Database and Information retrieval
Practice Questions

Question 1

A car dealer database is defined by the relational schema,

Salesman (EmpCode, Name, Street, City, PostCode, Salary)

Customer (CustomerNum, Name, Street, City, PostCode, TelNumber)

Sales (SaleNum, EmpCode, CustomerNum, CarRegNum, Date, Value)

Stock (CarRegNum, DateOfPurchase, Mileage, Color, Manufacturer, Model, PurchasePrice)

a. Find the cost of the purchase of the vehicle with registration number G777 XLA. SELECT value
FROM Sales
WHERE CarRegNum = 'G777XLA'

b. Find the name of the salesman who sold the vehicle with registration number G777 XLA
SELECT a.name
FROM Sales s, Salesman a
WHERE s.EmpCode = a.EmpCode AND CarRegNum = 'G777XLA'

c. Find the colour of the vehicles sold in September 1993.
SELECT c.color
FROM Sales s, Stock c
WHERE s.CarRegNum = c. CarRegNum AND Extract (Month FROM date) = '09'

d. Find the number of the BMWs sold by the each dealer.
SELECT a.EmpCode, Count(*)
FROM Sales s, Salesman a
WHERE s.EmpCode = a.EmpCode AND manufacturer = 'BMW'
Group By a.EmpCode

e. Find the total sale value for each model in 1998.
SELECT t.model, SUM(s.value)
FROM Sales s, Stock t
WHERE s.CarRegNumber = t.CarRegNumber AND Extract (Year FROM date) = '1998'
Group By t.model

Question 2

A retail banking organisation is going to develop a relational database using the following draft schema (the primary keys are underlined),

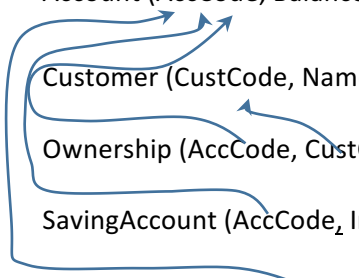
Account (AccCode, Balance)

Customer (CustCode, Name, Street, Number, City, Postcode, TelNumber)

Ownership (AccCode, CustCode)

SavingAccount (AccCode, IntRate)

CurrentAccount (AccCode, OverdraftLimit)



- For every tuple in the relations *Onwnership*, *SavingAccount* and *CurrentAccount* there must be a tuple in the relation *Account* having the same account code with it.
- Each account is owned by a customer whose details are fully known to the system at any instance of time.

i. Print all the customer names and addresses who has negative balance.

```
SELECT c. name, a.balance
FROM Account A, Ownership O, Customer C
WHERE A.AccCode = O.AccCode And O.CustCode = C.CustCode
AND balance <0
```

ii. Calculate the interest amount of the customer whose customer number is 'A000004' (Interest amount = balance *interest Rate)

```
SELECT A.balance *s.intRate AS "Interest Amount "
FROM Account A, SavingsAccount S, Ownership O
WHERE A.AccCode = s.AccCode AND A.AccCode = O.AccCode AND O.CustCode =
'A000004'
```

iii. Print customers who owns both current accounts and Savings account. Print Customer names

```
SELECT c.name
FROM Account A , Ownership O, Savings AccountS Customer C
WHERE S.AccCode = A.AccCode AND S.AccCode = O.AccCode And c.CustCode =
O.CustCode

INTERSECT
SELECT c.name
FROM Account A , Ownership O, CurrentAccount CA,  Customer C
WHERE CA.AccCode = A.AccCode AND S.AccCode = O.AccCode And c.CustCode =
O.CustCode
```

iv. Print the number of customers in each post code.

```
SELECT postcode, COUNT(*)
FROM Customer
GROUP BY postcode
```

v. Select the postcodes that has customers less than 100.

```
SELECT postcode, COUNT (*)
FROM Customer
GROUP BY postcode
HAVING COUNT (*) > 100
```