DATA604 Assignment 1

1. List the names of the entity tables. Do not include the tables: Num, Tests and Scores (20 points).
   Entities:
   Suppliers, Employees, Ships, Shippers, Products, Orders, Product Categories, Certifications.

2. Let us assume that the HR Director is a super fan of a popular zombie apocalypse themed show on TV and takes it too seriously. He has established new procedures that employees are required to get certified annually in neutralizing zombie threats. He wants to track this certification process in the TSQLV4 database which contains the employee data. The data the director requires includes:

- certification for each employee,
- date of certification achievement,
- annual renewal date, and
- training hours.

The table is created by the name **HR.Certificates.**

a) Provide a diagram showing a database that:

1) New or revised tables that need to be created, normalize to at least third normal form (5 pts)
   Before Normalisation:

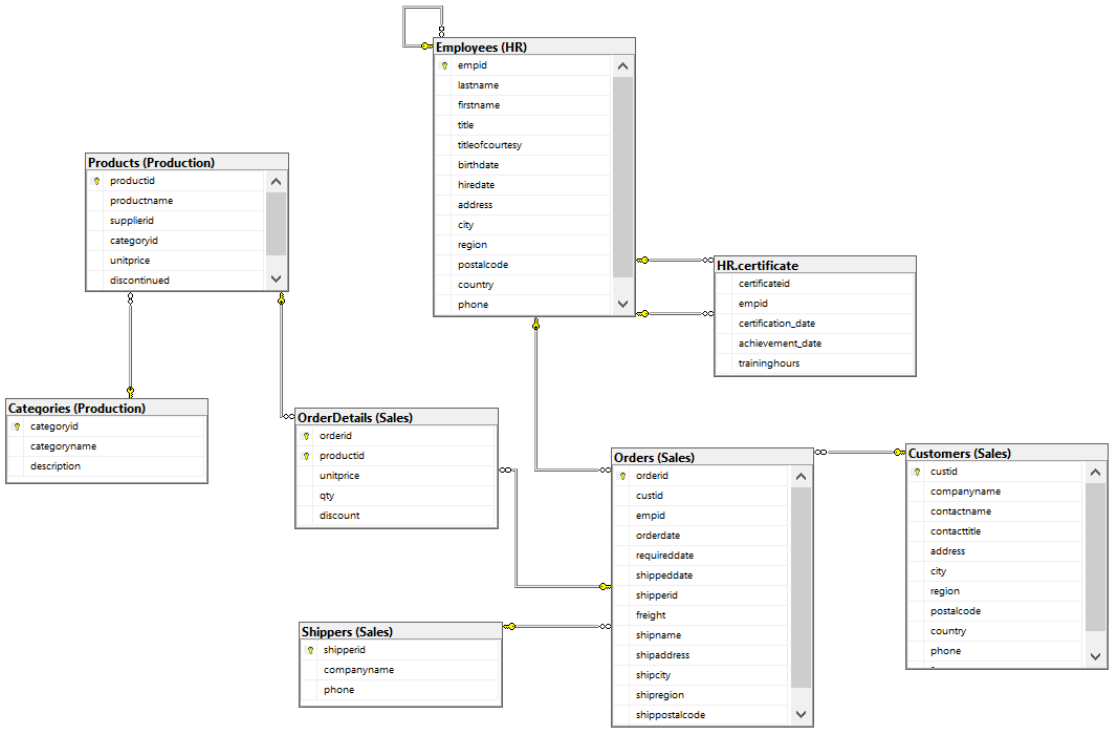


Figure 1: Filename: DatabaseDiagramUnNormalised

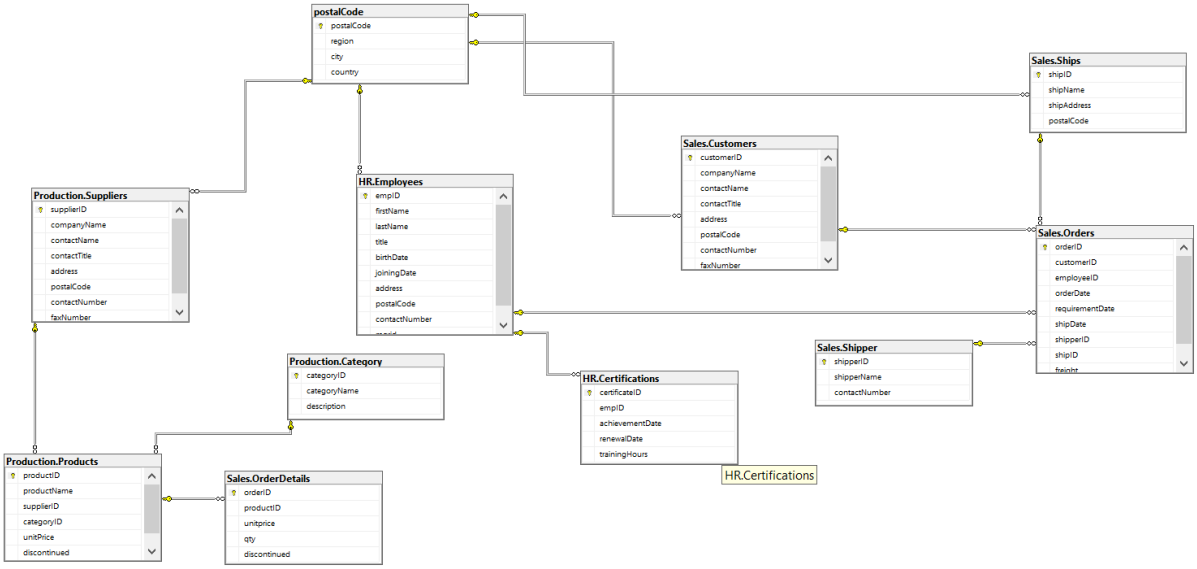


Figure 2Filename: DatabaseDiagramNormalised

2) Existing tables that have a relationship with the new tables (5 pts)

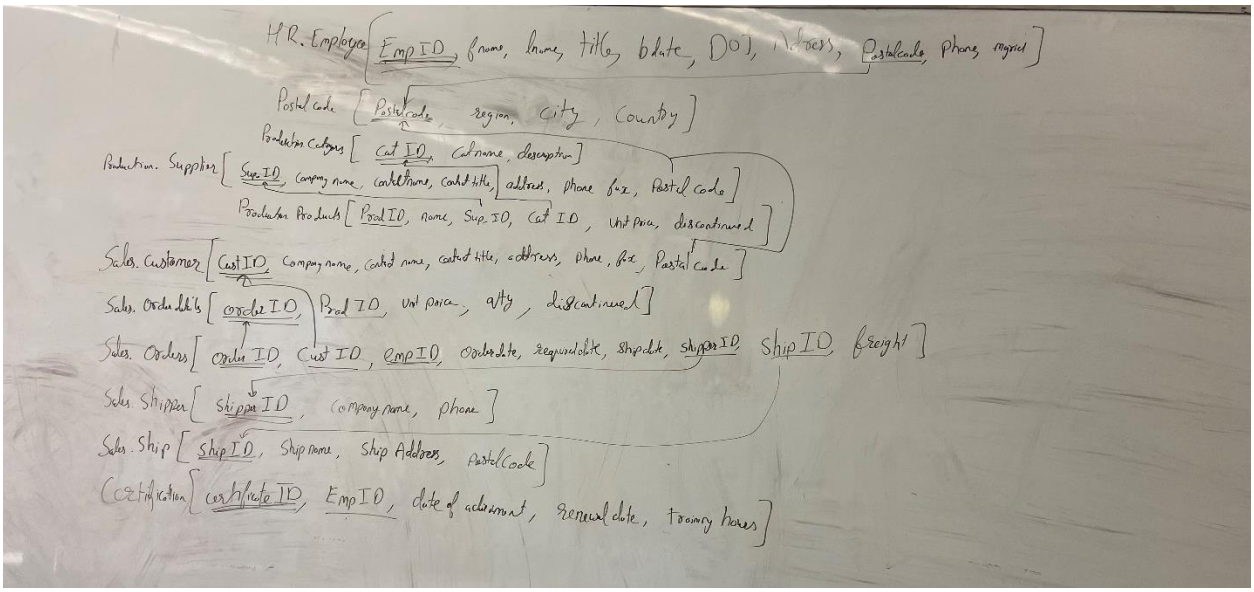


Figure 3 Filename: IMG-3314.jpg

3) show data types for each new data field(5 pts)

Column Name	Data Type	Allow Nulls
certificateID	int	☐
empID	int	☐
achievementDate	date	☐
renewalDate	date	☐
trainingHours	float	☐

Figure 4 HR.Certicates

Column Name	Data Type	Allow Nulls
empID	int	☐
firstName	varchar(50)	☐
lastName	varchar(50)	☐
title	varchar(50)	☐
birthDate	date	☐
joiningDate	date	☐
address	varchar(MAX)	☐
postalCode	int	☐
contactNumber	int	☐
mgrid	int	☐

Figure 5 HR.Employees

Column Name	Data Type	Allow Nulls
postalCode	int	☐
region	varchar(50)	☐
city	varchar(50)	☐
country	varchar(50)	☐

Figure 6 postalCode

Column Name	Data Type	Allow Nulls
categoryID	int	☐
categoryName	varchar(50)	☐
description	varchar(MAX)	☐

Figure 7 Production.Categories

	Column Name	Data Type	Allow Nulls
🔑	productID	int	☐
	productName	varchar(50)	☐
	supplierID	int	☐
	categoryID	int	☐
	unitPrice	float	☐
	discontinued	int	☐

Figure 8 Production.Products

	Column Name	Data Type	Allow Nulls
🔑	supplierID	int	☐
	companyName	varchar(50)	☐
	contactName	varchar(50)	☐
	contactTitle	varchar(50)	☐
	address	varchar(MAX)	☐
	postalCode	int	☐
	contactNumber	int	☐
	faxNumber	int	☐

Figure 9 Produciton.Suppliers

	Column Name	Data Type	Allow Nulls
🔑	customerID	int	☐
	companyName	varchar(50)	☐
	contactName	varchar(50)	☐
	contactTitle	varchar(50)	☐
	address	varchar(MAX)	☐
	postalCode	int	☐
	contactNumber	int	☐
	faxNumber	int	☐

Figure 10 Sales.Customers

Column Name	Data Type	Allow Nulls
orderID	int	☐
productID	int	☐
unitprice	float	☐
qty	int	☐
discontinued	int	☐

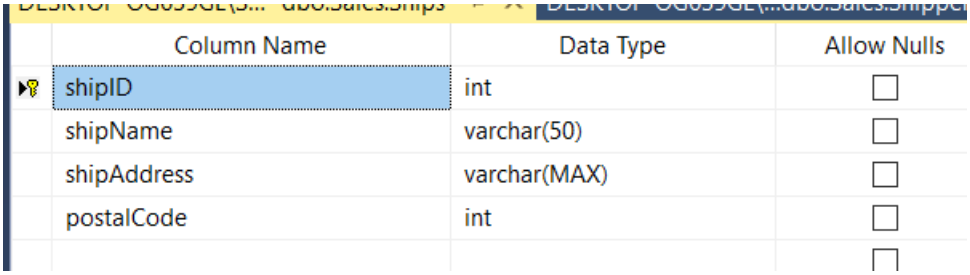
Figure 11 Sales.OrderDetails

Column Name	Data Type	Allow Nulls
orderID	int	☐
customerID	int	☐
employeeID	int	☐
orderDate	date	☐
requirementDate	date	☐
shipDate	date	☐
shipperID	int	☐
shipID	int	☐
freight	float	☐

Figure 12 Sales.Orders

Column Name	Data Type	Allow Nulls
shipperID	int	☐
shipperName	varchar(50)	☐
contactNumber	int	☐
		☐

Figure 13 Sales.Shippers



Column Name	Data Type	Allow Nulls
shipID	int	☐
shipName	varchar(50)	☐
shipAddress	varchar(MAX)	☐
postalCode	int	☐
		☐

Figure 14 Sales.Ships

4) label the relationships and cardinality between the new tables and existing tables (5 pts). You may use Crow notation, Chen notation or just write it out (e.g. optional zero to many, mandatory one to many, etc) Show the degree - binary, unary or ternary of the relationships (5 pts)

Degree: One
Employees - Employees: Optional One-Many

Degree: Two
Employees - Certification: Mandatory One-Many
Employees - Orders: Optional One-Many
Suppliers - Products: Optional Many-Many
Orders - Products: Mandatory One - Many
Category - Products: Mandatory One - Many
Orders - Shippers: Optional Many - One
Orders - Ships: Optional Many - One
Employees - postalCode: Mandatory One - One
Suppliers - postalCode: Mandatory One - One
Customers - postalCode: Mandatory One - One
Shippers - postalCode: Mandatory One - One
Ships - postalCode: Mandatory One - One

Degree: Three
Orders - Ships - Shippers

Suppliers - Categories - Products

Degree: Four
Customer - Ships - Shippers - Orders

Degree: Five
postalCode - Employees - Ships - Shippers - Suppliers

b) Create the new database table (s) in your physical database. (30 points)
The database is created by the name **TSQLV4-2.1AfterNormalisation,** the file is attached in the submission.

c) Perform a backup of the database, zip the backup file, document with answers to 1, and diagram, then submit to instructor using Blackboard. (20 points)
The folder **DatabaseAss-1.zip** is attached which contains the database before and after Normalization.