Exercises – Materialized Views

1. Considerer the following Mobilephone_plan table above:

Plan_id	Plan_name	Plan_amount	Expiry date	No_messages
11	Group_members	500	10-april-2024	60
12	Gold	1000	10-april-2024	80
13	Student	800	10-april-2024	150
14	company	300	10-april-2024	300

a) Create materialized view "Plan_VM1" to display Plan_id, Plan_name, Plan_amount, No_messages.

b) Change Plan_id= 14 amount as 3000 in the Mobilephone_ plan table.

c) Write appropriate statement, the Mobilephone_plan table modification reflects in the materialized view.

d) Write statement to insert below information only in view materialized not in the Mobilephone_Plan table.

Plan_id	Plan_name	Plan_amount	Expiry date	No_messages
15	Silver	300	01-april-2024	40

e) Create materialized view "Plan_VM2" using refresh complete and using Mobliephone_Plan table, change Plan_amount=900 in the Plan_id=11 and use appropriate refresh option in the "Plan_VM2" after refresh, also rowid should be same for Plan_id=11

a) Delete the first MV (Plan_VM1)

b) Create materialized view log on mobilephone_plan to display row_id, plan_id, plan_name, old and, new value after updating no_messages=200 in plan_id=13. (hint: both create and display statement)

c) Create materialized view "Plan_VM3" using appropriate built method which don't have result set.

d) Display status of all the materialized view created earlier and change “Plan_VM3” status should be “valid” in the compile_state column.

e) Display the highest no_messages, plan_id, plan_name, in “plan_VM4” and delete the comment in plan_VM2;

2. Considerer the following relational schema and database:

INCOME (BranchID, ServiceID, CompanyCategoryID, Ano,Semestre, Total_Income)

SERVICE (ServiceID, Service, ServiceType)

BRANCH (BranchID, Branch, City, Region, GeographicArea)

COMPANY (CompanyCategoryID, CompanyCategory, BusinessArea, Nationality)

CONSULTANT (ConsultantId, nome, BranchIDi)

Given the above logic schema, consider the following queries of interest:

a) For each pair (type of services, semester), show the total income and the total number of consultancies carried out by the consultants of the branches located in the Italian region Porto.

b) Considering only Suisse and Portuguese companies, show for each pair (Region of consultants' branch, Service), the total income and number of consultancies, separately for each year.

c) Considering only the income of years 2017, 2018, and 2019, for each pair (Type of services, Nationality of the company), show the six-months income and the average six-months income per consulting.

2.1. Define a materialized view with CREATE MATERIALIZED VIEW, to reduce the response time of queries (a) to (c). Specify the SQL query associated with Block A in the following statement:

```
CREATE MATERIALIZED VIEW ViewIncome
BUILD IMMEDIATE
REFRESH FAST ON COMMIT
AS
Block A
```

2.2. Specify the minimal combination of attributes that constitutes an identifier for the materialized ViewIncome view.

2.3. Assume that the updating of the materialized view is done using triggers. Write the trigger to propagate the changes to the ViewIncome materialized view when a new record is inserted in the INCOME table.

2.4. Assume that the updating of the materialized view is done using triggers. Write the trigger to propagate the update of the ServiceType attribute in the SERVICE table to the ViewIncome materialized view.

2.5. The VM1 materialized view is built with the following SQL statement

CREATE MATERIALIZED VIEW

BUILD IMMEDIATE

REFRESH FAST ON DEMAND

ENABLE QUERY REWRITE

AS <Block A>

For the definition of Block A see alinea a).

2.5.1 Write the instructions that define the MATERIALIZED VIEW LOG in Oracle needed for the automatic FAST update of the ViewIncome materialized view. Indicate all and only the necessary logs and within each log definition indicate all and only the necessary attributes.