Database Design & Development: Revision Questions 4

1. Inverdon Insurance has several branches throughout the country, each with several salespersons. A sales recording system has been set up using a relational database. The data is held in the following tables.

Branch	Customer	Sale	Salesperson
Branch number	Customer number	Customer number*	Sales ID
Address	Customer name	Sales ID*	Sales name
Telephone number	Customer address	Date	Branch number*
	Customer telephone	Amount	

(a) Draw an *entity relationship diagram* to represent this data model.   6

Each month a report is produced to show the sales for each salesperson. The report for salesperson D Wilson for May is shown below:

Date	Customer	Amount
07/05/07	AcmeArtefacts	£450.00
08/05/07	Deco Designs	£250.00
15/05/07	Allied National	£1258.75
...	...	...
...	...	...
31/05/07	Logotek	£216.34
	Total	**£5237.11**

(b) Name the tables and fields which would be used to produce this report.   5

(c) State the aggregate function used to calculate the total for this saleperson.   1

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2. A hardware company uses a relational database with the four tables shown below.

Customer	Item	Order	Sale
Customer ID	*Item ID*	*Order no*	Order no *
Customer name	Description	Customer ID *	Item ID *
Customer address	Cost	Date	Quantity
Customer email	Image		

A report is produced each time a customer makes an order including a single total of £146·97 after the four subtotals. An example is shown below.

Customer	Mr D Gryffe	Order no	10728
	12 Gourock Crescent	Date	23/4/15

Item	Number ordered	Cost
Grease spray	1	£6·99
Bell wire (100m)	1	£8·50
Towel radiator	1	£121·50
Disposable mouse trap	2	£9·98
	Total	£146·97

(a) Write an SQL operation used to select the tables, fields and search criteria required to generate the report above. 3

(b) Write the SQL SELECT operation which creates the Total using an aggregate function and alias. 2

3. Supasonic Electronics uses a database to store order details. The data is stored in a table using the primary key and fields as shown below.

Customer No
Customer Name
Customer Address
Order Date
Item No
Description
Price (£)
Quantity

(a) Write an SQL operation which would use a computed value and alias to calculate the total for each item ordered. 2

(b) Write an SQL operation which would use an aggregate function to calculate the total bill for each sale. 2

4. A programmer decides to build a social media website. Users of the site will be able to post messages and attach media files.

   A table called Messages is used to store the user messages. Some sample records from the Message table are shown below.

messageID	comment	Date	username	media
309881	Great concert last night at Glasgow Barrowlands.	03/04/2018	adasmith	30981concert.jpg
309882	Beautiful sunny day in Dundee – again!	03/04/2018	kezzam	30982sky.jpg
309884	Who will win the match tonight?	04/04/2018	aliceb	
309885	Heading home for tea!	05/04/2018	adasmith	
309886	Disappointing result yesterday :(	05/04/2018	aliceb	30986score.jpg

   Write an SQL query to total the number of messages made by each user. The query should display the username and the total number of messages made.   3

5. A PlayList table is used to store details of all playlists created by Radio Lowden and details of each song are stored in a separate table called Song. These tables are part of a relational database.

   Sample data for the PlayList and Song tables are shown.

Attribute	Sample
ProgrammeID	1
SongID	A34213
DatePlayed	27/05/15
TimePlayed	09:00

PlayList Table

Attribute	Sample
SongID	A34213
Title	Jack & Dee
Artist	Soozie – L
Year	1997

Song Table

   Write the SQL query which will list the title of each song played on 26 May 2016.

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