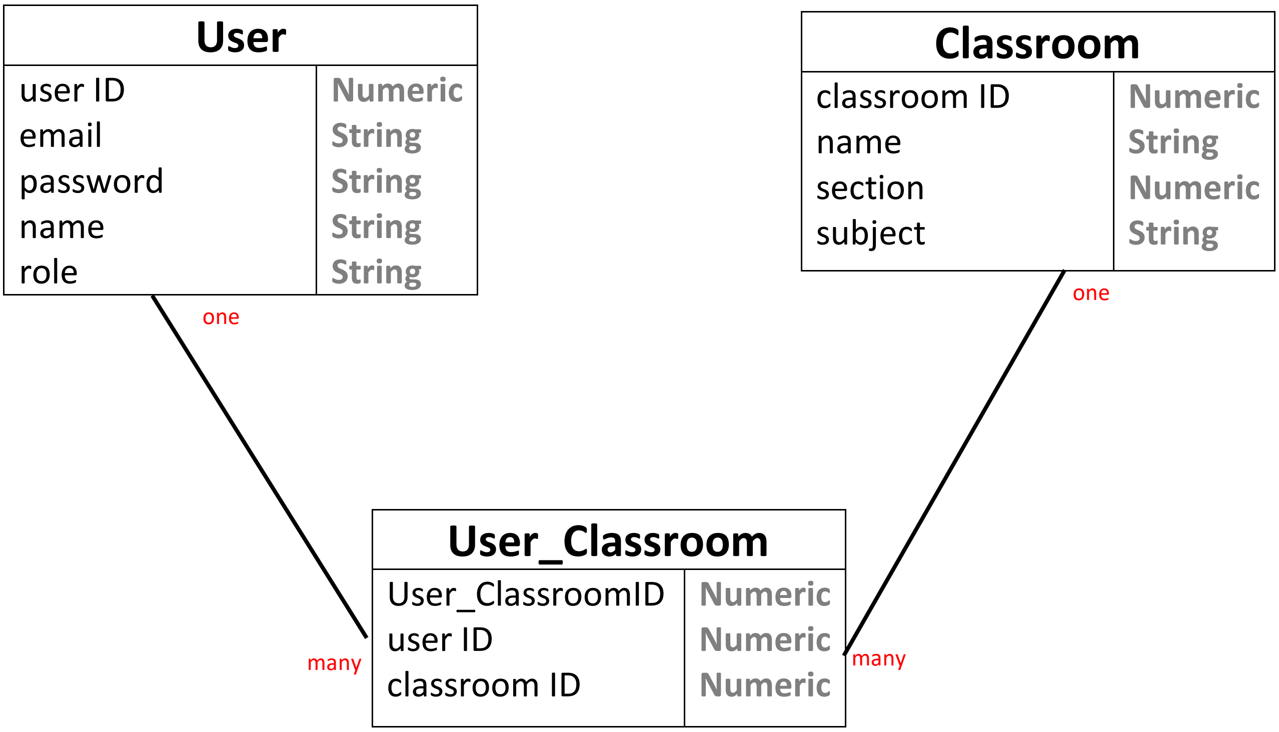
Here are some observations that can help us design the Google Classroom database:

- A user can create many classrooms as teacher
- A user can join many classrooms as student
- A classroom can have many teachers
- A classroom can have many students
- A teacher can post many assignments in a classroom
- A assignment post can have many comments from students or teachers

Note: **ERD** =Entity relation diagram

Q1: USER and **CLASSROOM**

1. Type of relation: *one to one, one to many, many to many*?
   The relation between USER and ClASSROOM is many to many. Because a User can have many classroom, and a Classroom can have many users.
2. Do you need to create an intersection table? Why?
   Yes , I do because , an intersection table can manage relation many to many effectively.
3. Create the ERD representing to represent those 2 entities and their relation



User	
user ID	Numeric
email	String
password	String
name	String
role	String

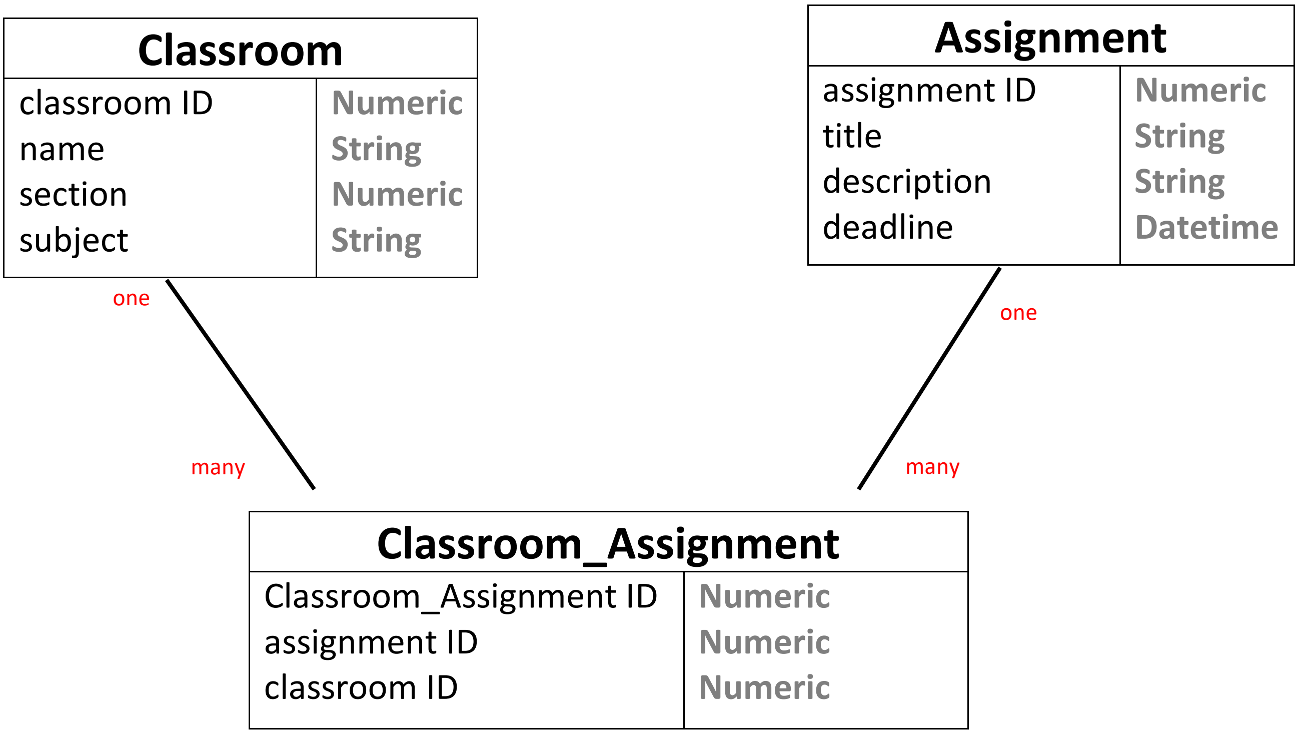
Classroom	
classroom ID	Numeric
name	String
section	Numeric
subject	String

User_Classroom	
User_ClassroomID	Numeric
user ID	Numeric
classroom ID	Numeric

Q2: CLASSROOM and **ASSIGNEMENT**

1. Type of relation: *one to one, one to many, many to many?*
   The relation between ClASSROOM and ASSIGNMENT is many to many. One Classroom can give many assignment. And one assignment can be given to different Classrooms.
2. Do you need to create an intersection table or not? Why?
   Yes , I do because , an intersection table can manage relation many to many effectively.

3. Update the previous ERD to represent those 2 entities and their relation



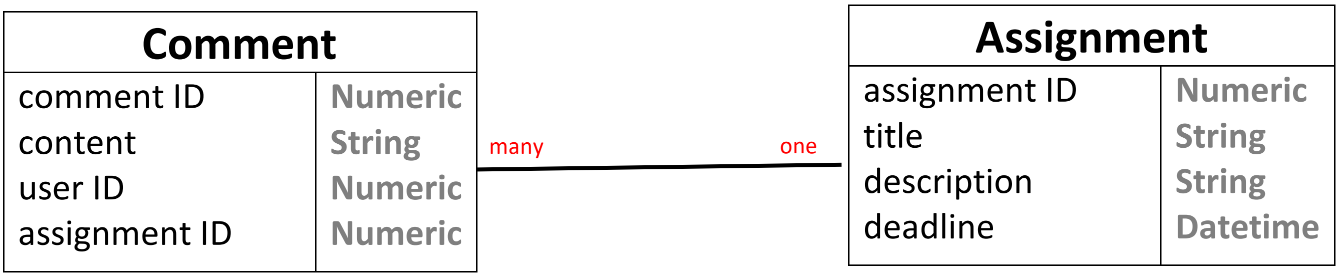
Classroom	
classroom ID	Numeric
name	String
section	Numeric
subject	String

Assignment	
assignment ID	Numeric
title	String
description	String
deadline	Datetime

Classroom_Assignment	
Classroom_Assignment ID	Numeric
assignment ID	Numeric
classroom ID	Numeric

Q3: **COMMNENT** and **ASSIGNEMENT**

1. Type of relation: *one to one, one to many, many to many*
   The relation between COMMENT and ASSIGNMENT is one to many. Indeed, you can have many Comments on one Assignment, but one comment belongs to one assignment.
2. Do you need to create an intersection table or not? Why?
   No I do not because the relation is one to many, so no need to create intersection table.
3. Update the previous ERD to represent those 2 entities and their relation



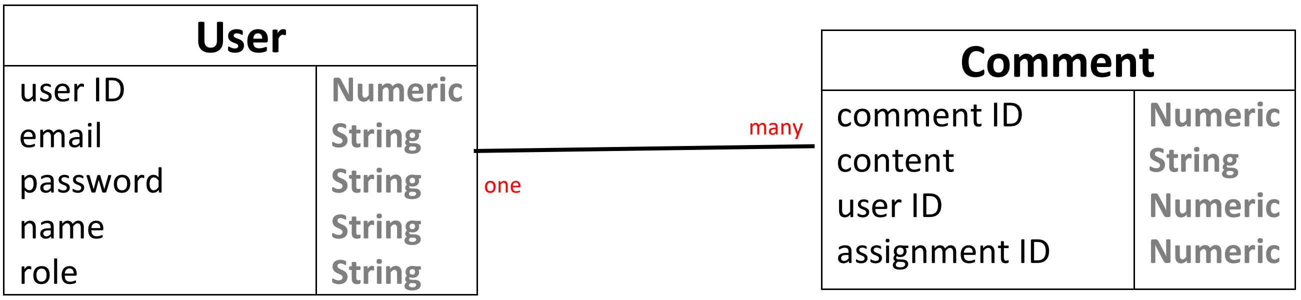
Comment	
comment ID	Numeric
content	String
user ID	Numeric
assignment ID	Numeric

Assignment	
assignment ID	Numeric
title	String
description	String
deadline	Datetime

Q4: **COMMNENT** and **USER**

1. Type of relation: *one to one, one to many, many to many?*
   The relation between COMMENT and User is one to many. Indeed, a User can make many comments, but one comment is made only by one user.
2. Do you need to create an intersection table or not? Why?
   No I do not because the relation is one to many, so no need to create intersection table.

3. Update the previous ERD to represent those 2 entities and their relation



User	
user ID	Numeric
email	String
password	String
name	String
role	String

Comment	
comment ID	Numeric
content	String
user ID	Numeric
assignment ID	Numeric