Advanced Database Management System Laboratory
Term Work

NOTE: Kindly submit handwritten queries. Convert the handwritten pages in PDF and Submit.

1. CASE STUDY: Student enrolled in Course. Each Student is identified by his Roll_no. A course can have 0 or 100 students. Each Course have Unique Course_no. Students are taught by Faculty. Each faculty have unique Faculty_no.
Draw an ERD and create database for this scenario. While entering the data in the database following constraints must be considered:

Student's Roll_no should be unique and cannot be left blank,
Student's Name cannot be left blank,
Student's Age should not be less than 18 and must not be greater than 36,

Course_no should be unique and cannot be left blank,
Number of students in the course may be 0 to100.
Any columns of the course table cannot be left blank.

Faculty_no should be unique and cannot be left blank,
Faculty_no should be start with MCA01,
Faculty_Qualification can be only MCA, M.Tech or PhD,
Faculty_salary is between 25,000 to 50,000.
You can assume some other attributes of your choice for each table.

2. CASE STUDY: Patient Admitted in Hospital. Each Patient is identified by his P_no. Doctors check Patients. Each Doctor have unique Doct_ID. Hospital has 100 numbers of beds.
Draw an ERD and create database for this scenario.
While entering the data in the database following constraints must be considered:

Patient's P_no should be unique and cannot be left blank,
Patient's Name cannot be left blank,
Patient's Age should not be less than 0 and must not be greater than 100,

Bed_no should be unique and cannot be left blank,
Number of Patients in the Hospital may be 0 to100.
Any columns of the Hospital table cannot be left blank.

Doc_ID should be unique and cannot be left blank,
Doc_ID should be start with DOC,
DOC_Qualification can be only MBBS, MS or MD,
Doc_salary is between 25,000 to 50,000.
You can assume some other attributes of your choice for each table.

3. CASE STUDY: Customer Opens an Account. Each Customer is identified by his Cust_no. Each Account has unique Acct_no. One Customer can open only one account and an account number belongs to only one customer. Customer can lend Loan.
Draw an ERD and create database for this scenario.
While entering the data in the database following constraints must be considered:

Cust_no should be unique and cannot be left blank,
Customer's Name cannot be left blank,
Customer's Age should not be less than 16 and must not be greater than 100,

Loan_no should be unique and cannot be left blank,
Loan_Installment should be between 500 to 50,000.
Any columns of the Loan table cannot be left blank.

Acct_no should be unique and cannot be left blank,
Acct_no should be start with ACC,
Acct_Type can be only Current or Saving,
Acct_Balance should be between 1000 to 50,000
You can assume some other attributes of your choice for each table.

4. CASE STUDY: Driver Registers in Driving_Course. Each Driver is identified by his Driv_no. Each Driving_Course has unique Course_no. One Driver can register in only one Driving_Cours. Driving_Course owns Vehicle. Each vehicle should have unique Vehicle_no.
Draw an ERD and create database for this scenario.
While entering the data in the database following constraints must be considered:

Driv_no should be unique and cannot be left blank,
Driver's Name cannot be left blank,
Driver's Age should not be less than 18 and must not be greater than 100,

Course_no should be unique and cannot be left blank,
Course_Days should be between 60 to 100.
Course_Fee should be greater than 100.
Any columns of the course table cannot be left blank.

Vehicle_no should be unique and cannot be left blank,
Vehicle_no should be start with VEH,
Vehicle_Type can be only Car, Bus, Truck or Tempo.
You can assume some other attributes of your choice for each table.

Create the tables described below:
Table Name: Client_master
Description: Used to store client information

Column Name	Data Type	Size	Attributes
Client_no	Varchar2	6	Primary key / first letter must start with 'C'
Name	Varchar2	20	Not null

Address1	Varchar2	30	
Address2	Varchar2	30	
City	Varchar2	15	
Pincode	Number	8	
Sate	Varchar2	15	
Bal_due	Number	10,2	

Table Name: Product_master
Description: Used to store Product information

Column Name	Data Type	Size	Attributes
Product_no	Varchar2	6	Primary key / first letter must start with 'P'
Description	Varchar2	15	Not null
Profit_percent	Number	4,2	Not null
Unit_measure	Varchar2	10	Not null
Qty_on_hand	Number	8	Not null
Reorder_lvl	Number	8	Not null
Sell_price	Number	8,2	Not null, cannot be 0
Cost_price	Number	8,2	Not null, cannot be 0

Table Name: Salesman_master
Description: Used to store salesman working for the company

Column Name	Data Type	Size	Attributes
Salesman_no	Varchar2	6	Primary key / first letter must start with 'S'
Salesman_name	Varchar2	20	Not null
Address1	Varchar2	30	Not null
Address2	Varchar2	30	
City	Varchar2	20	
Pincode	Varchar2	8	
State	Varchar2	20	
Sal_amt	Number	8,2	Not null, cannot be 0
Target_to_get	Number	6,2	Not null, cannot be 0
Yesterday_sales	Number	6,2	Not null
remarks	Varchar2	60	

Table Name: Sales_order
Description: Used to store Client's orders

Column Name	Data Type	Size	Attributes
Order_no	Varchar2	6	Primary key / first letter must start with 'O'

Order_date	Date		
Client_no	Varchar2	6	Foreign key references client_no of client_master table
Dely_Address	Varchar2	25	
Salesman_no	Varchar2	6	Foreign key references Salesman_no of Salesman_master table
Dely_type	Char	1	Delivery: Part(P), Full(F)
Billed_yn	Char	1	
Dely_date	Date		Cannot be less than order date
Order_status	Varchar2	10	Values ('In Process', 'Fulfilled', 'Backorder', 'Cancelled')

Table Name: Sales_order_details
Description: Used to store Client's orders with details of each product ordered.

Column Name	Data Type	Size	Attributes
Order_no	Varchar2	6	Primary key / Foreign key references order_no of Sales_order table
Product_no	Varchar2	6	Primary key / Foreign key references Product_no of Product_master table
Quantiy_order	Number	8	
Quantity_disp	Number	8	
Product_rate	number	10,2	

Insert the following data into their respective tables:
Table Name: Client_master
Description: Used to store client information

Client_no	Name	City	Pincode	State	Bal_due
C1	Ivan	Mumbai	248001	Maharashtra	15000
C2	Vandana	Chennai	248004	Tamil Nadu	0
C3	Pramada	Mumbai	248006	Maharashtra	5000
C4	Basu	Mumbai	248010	Maharashtra	0
C5	Ravi	Delhi	248005	Delhi	2000
C6	Rukmani	Mumbai	248009	Maharashtra	0

Table Name: Product_master
Description: Used to store Product information

Product_no	Description	Profit percent	Unit_measure	Qty_on_hand	Reorder_Level	Sell price	Cost Price
P00001	Floppy	5	Piece	100	20	525	500
P03453	Monitors	6	Piece	10	3	12000	11280
P06734	Mouse	5	Piece	20	5	1050	1000
P07865	Keyboard	5	Piece	100	20	525	500
P07868	CD Drive	2	Piece	10	3	3150	3050
P07885	HDD	2.5	Piece	10	3	5250	5100
P07965	Cable	4	Piece	10	3	8400	8000
P07975	Keys	5	Piece	10	3	1050	1000
P08865	2GBRAM	5	Piece	2	3	1050	1000

Table Name: Salesman_master
Description: Used to store salesman working for the company

Salesman no	Salesman name	Address1	Address2	City	Pincode	State	Sal_amt	Tgt_to_get	Ytd_sales	remarks
S1	Kiran	A/14	Worli	Mumbai	140001	Maharashtra	3000	100	50	Good
S2	Manish	65	Nariman	Mumbai	140002	Maharashtra	3000	200	100	Good
S3	Ravi	P-7	Bandra	Mumbai	140003	Maharashtra	3000	200	100	Good
S4	Ashish	A/5	Juhu	Mumbai	140004	Maharashtra	3500	200	150	Good

Table Name: Sales_order
Description: Used to store Client's orders

Order no	Order date	Client no	Dely type	Bill yn	Salesman no	Dely date	Order status
O1	12-Jan-13	C1	F	N	S1	11-Jan-13	In Process
O2	12-Feb-13	C2	P	N	S2	14-Feb-13	Cancelled
O3	12-Sep-13	C3	F	Y	S3	17-Sep-13	Fulfilled
O4	12-Oct-13	C1	F	Y	S1	19-Oct-13	Fulfilled
O5	12-Oct-13	C4	P	N	S2	25-Oct-13	Cancelled
O6	12-Nov-14	C5	F	N	S4	16-Nov-14	In Process

Table Name: Sales_order_details
Description: Used to store Client's orders with details of each product ordered.

Order_no	Product_no	Qty_ordered	Qty_disp	Product_rate
O1	P00001	4	4	525
O1	P07965	2	1	8400
O1	P07885	2	1	5250
O2	P00001	10	0	525
O5	P07868	3	3	3150
O5	P07885	3	1	5250
O5	P00001	10	10	525
O5	P03453	4	4	1050
O3	P03453	2	2	1050
O3	P06734	1	1	12000
O6	P07965	1	0	8400
O6	P07975	1	0	1050
O8	P00001	10	5	525
O8	P07975	5	3	1050

Write queries for following questions
a) Find the names of all clients having 'a' as the second letter in their name.
b) Find out the clients who stay in a city whose second letter is 'a'.
c) Find the list of all clients who stay in 'Mumbai' or 'Delhi'.
d) Print the list of clients whose bal_due is greater than value 10000.
e) Print the information from sales_order table for orders placed in the month of January.
f) Display the order information for client_no 'C1' and 'C2'.
g) Find Products whose selling price is greater than 2000 and less than or equal to 5000.
h) Find products whose selling price is more than 1500. Calculate a new selling price as, original selling price * .15.
Rename the new column in the above query as new_price.
i) List the names, city and state of clients who are not in the state of 'Maharashtra'.

Exercise on Date Manipulation
a) Display the order number and day on which clients placed their order.
b) Display the month (in alphabets) and date when the order must be delivered.
c) Display the order_date in the format 'DD-Month-yy' for example, 12-February-14.
d) Find the date, 15 days after today's date.
e) Find the number of days elapsed between today's date and the delivery date of the orders placed by the clients.

Exercises on Joins, Union, Intersection and Minus:
a) Find out the products, which have been sold to 'Ivan'.
b) Find out the products and their quantities that will have to be delivered in the current month.
c) Find the product_no and description of constantly sold i.e., rapidly moving products.
d) Find the names of clients who have purchased 'HDD'.
e) List the product_no and the order_no of customers having qty_ordered less than 5 from the sales_order_details table for the product Floppy Disk.

f) Find the productd and their quantities for the orders places by ‘Ivan’ and ‘Vandana’.
g) Find the products and their quantities for the orders placed by client_no ‘C1’ and ‘C2’.

Exercises on Subqueries:
a) Find the product_no and description of non moving products that is, products not being sold.
b) Find the customer name, address1, address2, city and picode for the client who has placed order no ‘O1’.
c) Find the client names who have placed orders before the month of may 14.
d) Find out if the product ‘Floppy Disk’ has been ordered by any client and print the client_no, name to whom it was sold.
f) Find the names of clients who have placed oerders worth Rs. 10000 or more.