1. Update anomaly  
   doctorID is a primary key and cannot be null

Insert anomaly  
Database will be inconsistent if forget to update all details of a record

Delete anomaly

Deleting any of the record result in a huge loss of data

b)

Customer (Customer\_ID, CName, CAddr, Phone, Customer\_Visit\_Data, Service\_Advisor\_ID, SAName, SAPhone, No\_of\_Cars\_Serviced, Service\_Date)  
  
1NF  
Customer (Customer\_ID, CName, CAddr, Phone, CustomerVD)

Service Advisor ( SA\_ID, SAName, SAPhone, No\_ofCS, SD)  
  
2NF  
Customer (Customer\_ID, CName, CAddr, Phone)

Service Advisor ( SA\_ID, SAName, SAPhone)  
Service Data (SA\_ID, Customer\_ID, CustomerVD, N\_OF\_C\_S, SD)  
  
3NF   
Customer (Customer\_ID, CName, CAddr, Phone)

Service Advisor ( SA\_ID, SAName, SAPhone)  
Service Data (SA\_ID, CustomerVD, N\_OF\_C\_S, SD)

1. A)

SELECT storeName

FROM Store

WHERE storeName = “Kuala Lumpur”;

B)

SELECT manufacturerName MAX (quantity)

FROM Manufacturer

LIMIT 1;

C)

SELECT manufacturerName, city

FROM Manufacturer

UNION

SELECT quantity, wholesaleunitprice

FROM Supply

WHERE quantity > 100, whoesaleunitprice > 50

GROUP BY manufacturerName, city;  
D)  
SELECT storeName

FROM store

UNION

SELECT manufactuerName

FROM Manufacturer

UNION

SELECT whoeesaleunitprice \* quantity AS total\_cost

WHERE total\_cost > 10000

GROUP BY storename, manufacturername;

e)

SELECT storeName, city

FROM Store

WHERE NOT city = “Johor Bahru”

UNION

SELECT product\_name  
FROM Product  
UNION

SELECT wholesaleUnitPrice  
FROM Supply

WHERE wholesaleUnitPrice < 100  
GROUP BY storeName, city, product\_name;

f)

CREATE VIEW WholeSALEJB AS  
SELECT storeName, city  
FROM Store

WHERE NOT city = “Johor Bahru”

UNION

SELECT product\_name  
FROM Product  
UNION

SELECT wholesaleUnitPrice  
FROM Supply

WHERE wholesaleUnitPrice < 100  
GROUP BY storeName, city, product\_name;

3)

a) With Grant option:

* Only for object privileges, not system privileges.
* Only the person who granted the privilege can revoke the privilege.
* Revoked privileges can "cascade", allowing the first grantor to revoke many  
  subsequent grants.

With Admin option:

* Only for system privileges, not object privileges.

C)

login : SYSTEM  
password : UTAR  
CREATE USER SCOTT PROFILE “DEFAULT” IDENTIFIED BY fes;  
GRANT CONNECT TO SCOTT;  
GRANT GRANT ANY PRIVILEGES TO SCOTT WITH ADMIN OPTION;  
CREATE ROLE MANAGERS IDENTIFIED BY ABC;  
START C:\3NORTHWOODS.SQL;  
GRANT SELECT, INSERT, UPDATE ON SYSTEM.LOCATION TO MANAGERS;  
GRANT MANAGER TO SCOTT WITH ADMIN OPTION;  
CONNECT SCOTT/SCOTT;  
SELECT \* FROM SYSTEM.LOCATION;  
REVOKE MANAGER FROM SCOTT;

4)

1. I) π flight\_number (σ country = ‘Malaysia’ (Reservation X Airport))

II) π passenger\_name (σ flight\_number = ‘SA 747’(Reservation))

III) π number, from\_a\_c, toa\_c (σ airline = ‘Indian Airlines’ ^ airline = ‘Jet Airways’ ( Flight))