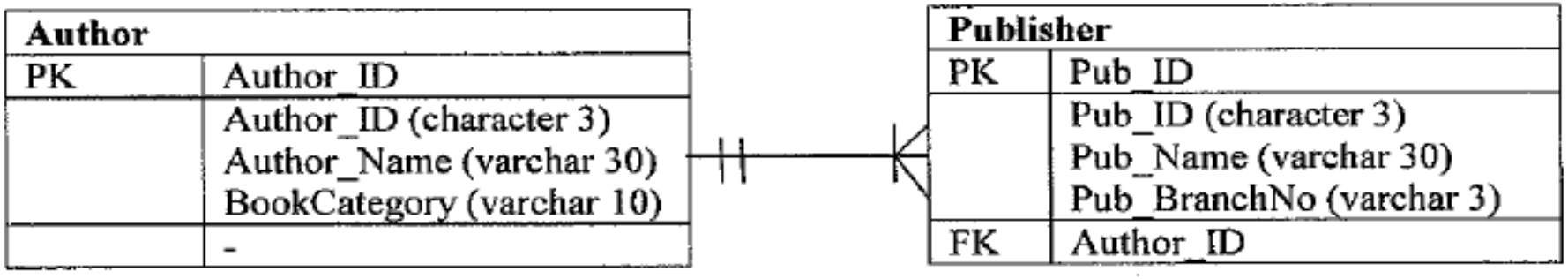
Q4. (a) Refer to the following diagram as part of a BookWorld Publishing Sdn. Bhd. database:



Using the information given above, write the SQL code for:

(i) CREATE TABLE command for Author and Publisher. (7 marks)

(ii) Display the publisher's name and branch for the publisher whose ID = "128". (3 marks)

(iii) Insert a new record into the Author table. The details are as follows:

Author_ID: A08
Author_Name: Alex Tan
BookCategory: Science. (3 marks)

(iv) For each author, show the author ID, author name and the total number of publishers that the author works for. (5 marks)

(v) Change the publisher's branch number "BR03" to "BR05". (3 marks)

Q4. (a) UpTown Megamall is a five-storey shopping mall with 350 shop lots for rent. Their tenants are categorized according to their nature of business such as bookshop, computer hardware and accessories, children merchandises etc. These tenants will be located to the shop lots according to their respective category. All potential tenants must sign a tenancy agreement with the mall's management before moving into the shop lots. The mall maintains its tenants' records and their tenancy data by using database management system which consists of the following relations:

ShopLot (LotNo, RentableArea, LevelNo)
Tenant (TenantNo, Name, ContactNo, CompanyRegistrationNo, *CategoryNo)
TenantCategory (CategoryNo, Description)
TenancyAgreement (AgreementNo, DateOfAgreement, RentStartDate, RentEndDate, *LotNo, *TenantNo, MonthlyRentalAmount, DepositAmount)

Note: You are required to use the aliases for the given tables as follow (where appropriate):

- **s** for ShopLot
- **t** for Tenant
- **c** for TenantCategory
- **a** for TenancyAgreement

Write SQL statements to perform the following tasks:

i. List the details of all shop lots which are located at 'level 3'. (3 marks)

ii. List the details of all tenants whose tenancy category fall under 'sportswear' category. (4 marks)

iii. Calculate the number of tenants whose rental will start in the month of October 2013. Display only "No of Tenant" in the result table. (4 marks)

iv. Calculate total rentable area in each level of the shopping mall. Display only LevelNo and "Total Rentable Area" and sort the result table in ascending order of LevelNo. (5 marks)

v. Upon further negotiation, the management has agreed to reduce the monthly rental amount by 5% and reduce the deposit amount by RM1000 to the tenant whose AgreementNo is 'AgLT105'. The date of agreement is updated to '01/01/2014'. Write an SQL statement to make the necessary modification. (5 marks)

Q4. Figure 2 is an ERD representation of a Library Book Borrowing System.

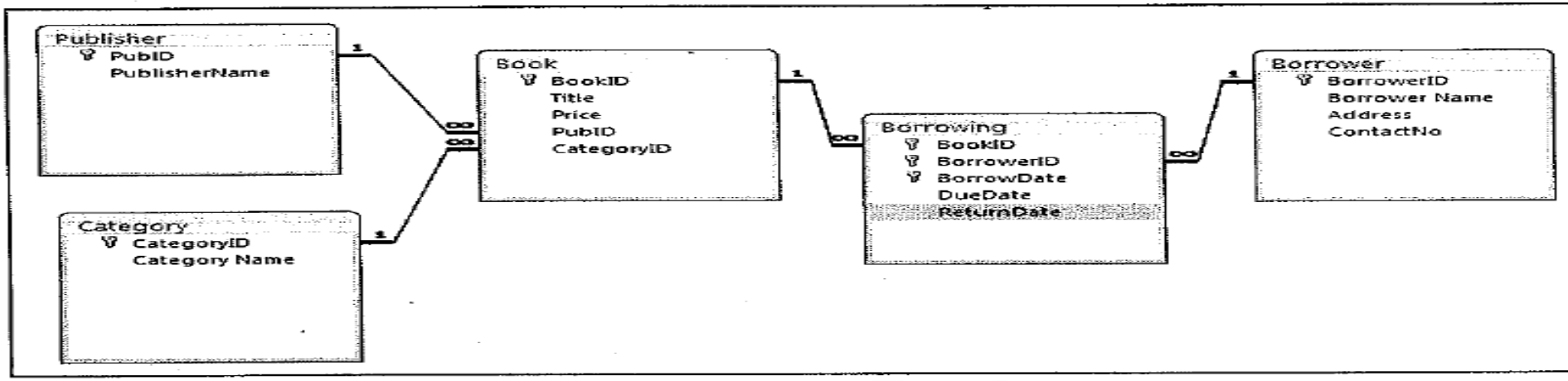


Figure 2

Table 'Borrowing' description:

Attributes	Data Type	Max Size	Remarks
BookID	String	13	Identification code for each book
BorrowerID	String	8	Identification code for each borrower
BorrowDate	Date		Date of book being borrowed
DueDate	Date		Date to return book
ReturnDate	Date		Date when book actually returned

(a) Assume that the **PUBLISHER, CATEGORY, BOOK** and **BORROWER** tables had been created. Write the **DDL** command to create the **BORROWING** table based on the description above. (5 marks)

(b) Write SQL statements to perform the following queries:
[*You may make any logical assumptions about the data types and sizes for the attributes of the tables.*]

(i) List the details of borrowers who are lecturers (Note: BorrowerID that begins with the letters "lec"). (3 marks)

(ii) List the books (display only BookID, Title, PubID) that have been borrowed by BorrowerID "stu3127". (3 marks)

(iii) How many books have been borrowed by BorrowerID "stu5324" in the month of April 2014? Display only the column "Books Borrowed" in the result. (5 marks)

(iv) What is the "Total No. Of Books" for each book category? Display only the categories which have more than 100 books. (5 marks)

(v) The CategoryID for the BookID "TAC113" is changed from "Gen" to "Bus" and the book price is increased by 5%. Write the SQL statement to make the necessary modification. (4 marks)

Q4. The following is a conceptual design of a Hotel Reservation System.

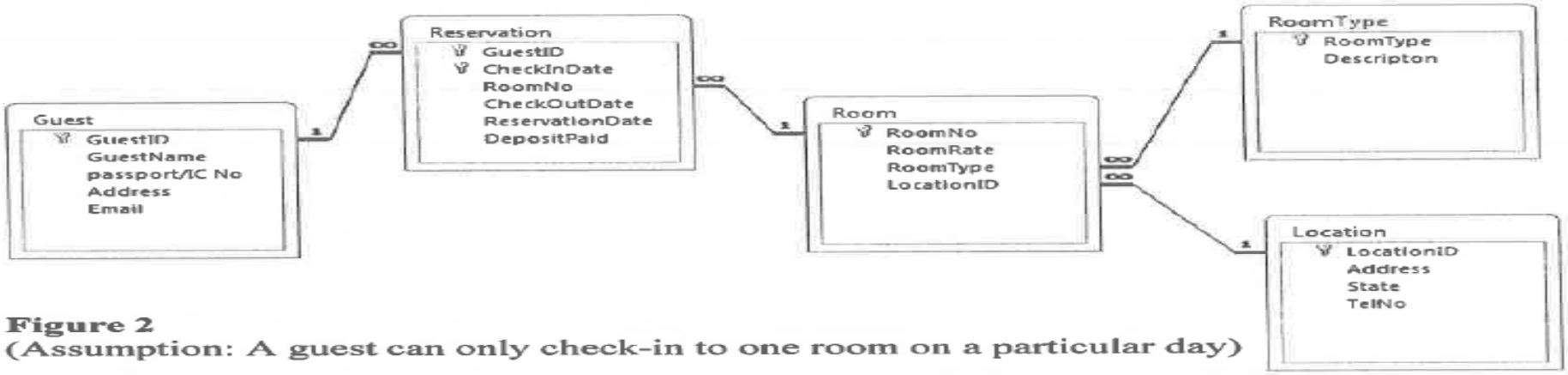


Figure 2
(Assumption: A guest can only check-in to one room on a particular day)

Table 'Reservation' description:

Attributes	Data Type	Max Size	Remarks
GuestID	String	5	Identification code for each guest
RoomNo	String	4	Identification code for each room
CheckInDate	Date		Guest check-in date
CheckOutDate	Date		Guest check-out date
ReservationDate	Date		Date when reservation being made
DepositPaid	Numeric	9999.99	Deposit paid prior to check-in

(a) Assume that the GUEST, ROOM, ROOMTYPE and LOCATION tables had been created. Write the DDL command to create the RESERVATION table as described above. (5 marks)

(b) Write SQL statements for the following:

(i) List the details of all rooms with 'sea view' (room description). (3 marks)

(ii) How many reservations have been made by guests to check-in on 31 August 2015? Display only the column "Total Reservation" in the result. (3 marks)

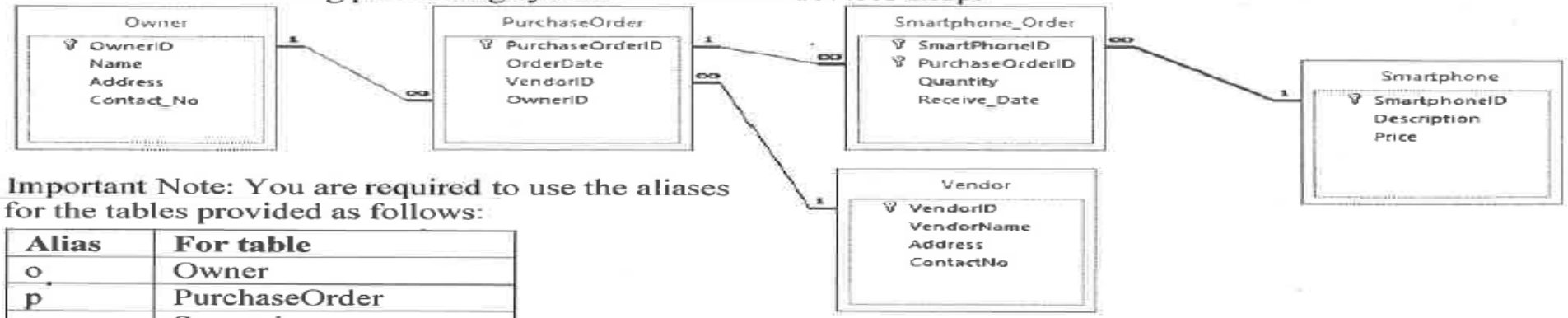
(iii) Calculate the total deposit paid by EACH guest for all the reservations with a check-in date in the month of July 2015. However, list only the guests who have paid more than RM5000.00 in total deposits (labelled as "Total Deposit Collection". (6 marks)

(iv) Room rates for all the rooms located in the state of 'Selangor' are to be increased by 8%. Write an SQL statement to make the necessary modifications. (5 marks)

(v) GuestID 'M331' cancelled his reservation to check-in on 25 July 2015. Write a SQL statement to perform the cancellation. (3 marks)

Question 4

Consider the following purchasing system of a mobile devices shop.



Important Note: You are required to use the aliases for the tables provided as follows:

Alias	For table
o	Owner
p	PurchaseOrder
s	Smartphone
t	Smartphone_Order
v	Vendor

(a) Write the appropriate Data Definition Language (DDL) commands to create the "PurchaseOrder" and "Smartphone_Order" table with appropriate data types. (7 marks)

(b) Write the appropriate Structured Query Language (SQL) statement for the following queries. The query result(s) should **show meaningful information.**

(i) Display the owner's details who processed transaction PurchaseOrderID, 'P101'. (3 marks)

(ii) Display the vendor who will receive the smartphones order on the date '08-AUG-2016'. (*Note: Date format – 'DD-MMM-YYY', e.g. '18-JAN-2016'*) (4 marks)

(iii) The smartphone models with SmartphoneID 'P500' and 'K800' are out of stock and obsolete. Remove them from the database. (3 marks)

(iv) The owner would like to change the quantity ordered for the smartphone model with the SmartphoneID 'A888' to 100 units. (3 marks)

(v) The iPhone 6S model smartphone is very popular now. The owner decided to insert this smartphone model into the smartphone table by defining the SmartphoneID to 'I006', described as 'iPhone 6S model' and the price is four thousand ringgit. (2 marks)

(vi) Add another new Samsung smartphone with the model 'SS7', described as 'Samsung Galaxy S7 edge' and the price is yet to be determined. (2 marks)

(vii) Undo the transaction executed. (1 mark)