Progressive Education Society's
Modern College of Arts, Science and Commerce (Autonomous)
Shivajinagar, Pune 5

M.Sc. Computer Science A.Y. 2020-21

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Subject: Advanced Database Concepts
Assignment 2: ORDB Concepts using Oracle

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1) **Bus transport System**

   Consider the following database of Bus transport system . Many buses run on one route.

   Drivers are allotted to the buses shiftwise. Following are the tables :

   1. Bus (Bus_no int , Capacity int , depot_name varchar(20))

   2. Route (Route_no int, Source char(20), Destination char(20),no_of_stations int)

   3. Driver (driver_no int , driver_name char(20), license_no int, address char(20), d_age int , salary float)

   The relationships are as follows :

   Bus_Route   : M-1

   Bus_Driver : M-M with descriptive attributes Date of duty alloted and Shift – it can be 1 (Morning) 0r 2 (Evening).

   Constraints :

   1. License_no is unique.

   2. Bus capacity is not null.

   a) **Give an object-relational schema definition using references to express foreign-key relationships.**

   b) **Write each of the queries given below on the above schema using OQL(Object Query Language).**

   1. Find out the drivers working in shift 1.

   2. Find out the route details on which buses of capacity 20 runs.

   3. Find the names and their license no. of drivers working on 12-01-2008 in both the shifts.

   4. Delete all the routes where number of stations are less than 3.

   6. Find out the number of buses running from 'Chichwad' to 'Corporation'.

   7. Update the salary of driver by 1000 if his age > 35 .

   8. List the bus numbers which are running from 'Swargate' to 'Hadapsar' having bus capacity 5

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2) Client-Policy Database

Consider an insurance company which has agents. Clients select a particular policy ang go for the policy through the agents. Company manintains information about the clients and agents . Whenever client takes a policy , agent validates the information of client such as age of the client should be in the range of the selected policy(i.e. Age should be between minimum_age_limit and maximum_age_limit.) , sum_assured also should be between the min_sum_assured and max_sum_assured. The client gets a unique policy number , decides the premium amount , type_of_premium , nominee name etc. The policy term is calculated as the maturity age of the selected policy – age of the client.

policy(policy_name   varchar(20) , min_age_limit integer , max_age_limit integer , maturity_age integer , min_sum_assured integer , max_sum_assured integer) ;

client(client_id integer , name varchar(25) , birth_date date ,nominee_name varchar(25) ,relation_with_client varchar(20));

agent(agent_id integer , name varchar(25), license_no integer , branch_office   varchar(20)) ;

Relationship between :

> Policy , Client and Agent is ternary with described attributes policy_no,
> premium amount , policy_date , type_of_premium , sum_assured and
> policy term.

The relationship table is :

> Agent_client_policy(agent_id integer , client_id integer , policy_name varchar
> (20) , policy_no integer , premium decimal(7,2) , policy_date date , type varchar(20) ,
> sum_assured decimal(7,2) , term integer).
>
> **type** : is the type of premium which can be 'q' (quarterly),'h' (half yearly) ,'y'
> (Yearly).While inserting records in relationship table enter the type value as one of the
> 'q', 'h','y'.

Constraints :   1. policy_no is unique.

a) **Give an object-relational schema definition using references to express foreign-key relationships.**

b) **Write each of the queries given below on the above schema using OQL(Object Query Language).**

1. Count the number of clients who have taken policies from branch office 'Pune'

2. Give the name of agent having maximum count of clients.

3. Find the name of clients who have taken j-b policy and premeum if hals yearly on 1st march, (year does not matter .).

4. Count the number of clients of 'j-a' policies from 'mumbai-1' branch office.

 5. Find the total premium amount of client '_____'.

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Assignment Evaluation

0: Not Done   _____   1. Incomplete _____   2. Late Complete _____

3. Needs Improvement_____   4. Complete   _____   5 Not Done _____

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