

Assignment 1

This folder contains multiple files, which are going to be filled by you with the solutions to each assignment. This file describes the tasks you must perform, while the other files are referred to via the tasks described below.

Submission instructions can be found at the end in Task 4.

Remember to follow them closely!

Task 1: Generate an ER/EER diagram

This task concerns itself with generating an ER/EER diagram from a textual context.

For this task, make sure you either open the Task1.drawio file (if you have the offline version of draw.io), or download your diagram and override the Task1.drawio file. If you are using other tools, make sure you export it into a commonly readable format such as PNG, JPG, or PDF, and call the file Task1 when done.

The text below is the output of an interview. This is the only documentation you have, so if something is unclear, you will have to make the decision on how to understand it. If you have had one of these situations, you can make a note in the diagram explaining your reasoning.

You are allowed to describe identifying relationships and weak entities with a thick border (I recommend 4pt), just as was done in Task 2 below.

Interview results

You've been contracted as the database designer for an airline company. They want you to design a database which is able to handle large amounts of requests and therefore has to be normalized. The first step they want you to take is to design an E/R diagram to help their developers visualize the database. They have set the following demands:

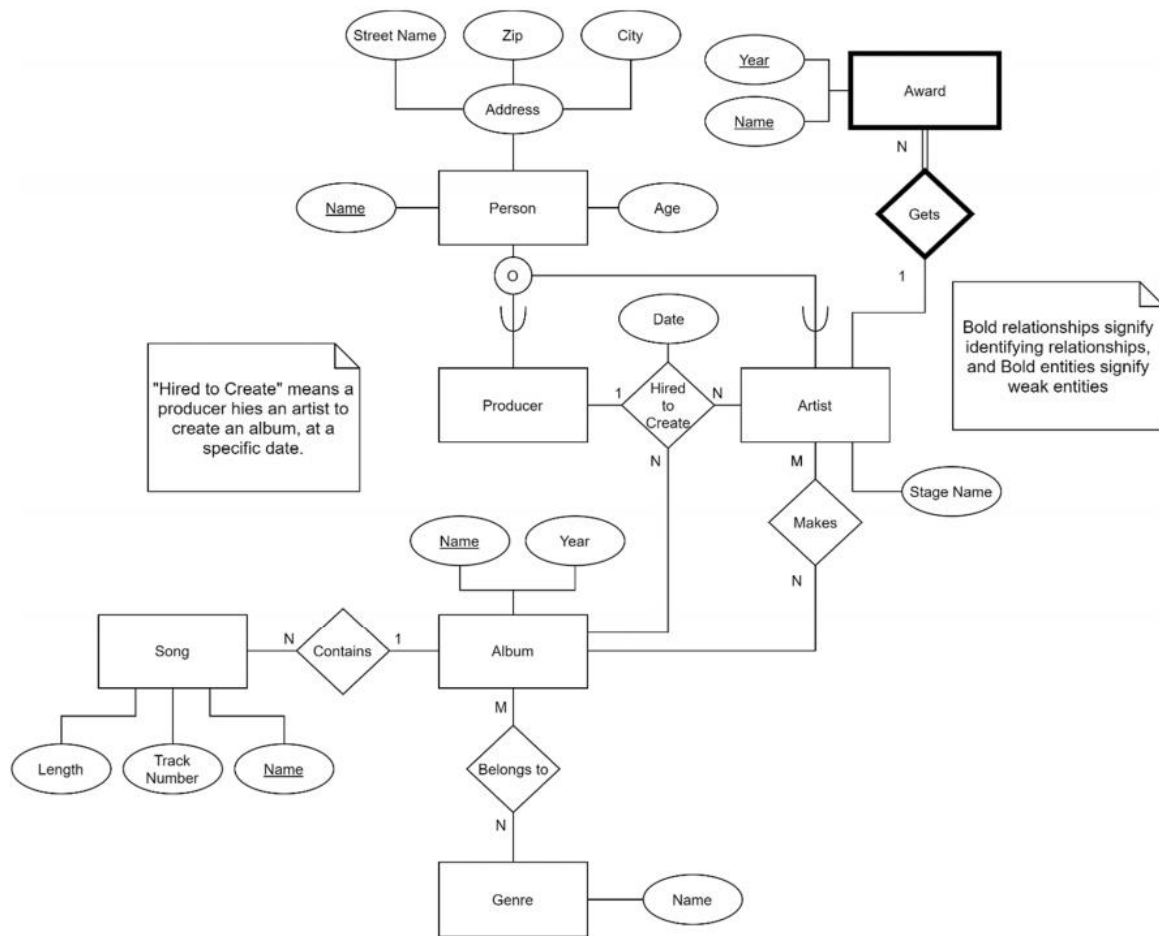
- Customers should have a first name, last name, email, phone number and an address
- Employees should have a first name, last name, work email, work phone and a representation of their role within the company (e.g. pilot, stewardess, cook, etc.)
- Tickets should have a price
- Flights should have origin, destination, departure time, arrival time, number of seats on the flight and number of seats left (e.g. number of seats minus number of bought tickets for the flight)
- Flights should have a crew (e.g. employees assigned a flight)
- Customers should be able to buy a ticket

Task 2: Map the following ER/EER diagram to tables (SQL)

This task concerns itself with moving from an ER/EER diagram, to an SQL implementation, by mapping the ER/EER diagram to tables. You only need to create the table and the relationships, NOT the data that goes into each table.

The output of Task 2 should be saved in the Task2.sql file. Either open the Task2.sql file directly and save to that file using your editor (default pgAdmin) or copy your code from pgAdmin into the Task2.sql file. If you choose to copy it, then copy it often to make sure you do not lose your work. If you choose to copy the content back and forth, a SQL file can be opened with notepad if you don't have any editor installed that supports it. If you would like to explain your choices, please do so as

SQL comments. Be aware you might need to add your own keys, or a key in the EER diagram isn't the best choice for a primary key when mapping.



Task 3: Normalize the data in the dataset with SQL (tables) as output

This task concerns itself with normalizing a given dataset to tables in SQL and making a query within the normalized tables.

The output of Task 3 should be saved in the Task3.sql file. Either open the Task3.sql file directly and save to that file using your editor (default pgAdmin) or copy your code from pgAdmin into the Task3.sql file. If you choose to copy it, then copy it often to make sure you do not lose your work. If you choose to copy the content back and forth, a SQL file can be opened with notepad if you don't have any editor installed that supports it. If you would like to explain your choices, please do so as SQL comments.

- Normalize the dataset found in "Task3_Data.xlsx" or as a png in "Task3_Data.png", that was contained in the zip file where this document was also found, to **fourth normal form**.
- Create the tables and data in SQL in Task3.sql.
- Make a query, that outputs all participant names, that have sally as their instructor and pay more than 150 kr. Per month.

Task 4: Submission

To submit the assignment, make sure you have a folder containing the following files:

- Task1.drawio (alternatively a file called Task1.jpg, Task1.png, or Task1.pdf)
- Task2.sql
- Task3.sql

Check each file has your work contained within, and then Zip the file. Now rename the file to your SDU username, such as abcd12.zip. After these steps are complete, go to the assignment location from where you downloaded the counting activity, and upload the zip file. For your own security, please also try and download the file again and unzip it to verify the version stored on the server works as intended.