



Lab 3

Using MySQL Workbench to create Database, Table, Statements related Database.

Problem 1: Sale management Database

1. Create the following tables in a new database 'SaleManagement':

- Create a new database with the name " SaleManagerment".
- Create all the tables under this database.

2. Informations Tables:

a) Table Name: **Clients**

Column Name	Data Type	Size	Constraints	
Client_Number	VARCHAR	10	Primary Key, first letter must start with 'C'	<pre>create table clients(Client_Number varchar(10), Client_Name varchar(25) not null, Address varchar(30), City varchar(30), Pincode int not null, Province char(25), Amount_Paid decimal(15,4), Amount_Due decimal(15,4), check(Client_Number like 'C%'), primary key(Client_Number));</pre>
Client_Name	VARCHAR	25	Not null	
Address	VARCHAR	30		
City	VARCHAR	30		
Pincode	INT		Not null	
Province	CHAR	25		
Amount_Paid	DECIMAL	15,4		
Amount _Due	DECIMAL	15,4		

a) Table Name: **Product**

Column Name	Data Type	Size	Constraints	
Product_Number	VARCHAR	15	Primary Key, first letter must start with 'P'	<pre>create table product(Product_Number varchar(15), Product_Name varchar(25) not null unique, Quantity_On_Hand int not null, Quantity_Sell int not null, Sell_Price decimal(15,4) not null, Cost_Price decimal(15,4) not null, check(Product_Number like 'P%'), check(Cost_Price <> 0), primary key(Product_Number));</pre>
Product_Name	VARCHAR	25	Not null, Unique	
Quantity_On_Hand	INT		Not null	
Quantity_Sell	INT		Not null	
Sell_Price	DECIMAL	15,4	Not null	
Cost_Price	DECIMAL	15,4	Not null, cannot be 0	

b) Table Name: Salesman

Column Name	Data Type	Size	Constraints	<pre> create table Salesman(Salesman_Number varchar(15), Salesman_Name varchar(25) not null, Address varchar(30), City varchar(30), Pincode int not null, Province char(25) default('Viet Nam'), Salary decimal(15,4) not null, Sales_Target int not null, Target_Achieved int, Phone char(10) not null unique, check(Salesman_Number like 'S%'), check(Salary > 0), check(Sales_Target > 0), primary key(Salesman_Number)); </pre>
Salesman_Number	VARCHAR	15	Primary Key, first letter must start with 'S'	
Salesman_Name	VARCHAR	25	Not null	
Address	VARCHAR	30		
City	VARCHAR	30		
Pincode	INT		Not null	
Province	CHAR	25	Default 'Vietnam'	
Salary	DECIMAL	15,4	Not null, cannot be 0	
Sales_Target	INT		Not null, cannot be 0	
Target_Achieved	INT			
Phone	CHAR	10	Not null, Unique,	

c) Table Name: SalesOrder

Column Name	Data Type	Size	Constraints
Order_Number	VARCHAR	15	Primary Key, first letter must start with 'O'
Order_Date	DATE		
Client_Number	VARCHAR	15	Foreign key references Client_Number of Client table, first letter must start with 'C'
Salesman_Number	VARCHAR	15	Foreign key references Salesman_Number of Salesman table, first letter must start with 'S'
Delivery_Status	CHAR	15	Values ('Delivered', 'On Way', 'Ready to Ship')
Delivery_Date	DATE		Cannot be less than Order_date
Order_Status	VARCHAR	15	Values ('In Process', 'Successful', 'Cancelled')

```

create table SalesOrder(
    Order_Number varchar(15),
    Order_Date date,
    Client_Number varchar(15),
    Salesman_Number varchar(15),
    Delivery_Status char(15),
    Delivery_Date date,
    Order_Status varchar(15),
    primary key (Order_Number),
    foreign key (Client_Number) references clients(Client_Number),
    foreign key (Salesman_Number) references salesman(Salesman_Number),
    check (Order_Number like 'O%'),
    check (Client_Number like 'C%'),
    check (Salesman_Number like 'S%'),
    check (Delivery_Status in ('Delivered', 'On Way', 'Ready to Ship')),
    check (Delivery_Date > Order_Date),
    check (Order_Status in ('In Process', 'Successful', 'Cancelled'))
);

```

d) Table Name: **SalesOrderDetails**

Column Name	Data Type	Size	Constraints	<pre> create table SalesOrderDetails(Order_Number varchar(15), Product_Number varchar(15), Order_Quantity int, check (order_number like 'O%'), check (Product_Number like 'P%'), foreign key (Order_Number) references salesorder(Order_Number), foreign key (Product_Number) references product (Product_Number)); </pre>
Order_Number	VARCHAR	15	Foreign key references Order_Number of Sales_Order table	
Product_Number	VARCHAR	15	Foreign key references Product_Number of Product table, first letter must start with 'P'	
Order_Quantity	INT			

3. Insert Data into following tables:

a) **Clients**

Client_Number	Client_Name	Address	City	Pincode	Province	Amount_Paid	Amount_Due
C101	Mai Xuan	Phu Hoa	Dai An	700001	Binh Duong	10000	5000
C102	Le Xuan	Phu Hoa	Thu Dau Mot	700051	Binh Duong	18000	3000
C103	Trinh Huu	Phu Loi	Da Lat	700051	Lam Dong	7000	3200
C104	Tran Tuan	Phu Tan	Thu Dau Mot	700080	Binh Duong	8000	0
C105	Ho Nhu	Chanh My	Hanoi	700005	Hanoi	7000	150
C106	Tran Hai	Phu Hoa	Ho Chi Minh	700002	Ho Chi Minh	7000	1300
C107	Nguyen Thanh	Hoa Phu	Dai An	700023	Binh Duong	8500	7500
C108	Nguyen Sy	Tan An	Da Lat	700032	Lam Dong	15000	1000
C109	Duong Thanh	Phu Hoa	Ho Chi Minh	700011	Ho Chi Minh	12000	8000
C110	Tran Minh	Phu My	Hanoi	700005	Hanoi	9000	1000

Script to insert data:

```

('C101','Mai Xuan','Phu Hoa','Dai An',700001,'Binh Duong',10000,5000),
('C102','Le Xuan','Phu Hoa','Thu Dau Mot',700051,'Binh Duong',18000,3000),
('C103','Trinh Huu','Phu Loi','Da Lat',700051,'Lam Dong ',7000,3200),
('C104','Tran Tuan','Phu Tan','Thu Dau Mot',700080,'Binh Duong',8000,0),
('C105','Ho Nhu','Chanh My','Hanoi',700005,'Hanoi',7000,150),
('C106','Tran Hai','Phu Hoa','Ho Chi Minh',700002,'Ho Chi Minh',7000,1300),
('C107','Nguyen Thanh ','Hoa Phu','Dai An',700023,'Binh Duong',8500,7500),
('C108','Nguyen Sy','Tan An','Da Lat',700032,'Lam Dong ',15000,1000),
('C109','Duong Thanh','Phu Hoa','Ho Chi Minh',700011,'Ho Chi Minh',12000,8000),
('C110','Tran Minh','Phu My','Hanoi',700005,'Hanoi',9000,1000);

```

b) Product

Product_Number	Product_Name	Quantity_On_Hand	Quantity_Sell	Sell_Price	Cost_Price
P1001	TV	10	30	1000	800
P1002	Laptop	12	25	1500	1100
P1003	AC	23	10	400	300
P1004	Modem	22	16	250	230
P1005	Pen	19	13	12	8
P1006	Mouse	5	10	100	105
P1007	Keyboard	45	60	120	90
P1008	Headset	63	75	50	40

Script to insert data:

```

('P1001','TV',10,30,1000,800),
('P1002','Laptop',12,25,1500,1100),
('P1003','AC',23,10,400,300),
('P1004','Modem',22,16,250,230),
('P1005','Pen',19,13,12,8),
('P1006','Mouse',5,10,100,105),
('P1007','Keyboard',45,60,120,90),
('P1008','Headset',63,75,50,40);

```

c) Salesman

Salesman_Number	Salesman_Name	Address	City	Pincode	Province	Salary	Sales_Target	Target_Achieve	Phone
S001	Huu	Phu Tan	Ho Chi Minh	700002	Ho Chi Minh	15000	50	35	0902361123
S002	Phat	Tan An	Hanoi	700005	Hanoi	25000	100	110	0903216542
S003	Khoa	Phu Hoa	Thu Dau Mot	700051	Binh Duong	17500	40	30	0904589632
S004	Tien	Phu Hoa	Dai An	700023	Binh Duong	16500	70	72	0908654723
S005	Deb	Hoa Phu	Thu Dau Mot	700051	Binh Duong	13500	60	48	0903213659
S006	Tin	Chanh My	Da Lat	700032	Lam Dong	20000	80	55	0907853497

Script to insert data:

```

('S001','Huu','Phu Tan','Ho Chi Minh',700002,'Ho Chi Minh',15000,50,35,'0902361123'),
('S002','Phat','Tan An','Hanoi',700005,'Hanoi',25000,100,110,'0903216542'),
('S003','Khoa','Phu Hoa','Thu Dau Mot',700051,'Binh Duong',17500,40,30,'0904589632'),
('S004','Tien','Phu Hoa','Dai An',700023,'Binh Duong',16500,70,72,'0908654723'),
('S005','Deb','Hoa Phu','Thu Dau Mot',700051,'Binh Duong',13500,60,48,'0903213659'),
('S006','Tin','Chanh My','Da Lat',700032,'Lam Dong',20000,80,55,'0907853497');

```

d) Sales_order

Order_Number	Order_Date	Client_Number	Salesman_Number	Delivery_Status	Delivery_Date	Order_Status
O20001	2022-01-15	C101	S003	Delivered	2022-02-10	Successful
O20002	2022-01-25	C102	S003	Delivered	2022-02-15	Cancelled
O20003	2022-01-31	C103	S002	Delivered	2022-04-03	Successful
O20004	2022-02-10	C104	S003	Delivered	2022-04-23	Successful
O20005	2022-02-18	C101	S003	On Way	null	Cancelled
O20006	2022-02-22	C105	S005	Ready to Ship	null	In Process
O20007	2022-04-03	C106	S001	Delivered	2022-05-08	Successful
O20008	2022-04-16	C102	S006	Ready to Ship	null	In Process
O20009	2022-04-24	C101	S004	On Way	null	Successful
O20010	2022-04-29	C106	S006	Delivered	2022-05-08	Successful
O20011	2022-05-08	C107	S005	Ready to Ship	null	Cancelled
O20012	2022-05-12	C108	S004	On Way	null	Successful
O20013	2022-05-16	C109	S001	Ready to Ship	null	In Process
O20014	2022-05-16	C110	S001	On Way	null	Successful

Script to insert data:

```
( 'O20001','2022-01-15','C101','S003','Delivered','2022-02-10','Successful'),
( 'O20002','2022-01-25','C102','S003','Delivered','2022-02-15','Cancelled'),
( 'O20003','2022-01-31','C103','S002','Delivered','2022-04-03','Successful'),
( 'O20004','2022-02-10','C104','S003','Delivered','2022-04-23','Successful'),
( 'O20005','2022-02-18','C101','S003','On Way',null,'Cancelled'),
( 'O20006','2022-02-22','C105','S005','Ready to Ship',null,'In Process'),
( 'O20007','2022-04-03','C106','S001','Delivered','2022-05-08','Successful'),
( 'O20008','2022-04-16','C102','S006','Ready to Ship',null,'In Process'),
( 'O20009','2022-04-24','C101','S004','On Way',null,'Successful'),
( 'O20010','2022-04-29','C106','S006','Delivered','2022-05-08','Successful'),
( 'O20011','2022-05-08','C107','S005','Ready to Ship',null,'Cancelled'),
( 'O20012','2022-05-12','C108','S004','On Way',null,'Successful'),
( 'O20013','2022-05-16','C109','S001','Ready to Ship',null,'In Process'),
( 'O20014','2022-05-16','C110','S001','On Way',null,'Successful');
```

e) Sales_Order_Details

Order_Number	Product_Number	Order_Quantity	Script to insert data:
O20001	P1001	5	
O20001	P1002	4	
O20002	P1007	10	
O20003	P1003	12	
O20004	P1004	3	

O20005	P1001	8	('O20005','P1001',8), (('O20005','P1008',15), (('O20005','P1002',14), (('O20006','P1002',5), (('O20007','P1005',6), (('O20008','P1004',8), (('O20009','P1008',2), (('O20010','P1006',11), (('O20010','P1001',9), (('O20011','P1007',6), (('O20012','P1005',3), (('O20012','P1001',2), (('O20013','P1006',10), (('O20014','P1002',20);
O20005	P1008	15	
O20005	P1002	14	
O20006	P1002	5	
O20007	P1005	6	
O20008	P1004	8	
O20009	P1008	2	
O20010	P1006	11	
O20010	P1001	9	
O20011	P1007	6	
O20012	P1005	3	
O20012	P1001	2	
O20013	P1006	10	
O20014	P1002	20	

4. Write SQL queries for following operations:

- Show the schema of “Clients”, “Product”, “Salesman”, “Salesorder”, “Salesorderdetails” tables.
- Display the content of “Clients”, “Product”, “Salesman”, “Salesorder”, “Salesorderdetails” tables.

Problem 2: Human Resources Management Database

1. Give the Database Schema below:

EMPLOYEES (employeeID, lastName, middle Name, firstName, dateOfBirth, gender, salary, address, managerID, departmentID)

DEPARTMENT (departmentID, departmentName, managerID, dateOfEmployment)

DEPARTMENTADDRESS (departmentID, address)

PROJECTS (projectID, projectName, projectAddress, departmentID)

ASSIGNMENT (employeeID, projectID, workingHour)

RELATIVE (employeeID, relativeName, gender, dateOfBirth, relationship)

2. Explaining datatype of attributes in the table:

EMPLOYEES (employeeID, lastName, firstName, middle Name, dateOfBirth, gender, salary, managerID, departmentID)

#	Attribute	Datatype	Constraints
1	employeeID	varchar(3)	PRIMARY KEY
2	lastName	varchar(20)	NOT NULL
3	middle Name	varchar(20)	NULL
4	firstName	varchar(20)	NOT NULL
5	dateOfBirth	date - format MM-DD- YYYY	NOT NULL
6	gender	varchar(5)	NOT NULL
7	salary	money	NOT NULL
8	address	varchar(100)	NOT NULL
9	managerID	varchar(3)	FORIEGN KEY
10	departmentID	int	FORIEGN KEY

employeeID	lastName	middleName	firstName	dateOfBirth	gender	salary	address	managerID	departmentID
123	Dinh	Ba	Tien	1/9/1995	Nam	30000	731 Tran Hung Dao Q1 TPHCM	333	5
333	Nguyen	Thanh	Tung	12/8/1945	Nam	40000	638 Nguyen Van Cu Q5 TPHCM	888	5
453	Tran	Thanh	Tam	7/31/1962	Nam	25000	543 Mai Thi Luu Ba Dinh Ha Noi	333	5
666	Nguyen	Manh	Hung	9/15/1952	Nam	38000	975 Le Lai P3 Vung Tau	333	5
777	Tran	Hong	Quang	3/29/1959	Nam	25000	980 Le Hong Phong Vung Tau	987	4
888	Vuong	Ngoc	Quyen	10/10/1927	Nu	55000	450 Trung Vuong My Tho TG	NULL	1
987	Le	Thi	Nhan	6/20/1931	Nu	43000	291 Ho Van Hue Q.PN TPHCM	888	4
999	Bui	Thuy	Vu	7/19/1958	Nam	25000	332 Nguyen Thai Hoc Quy Nhon	987	4

DEPARTMENT (departmentID, departmentName, managerID, dateOfEmployment)

#	Attribute	Datatype	Constraints
1	departmentID	int	PRIMARY KEY
2	departmentName	varchar(10)	NOT NULL
3	managerID	varchar(3)	FORIEGN KEY
4	dateOfEmployment	date	NOT NULL

<u>departmentID</u>	departmentName	managerID	dateOfEmployment
1	Quan ly	888	19/06/1971
4	Dieu hanh	777	01/01/1985
5	Nghien cuu	333	22/05/1978

DEPARTMENTADDRESS (departmentID, address)

#	Attribute	Datatype	Constraints
1	departmentID	int	PRIMARY KEY, FORIEGN KEY
2	address	varchar(30)	PRIMARY KEY

<u>departmentID</u>	address
1	TP HCM
4	HA NOI
5	NHA TRANG
5	TP HCM
5	VUNG TAU

PROJECTS (projectID, projectName, projectAddress, departmentID)

#	Attribute	Datatype	Constraints
1	projectID	int	PRIMARY KEY
2	projectName	varchar(30)	NOT NULL
3	projectAddress	varchar(100)	NOT NULL
4	departmentID	int	FORIEGN KEY

<u>projectID</u>	projectName	projectAddress	departmentID
1	San pham X	VUNG TAU	5
2	San pham Y	NHA TRANG	5
3	San pham Z	TP HCM	5
10	Tin hoc hoa	HA NOI	4
20	Cap Quang	TP HCM	1
30	Dao tao	HA NOI	4

ASSIGNMENT (employeeID, projectID, workingHour)

#	Attribute	Datatype	Constraints
1	employeeID	varchar(3)	PRIMARY KEY, FORIEGN KEY
2	projectID	int	PRIMARY KEY, FORIEGN KEY
3	workingHour	float	NOT NULL

employeeID	projectID	workingHour
123	1	22.5
123	2	7.5
123	3	10
333	10	10
333	20	10
453	1	20
453	2	20
666	3	40
888	20	0
987	20	15

RELATIVE (employeeID, relativeName, gender, dateOfBirth, relationship)

#	Attribute	Datatype	Constraints
1	employeeID	varchar(3)	PRIMARY KEY, FORIEGN KEY
2	relativeName	varchar(50)	PRIMARY KEY
3	gender	varchar(5)	NOT NULL
4	dateOfBirth	date	NULL
5	relationship	varchar(30)	NOT NULL

employeeID	relativeName	gender	dateOfBirth	relationship
123	Chau	Nu	12/31/1978	Con gai
123	Duy	Nam	1/1/1978	Con trai
123	Phuong	Nu	5/5/1957	Vo chong
333	Duong	Nu	5/3/1948	Vo chong
333	Quang	Nu	4/5/1976	Con gai
333	Tung	Nam	10/25/1973	Con trai
987	Dang	Nam	2/29/1932	Vo chong