The PC Land Case Study

The PC Land has been in operation for just six months and looks set to be a successful business. PC Land is a retail outlet which offers computer equipment at very competitive prices. The shop is sited in a locality which ensures consistently high sales.

Products fall into three categories: Personal Computer, Laptop and Printer. The shop also stocks accessory items such as USB drives, web cams, printer cartridges, cables, plugs, adapters etc. Products can be described in terms of processor speed, memory capacity, size of hard disk, price, speed of DVD drive, screen size and colour.

Since the shop is small - it is staffed by five sales staff and has two managers - it is crucial that only those products which can be sold quickly are stocked. It is the job of one of the managers, Dave Tindall, to oversee the ordering and stocking of product items. What Dave requires is the ability to monitor the sales of given products.

The sales staff work on a commission basis which is calculated by adding the number of sales made for the day and multiplying by two.

In view of the fact that the shop has been so busy meeting the high level of sales, as this is what earns money, they have neglected to develop an adequate internal system for monitoring the products. Ideally Dave would like to be able to have a system which could very easily provide him with answers to both product information queries and also queries about the sales process itself.

Some of the product information queries could be as follows:

- what PC models have a speed of at least 150.
- find the model number and price of all products (of any type) made by 'Acer'.
- find the model numbers of all colour laser printers.

Some of the sales process queries could be:

- details of sales that are handled by an individual sales person.
- list of printers which have been sold on a particular day.

- details of the purchases a particular customer has made.

Since the shop has not been running long, there are only a few mechanisms in place. The Sales Form shown below is one of them.

PC Land

Sale number: 0057435

Sale date: 07-August-2017

Customer number: 238790   **Sales-id: 633**

Customer name: Peter Minter   **Sales person: James Hart**

Model number	Product type	Unit price	Sale quantity	Line total
T5060	Laptop	500	2	£1000
PT42	printer	250	1	£250
QZE248	printer	200	1	£200

Sale total: £1450

Sales Schema

Customer (customerid, fullname, email, address, telephone, postcode)

Product (modelcode, cpuspeed, memorycapacity, colour, brand, price, stockquantity)

Sale (saleid, salespersonname, dateofsale, totalprice, customerid*)

Saledetail (saledetailid, salequantity, linetotal, modelcode*, saleid*)

Rating(modelcode*, customerid*, ratingdate, ratingstars)

Product information queries

Q1. what PC models have a speed of at least 150.

Q2. find the model number and price of all products (of any type) made by 'Acer'.

Q3. find the model numbers of all products that are white and have a memory capacity of at least 10

Sales process queries

Q4. details of sales that are handled by an individual sales person

Q5. list of printers which have been sold on a particular day

Q6. details of the purchases a particular customer has made.

Additional queries

Q7. The codes of all products manufactured by Acer in stock in ascending order of price.

Q8. The non-duplicate codes of all products with at least 1 rating of 3 or more stars.

Q9. For all products, their code, average star rating and the most recent rating date. The results should be in descending order of average star rating.

Q10. For all cases in which the same customer rated the same product more than once, and in some point in time gave it a lower rating than *before*, return the customer name, code of product and the lowest star rating that was given.