**Partiel : Administration des bases de données**

# Exercice 1 (12 points)

The following database is used to manage customer bank accounts:

Customer (customer code, last name, first name, phone, address, class) Account (account number, customer code, balance, manager code)

We distinguish between different types of staff of the bank according to the tasks assigned to it. Table 1 above presents the different tasks and their respective needs in terms of access to data. We are interested in the following categories of personnel:

* Reception staff at the counter is responsible for the T1 task.
* Client advisors are responsible for T1 and T2 tasks. Each advisor looks after a client portfolio that is assigned to him.
* Administrators can perform T1, T2, or T3 tasks.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tasks | Title of task | Table | Consultation | Modification | Suppression  压制镇压 |
| T1 | Withdraw | Client | Code-client,  nom, prénom | - | Non |
| T1 | withdraw | account | Num-cpte,  code-client | - | Non |
| T2 | Account Management | Client | Code-client, nom, prénom, téléphone, adresse (**pour**  **le portefeuille concerné)** | nom, prénom, téléphone, adresse ***(pour le portefeuille concerné)*** | Non |
| T2 | Account Management | account | \* | - | Oui |
| T3 | Administrati on | Client | \* | \* | Yes except for customers rated 'A' |
| T3 | Administrati  on | account | \* | \* | \* |

**Table 1**

The Aubière branch currently has the following staff:

• Reception staff at the counter: Bob, Marie and Robert

• Client Advisor: Julie and Mathilde. The employee Julie manages the accounts of the customers whose management code has the value 'JULI' and the employee Mathilde manages those with the code manager 'MATH'.

• Administrator: King.

We want to implement this database under the Oracle DBMS.

1) Explain in detail your security management strategy.

2) It is assumed that the two Client and Account relationships are very large (a few million tuples). Propose a physical model of data for this database. Motivate your choice.

3) Propose a strategy for backing up this database and explain how to configure the DBMS to implement it.

4) Give two disadvantages of your backup strategy.

5) The Bob and KING users respectively erroneously execute the SQL commands described in the following table:

|  |  |
| --- | --- |
| **Bob** | ***Delete \* from client where nom=’Toto’;***  ***Commit ;*** |
| **KING** | ***Delete \* from compte where solde >’10 000’;***  ***Commit ;*** |

a) Based on your previous implementation choices, explain how to repair each of these errors (when repair is possible).

b) The same question as 5.a, but when the error is not noticed until three months later.

# Exercice 2 (8points)