**Task 1: (Thierno Abdoul Rahimi Diallo B1203133)**

The advantages of Distributed Database Management system DDBMS are:

* **Safety:** In case of system failure the integrity of the distributed database is maintained mean that as the database is distributed to main location the failure of one site will not affect the remining site and the data can be easily restored to their safe state before failure.
* **Quicker data processing:** The distributed database system spreads out the systems workload by fulfilling data at several sites.

The disadvantages of the distributed database management system DDBMS are:

* **Database design more complex:** The design of the DDBMS will become more difficult as the distributed database must consider the fragmentation of the date that will be allocated to specific sites, and the replication of data.
* **Security:** The possibility of security lapses will increase when data are stationed at multiple sites. The authority on the management of the data will be shared by multiple people at several sites.

**Task 3: (Thierno Abdoul Rahimi Diallo B1203133)**

Update transaction the manager in the Kuala Lumpur would like to update the price and quantity of an existing Medication by giving a medicNo.

1. The transaction above repose of distinct operation:

* Read: Querying the medication table to conform the existence of this medication.
* Write: If found then he will update the original price and the quantity to reflect the new price and the new stock.

1. Explain what is meant by the ACID properties of a transaction using the example described in Point (a).

* **Atomicity**: When the manager is about to update the new price for a medication, if it found the transaction will be successful else it will fail.
* **Consistency**: When a new sales is made, the price should refer to the last updated price.
* **Isolation**: When the manager is in the progress of updating the price, the medication should be lock in the system to avoid a customer’s transaction.
* **Durability**: The new stored price in the database should not be lost in case of hardware or software error occur.

**Task 4: (Thierno Abdoul Rahimi Diallo B1203133)**

* **Inconsistent Analysis:** it will take place when in progress of updating the price of a medication by the manager and at the same time the salesman (staff Type) is also executing a sale for this specific medication and commit the transaction before the update is committed, then it sale will not match the new price.

To prevent it for happening a Read committed isolation should be applied to make sure that the salesman won’t be able to read that specific medication while the manager update is not yet committed. (Tripp, 2015)

* **Lost Update:** It will happen when two staff is trying to make a sale on a similar medication at the same time, the first transaction read the medication and return availability of 10 in the stock and the second transaction after read return also 10 in stock, transaction make an sell of two medication while transaction two make a sell of one medication and commit so the new availability after transaction two is 9 in stock meanwhile the transaction one is committed and it return 8 in stock meaning that transaction one has over write the transaction two update.

To prevent this for happening a Serializable isolation should be applied to make sure that only one transaction is allowed at the time for a same medication (Dr.Tom's, 2011)

**Referencing and citation:**

* [**Inconsistent analysis in read committed using locking**](https://www.sqlskills.com/blogs/kimberly/inconsistent-analysis-in-read-committed-using-locking/)(Kimberly Tripp, 2015).
* [The lost Update Problem in the Context of Transactions](https://drtom.ch/posts/2011/11/12/The_Lost_Update_Problem_-_Part_1/)(Dr. Tom’s, 2011).
* [What are the Advantages and Disadvantages of Distributed Database Management System?](http://ecomputernotes.com/database-system/adv-database/advantages-and-disadvantages-of-ddbms)(DINESH THAKUR).
* [A Critique of ANSI SQL Isolation Levels](http://www.cs.umb.edu/cs734/CritiqueANSI_Iso.pdf) (Hal Berenson)