Question 1

create table storeowner(ownerid int not null primary key, warehousenumber int not null, foreign key(warehousenumber) references warehouse, info xml)

insert into storeowner (ownerid, warehousenumber, info) values (1,1,'<owner oid ="1"><name>Jeffrey Leung</name><addr country ="Canada"><city>Montreal</city></addr><phone type="work">461-555-1358</phone><personalinfo age ="23"><height>175</height></personalinfo><other favColour ="blue"><sport>Badminton</sport></other></owner>')

StoreOwner table is linked to the warehouse table where it got its own id as a key and have a reference key to the warehouse. Also with a xml info table. In the xml, there is information of the store owner name, city and country it live in, phone number, personal info such as height and age, also his favourite colur and sport.

```
db2 -> select * from storeowner

OWNERID     WAREHOUSENUMBER INFO
----------- --------------- ----------------------------------------------------------------------------------------------------------------------------------------------------------------
          1               1 <owner oid="1"><name>Jeffrey Leung</name><addr country="Canada"><city>Montreal</city></addr><phone type="work">461-555-1358</phone><personalin
fo age="23"><height>175</height></personalinfo><other favColour="blue"><sport>Badminton</sport></other></owner>
```

xquery for $d in db2-fn:xmlcolumn('STOREOWNER.INFO')/owner where $d/addr[city="Montreal"] and $d/other[sport="badminton"] return $d/name

This query will find the id of the storeowner who live in montreal and his favourite sport is badminton.

```
SQL0204N  "CS421G42.storeowner" is an undefined name.  SQLSTATE=42704
db2 => xquery for $d in db2-fn:xmlcolumn('STOREOWNER.INFO')/owner where $d/addr[city="Montreal"] and $d/
other[sport="badminton"] return $d/name

1
```

Question 2

CREATE TRIGGER LIMIT_RATING AFTER UPDATE OF RATING ON RATING REFERENCING OLD AS O NEW AS N FOR EACH ROW MODE DB2SQL WHEN (N.RATING > 10) BEGIN ATOMIC SIGNAL SQLSTATE '75001' ('Invalid Rating Increase - Exceeds 10'); END

Triggered

```
db2 => INSERT INTO Rating VALUES ('Stephen_harper', 938465728111, 17)
DB21034E  The command was processed as an SQL statement because it was not a
valid Command Line Processor command.  During SQL processing it returned:
SQL0545N  The requested operation is not allowed because a row does not
satisfy the check constraint "CS421G42.RATING.RATINGCONSTRAINT".
SQLSTATE=23513
```

Not Triggered

```
db2 => INSERT INTO Rating VALUES ('Stephen_harper', 938465728111, 10)
DB20000I  The SQL command completed successfully.
db2 =>
```

Question 3

This procedure updates the stock of the games by adding toAdd to their current quantity if their averageRating is above minRating.

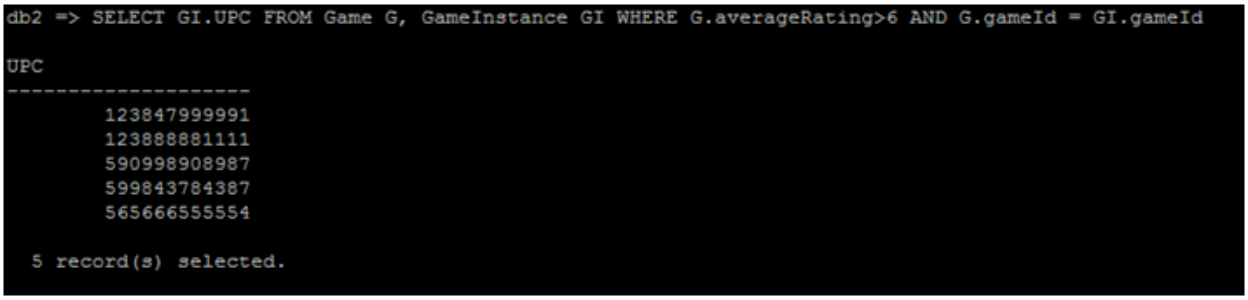
```
CREATE PROCEDURE updateStockWithRating (IN toAdd int, IN minRating int)
LANGUAGE SQL
BEGIN
        DECLARE gamerating int;
        DECLARE thegameid int;
        DECLARE at_end INT DEFAULT 0;
        DECLARE not_found CONDITION FOR SQLSTATE '02000';
        DECLARE C1 CURSOR FOR SELECT gameId, averageRating FROM Game;
        DECLARE CONTINUE HANDLER FOR not_found SET at_end = 1; OPEN C1;

        FETCH C1 INTO thegameid, gamerating;
        WHILE at_end = 0 DO
```

```
            IF (gamerating > minRating)
                THEN UPDATE stock
                SET quantity = quantity + toAdd WHERE UPC IN (SELECT GI.UPC FROM
                GameInstance GI WHERE GI.gameId = thegameid);
            END IF;
            FETCH C1 INTO thegameid, gamerating;
        END WHILE;
CLOSE C1;
END
```

Execution:

All game UPC with averageRating>6



```
db2 => SELECT GI.UPC FROM Game G, GameInstance GI WHERE G.averageRating>6 AND G.gameId = GI.gameId

UPC
--------------------
        123847999991
        123888881111
        590998908987
        599843784387
        565666555554

  5 record(s) selected.
```

The current stock for these games

```
db2 => select * from stock where UPC =  123847999991 OR UPC = 123888881111 OR UPC = 590998908987 OR UPC =  599843784387 OR UPC =  565666555554

WAREHOUSENUMBER UPC                 QUANTITY
--------------- ------------------- -----------
              1         123888881111          30
              1         123847999991          23
              1         590998908987          15
              1         599843784387           8
              1         565666555554           5
              2         590998908987           5
              2         599843784387          18
              3         123847999991          33
              3         590998908987          12
              3         565666555554           5
              4         123888881111          10
              4         565666555554           0
              5         123888881111          30
              5         123847999991          23
              5         590998908987          15
              5         599843784387          48
              5         565666555554          15
              6         599843784387           5
              7         123888881111          12
              7         123847999991          23
              7         590998908987           5
              7         599843784387           8
              7         565666555554           2
              8         123888881111           3
              8         123847999991           3
              9         123888881111          30
              9         599843784387           8
              9         565666555554           5
             10         123888881111          90
             10         590998908987          56
             10         565666555554          18
             11         123888881111          12
             11         123847999991           3
             11         590998908987           5
             11         599843784387          18
             11         565666555554           2
             12         123888881111          12
             12         123847999991           3
             12         565666555554           2
```

Call to the procedure

```
db2 => call updateStockWithRating(10,6)

  Return Status = 0
```

The updated stock for the games with rating >6

```
db2 => select * from stock where UPC =  123847999991 OR UPC = 123888881111 OR UPC = 590998908987 OR UPC =  599843784387 OR UPC =  565666555554

WAREHOUSENUMBER UPC                 QUANTITY
--------------- ------------------- -----------
              1         123888881111          40
              1         123847999991          33
              1         590998908987          25
              1         599843784387          18
              1         565666555554          15
              2         590998908987          15
              2         599843784387          28
              3         123847999991          43
              3         590998908987          22
              3         565666555554          15
              4         123888881111          20
              4         565666555554          10
              5         123888881111          40
              5         123847999991          33
              5         590998908987          25
              5         599843784387          58
              5         565666555554          25
              6         599843784387          15
              7         123888881111          22
              7         123847999991          33
              7         590998908987          15
              7         599843784387          18
              7         565666555554          12
              8         123888881111          13
              8         123847999991          13
              9         123888881111          40
              9         599843784387          18
              9         565666555554          15
             10         123888881111         100
             10         590998908987          66
             10         565666555554          28
             11         123888881111          22
             11         123847999991          13
             11         590998908987          15
             11         599843784387          28
             11         565666555554          12
             12         123888881111          22
             12         123847999991          13
             12         565666555554          12
```

Question 5

This index is usefull when we want to know all products having a certain price.
CREATE INDEX priceIndex ON ProductInstance (price)

This is usefull to get all the games from a certain console
CREATE INDEX ConsoleGamesIndex ON GameInstance (consoleId, gameID)