# Worksheet 1 Entity relationship modelling Answers

**Task 1: Entity relationship diagrams**

# 1. What is an entity in the context of databases?

#  A category of person , object, event or thing of interest about which data is held

#  (NOT “an entity is a person or thing about which data is held ” – this is an instance of an entity. Such a definition won’t get any marks in an exam!)

# 2. The relationship between two entities may be one of three types, or degrees.

#  What are the three degrees of relationship between entities?

#  One-to-One

#  One-to-Many

#  Many-to-Many

# 3. Draw entity relationship diagrams for each of the following pairs of related entities:

 (a) Dentist and patient

Dentist

Patient

 (b) Student and teacher

Student

Teacher

 (c) UK citizen and UK Passport

UK Citizen

Passport

 (d) Product and component

Product

Component

4. A company makes a range of kitchen utensils which they sell online. They record details of their customers, products and orders received in a database. An order may be for several products.

 Complete the E-R diagram to show all the relationships between all the entities.

Customer

Product

Order

OrderLine

Note that the diagram above shows relationships such as:

* a many-to-many relationship between Customer and Product, indicating that a Customer may buy many products and a particular product may be bought by many customers
* a one-to-many relationship between Customer and OrderLine, indicating that a customer may have several order lines which relate to them, and a particular order line in an order can only relate to a single customer

These relationships cannot all be implemented in a normalised database, and they do not need to be. The relationships between the entities represented by database tables will be as shown below.

Customer

Product

Order

OrderLine

5. Complete the design of the order form shown below. Enter some data for a sample order for 3 different products.

 Line Qty Product code Description Unit price Total price

 Total :

KitchenTools Ltd

(address)

Order number:

Date:

(Customer details)

On your order form, what are the primary key fields of the entities Customer, Product, Order, OrderLine?

Customer: Customer Number/ID

Product: Product code

Order: Order Number

Order line: OrderNumber + Line (This is a **composite key**, i.e. a key consisting of more than one attribute.)