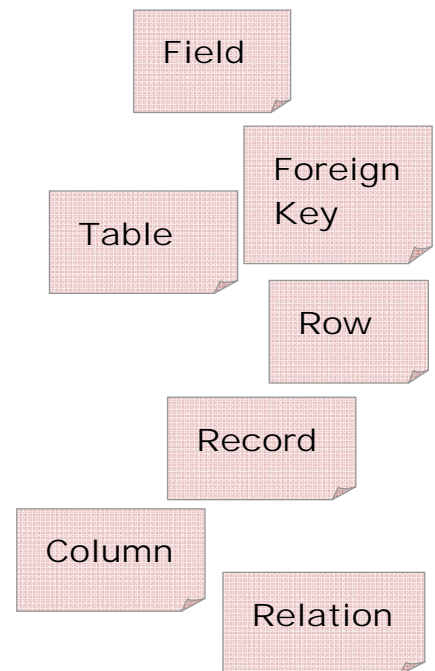


TUTORIAL 2: Designing database tables

Question 1

Feature in data model	Representation in RDBMS
Class (or entity)	
Attribute	
Object	
Relationship	

Copy this table and fill in the blank boxes using the correct words from the notes on the right - some boxes have more than one correct answer.



Question 2

Here are some examples of items of data you might find in a database table. Decide which data type makes the most sense for each one. Some of the descriptions of the data have been left for you to think about – for example, what is the form of a UK postcode?

Field name	Description	Example	Data type
price	The price of an item	£23.54	Currency
postcode		KA15 6TF	
comments		A long, rambling comment	
quantity	Number of items in a purchase order		
gender	One character, M or F		
phoneNumber		01413313000	
dateOfBirth		01/03/1987	
photograph	A bitmap image		
appointment	Time and day		
lastName		Brown	
taxRate		4.65%	
atomicWeight	A very precise scientific measurement	28.0855	
customerID	A value guaranteed to be unique		
completed	Yes or No		

SOME SQL DATA TYPES

`nvarchar(size)`

`ntext`

`int`

`bigint`

`float`

`numeric(p, s)`

`datetime`

`money`

`bit`

`image`

`IDENTITY`

Question 3

Decide whether or not the following data items should be defined as **NOT NULL** – give reasons for your decisions. In each case, consider whether any additional **constraints** or **default values** might help to make sure that the data stored is valid.

- gender** in a *Persons* table
- discount** in a *Products* table (the value should be a percentage)
- dayOfWeek** in a *Shifts* table work schedule database
- email** in a *Persons* table
- category** in a *DVDs* table
- title** in a *Books* table
- returnDate** in a *Loans* table in a library database
- returned** in a *Loans* table in a library database
- numberOfSides** in a *Shapes* table
- advisor** in a *Students* table
- rating** in a *Responses* table in a survey database

Question 4

Identify a suitable primary key for each of the following tables. In each case, write down a row of new data which would be **allowed** by your choice of primary key, and a row which would **not** be allowed.

Persons			
firstname	lastname	email	jobtitle
John	Smith	jsmith@example.com	manager
Sue	Wilson	swilson@example.com	manager
Muhammad	Rafiq	mrafiq@example.com	engineer
Jane	Lee		engineer
Sue	Wilson	swilson2@example.com	administrator
Tim	Jones	tjones@example.com	administrator

Hotels			
hotelName	town	address	rating
Holiday Lodge	Worcester	1 First Street	3
Sea View Hote	Morecambe	2 Second Street	2
Northern Star	Aberdeen	3 Third Street	3
Best Eastern	Perth	4 Fourth Street	4
Holiday Lodge	Perth	5 Fifth Street	3
Best Eastern	Aberdeen	6 Sixth Street	5

Bookings			
roomNumber	bookingDate	rate	customer
12	12/10/2007	£45.00	23
11	16/10/2007	£45.00	9
12	13/10/2007	£45.00	25
12	14/10/2007	£45.00	25
12	15/10/2007	£45.00	25
7	13/10/2007	£65.00	9
7	17/10/2007	£55.00	23
7	18/10/2007	£55.00	23

Accounts				
accountNun	accountType	customerID	branchID	balance
00665544	current	4	99-10-65	£345.00
00665549	current	6	99-10-65	-£20.50
00665551	savings	4	99-10-65	£1,200.00
00665557	savings	10	99-10-67	£2,500.00
00665559	current	12	99-10-67	£12.76