

ASSIGNMENT-03

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Question 1:

ER Diagram question: Traffic flow management system:

Scenario:

You are tasked with designing an entity-relationship diagram (ER) diagram for traffic flow management system (TFMS)

Task 1: Entity identification and Attributes

Roads Interaction Traffic Signals Traffic Data

RoadSD (PK) IntersectionSD (PK) SignalSD (PK) Traffic DataSD (PK)

Roadname Intersection name IntersectionSD (PK) RoadSD (FK)

Length (m) Lateral signal shapes Timespan Speed Limit (km/h) Length

Task 2: Relationship modeling

Relationships:

Roads to Intersections

* One Road can connect to multiple intersections

* An intersection can be connected by multiple roads

* Intersection to Traffic Signals

* One intersection can host multiple traffic data entities

* Cardinality and Nomenclature

Roads to Intersections:

* One Road can connect to two or more intersections

* One intersection can connect to one or more roads

Intersection to Traffic Signals

* One intersection can connect to one or more roads

* One Road can have two or more than traffic data entities

* One traffic data entity must be associated with one roads

Task 2: Normalization

Task 3: ER Diagram Design

Task 4: ER Diagram Design

Task 5: ER Diagram Design

Task 6: ER Diagram Design

Task 7: ER Diagram Design

Task 8: ER Diagram Design

Task 9: ER Diagram Design

Task 10: ER Diagram Design

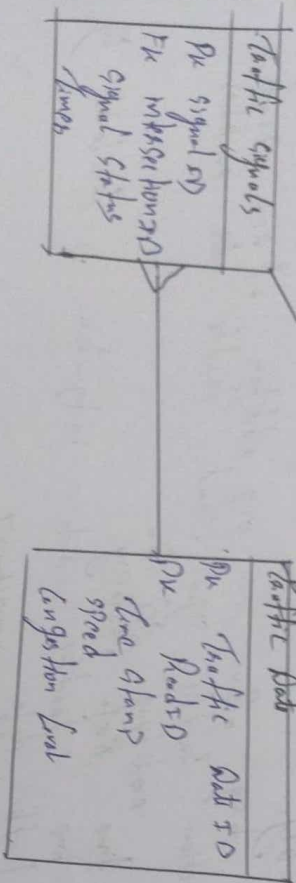
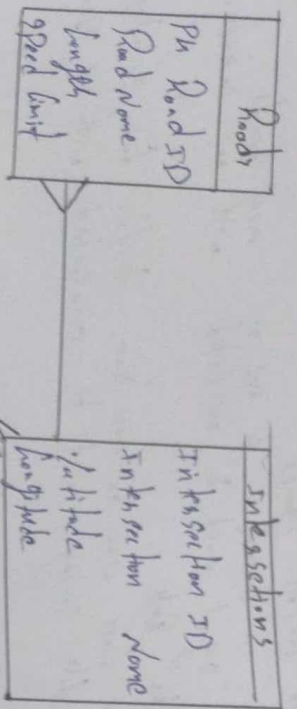
Task 11: ER Diagram Design

Task 12: ER Diagram Design

Task 13: ER Diagram Design

Task 14: ER Diagram Design

Task 15: ER Diagram Design



Question 2:

Question 1: SQL Departments with English average salary

SQL Query with AVG salaries ASL
SELECT

1. department ID,
2. department name,

AVG (salary) AS Avg Salary

FROM

LEFT JOIN Employees E ON department ID = E.department ID

GROUP BY

1. department ID,
2. department name,

SELECT

1. department ID,
2. department name,

SELECT

1. department ID,
2. department name,

SELECT

1. department ID,
2. department name,

AVG salary,

FROM

AVG salaries

ORDER BY

Avg salary Desc Null last

Department? Having Maximal

Category Paths

SQL Query

WITH RECURSIVE

SELECT

1. Category ID,
2. Category Name,
3. Parent Category ID
FROM (Category AS VARCHAR(255)) AS Path

FROM

Categories C

WHERE

C.Parent Category ID IS NULL

UNION ALL

SELECT

C.Category ID

C.Category Name

C.Parent Category ID

FROM (CP.PATH 112112.CATEGORY NAME AS VARCHAR (255) AS PATH

FROM

ENTER FROM Category Path CP OR C.Parent Category ID = CP.Category ID

SELECT

Category ID

Category Name

FROM

Category Paths:

Final Query:

* select 'Category ID', 'Category Name', and the hierarchical 'Path'

from the 'Category Paths' CTE.

* This query efficiently transverse the hierarchical

Category structure and builds the fuel for each

Category

3. Total Distinct Customers by month

SELECT

Date - format (orderdate, (Y-Y-M-M))

AS Month Name!

COUNT (DISTINCT Customer ID) AS

Customers Count

FROM

ORDERS

WHERE

orderdate >= Date_sub (date (Y-M-1), interval 1 year)

GROUP BY

Month Name

ORDER BY

location ID,

location Name,

latitude

(63.7 * AS os (Radius (37.7149) * AS

Radius (latitude) AS os (Radius (1-122.4149)

Radius (longitude) is in (Radius (latitude))

AS distance

3. Optimizing query for order table

SELECT * from orders

where orderdate >= Date_sub (date (Y-M-1), interval 1 year)

ORDER BY

orderdate

Division 3

Task 1: Handling Division operation

Salaries
divided numbers: = 100;

division numbers;
result numbers;

Begin
division: 2 divisions;

Begin result = divided/division;

DBMS - output line (result: 1144444);

End
is not allowed;

End;

Task 2: Updating rows with for all

Salaries
EMP-ids DBMS-sal numbers table;

DBMS-sal numbers table (101, 102, 103);

Salary line DBMS-sal numbers table

DBMS-sal numbers table (1000, 2000, 3000);

Begin
for all in emp-ids first-emp-ids last;

update employees

set salary = salary + 1;

where employee id = emp-ids(1);

Task 3:

Task 3: implementing nested-table. Procedure

Code type emp-table-type is

Table of employees & Row type;

Table (in) attribute Procedure

get-dofirstname-employees

Q-dofirstname-id type numbers

Q-employees at emp-table-type

is given

SELECT *
FROM emp-table WHERE

WHERE employee id =

Q-dofirstname-id;

Task 4:

Declaring
type emp-table is REF cursor;

emp-ids emp-table;

End;

employees employee id type;

first name.

employees first name type;

salary = 1000000;

get-start VARCHAR(500);

Begin
select-stmt = SELECT employee id, first name, last name
FROM employees
WHERE salary > 1000000;

Open empAct into emp_id; first name;
last Name;

Exit when empAct not found;

OBMS - output . Put-line (emp_id || " " || first-name || " " || last Name;
END name;

Else empAct;

END

Topic 5: Assigning Pipeline function for Sales Date

(create (co) Pipeline function get-sales-date)

P-month-number

0-year-number)

Return sales-date-type

Pipeline is

customer-sales-date is

SELECT order-ID, customer-ID, order Amount

FROM orders

WHERE extract (month from order date) = P-month;

FROM orders

WHERE (year from order date) = P-year

sales calculated.