SQL Projects

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Table structure

1. Sales Table

The **Sales** table records information about **product sales**, including the **quantity sold**, **sale date**, and **total price** for each sale. It serves as a transactional data source for analyzing sales trends.

Query:

```
-- Create Sales table

CREATE TABLE Sales (
   sale_id INT PRIMARY KEY,
   product_id INT,
   quantity_sold INT,
   sale_date DATE,
   total_price DECIMAL(10, 2),
   FOREIGN KEY (product_id) REFERENCES Products(product_id)
);

-- Insert sample data into Sales table

INSERT INTO Sales (sale_id, product_id, quantity_sold, sale_date, total_price) VALUES
(1, 101, 5, '2024-01-01', 2500.00),
(2, 102, 3, '2024-01-02', 900.00),
(3, 103, 2, '2024-01-02', 60.00),
(4, 104, 4, '2024-01-03', 80.00),
(5, 105, 6, '2024-01-03', 90.00);
```

Output:

sale_id	product_id	quantity_sold	sale_date	total_price
1	101	5	2024-01-01	2500.00
2	102	3	2024-01-02	900.00
3	103	2	2024-01-02	60.00
4	104	4	2024-01-03	80.00
5	105	6	2024-01-03	90.00

2. Products Table

The **Products** table contains details about **products**, including their **names**, **categories**, and unit prices. It provides reference data for linking product information to sales transactions.

Query:

```
-- Create Products table
```

```
CREATE TABLE Products (
    product_id INT PRIMARY KEY,
    product_name VARCHAR(100),
    category VARCHAR(50),
    unit_price DECIMAL(10, 2)
);

-- Insert sample data into Products table

INSERT INTO Products (product_id, product_name, category, unit_price) VALUES
(101, 'Laptop', 'Electronics', 500.00),
(102, 'Smartphone', 'Electronics', 300.00),
(103, 'Headphones', 'Electronics', 30.00),
(104, 'Keyboard', 'Electronics', 20.00),
(105, 'Mouse', 'Electronics', 15.00);
```

Output:

product_id	product_name	category	unit_price
101	Laptop	Electronics	500.00
102	Smartphone	Electronics	300.00
103	Headphones	Electronics	30.00
104	Keyboard	Electronics	20.00
105	Mouse	Electronics	15.00

Project #1

Q1. Write a query to create a view named Total_Sales that displays the total sales amount for each product along with their names and categories.

Q2. Retrieve the product details (name, category, unit price) for products that have a quantity sold greater than the average quantity sold across all products.

Q3. Create a view named Top_Products that lists the top 3 products based on the total quantity sold.

Project #2

Q1. Retrieve product_name and unit_price from the Products table with the Highest Unit Price

Q2. Retrieve the sale_id and sale_date from the Sales table, formatting the sale_date as 'YYYY-MM-DD'.

Q3. Calculate the total revenue generated from sales of products in the 'Electronics' category.

Q4. Retrieve the product_name and category from the Products table, ordering the results by category in ascending order.

Q5. Calculate the total quantity_sold of products in the 'Electronics' category.

Project #3

Q1. Retrieve the product_name and total_price from the Sales table, calculating the total_price as quantity_sold multiplied by unit_price.

Q2. Identify the Most Frequently Sold Product from Sales table

Q3. Find the Products Not Sold from Products table

Q4. Calculate the total revenue generated from sales for each product category.

Project #4

Q1. Find the product category with the highest average unit price.

Q2. Identify products with total sales exceeding 30.

Q3. Count the number of sales made in each month.

Q4. Retrieve Sales Details for Products with 'Smart' in Their Name

Q5. Determine the average quantity sold for products with a unit price greater than $100.

Project #5

Q1. Retrieve the product name and total sales revenue for each product.

Q2. Retrieve the product name and total sales revenue for each product.

Q3. Rank products based on total sales revenue.

Q4. Calculate the running total revenue for each product category.

Project #6

Q1. Categorize sales as "High", "Medium", or "Low" based on total price (e.g., > $200 is High, $100-$200 is Medium, < $100 is Low).

Q2. Identify sales where the quantity sold is greater than the average quantity sold.

Q3. Calculate the number of days between the current date and the sale date for each sale.

Project #7

Q1. List the Top 3 Products by Revenue Contribution Percentage

Q2. Write a query to create a view named Total_Sales that displays the total sales amount for each product along with their names and categories.

Project #8

Q1. Retrieve the product details (name, category, unit price) for products that have a quantity sold greater than the average quantity sold across all products.

Q2. Add a foreign key constraint to the Sales table that references the product_id column in the Products table.

Q3. Create a view named Top_Products that lists the top 3 products based on the total quantity sold.

Project #9

Q1. Create a query that lists the product names along with their corresponding sales count.

Q2. Write a query to find all sales where the total price is greater than the average total price of all sales.

Q3. Add a check constraint to the quantity_sold column in the Sales table to ensure that the quantity sold is always greater than zero.

Q4. Create a view named Product_Sales_Info that displays product details along with the total number of sales made for each product.

Project #10

Q1. Develop a stored procedure named Update_Unit_Price that updates the unit price of a product in the Products table based on the provided product_id.

Q2. Write a query that calculates the total revenue generated from each category of products for the year 2024.

Table Name:- Employee

Empid	EmpName	Department	ContactNo	EmailId	EmpHeadId
101	Isha	E-101	1234567890	isha@gmail.com	105
102	Priya	E-104	1234567890	priya@yahoo.com	103
103	Neha	E-101	1234567890	neha@gmail.com	101
104	Rahul	E-102	1234567890	rahul@yahoo.com	105
105	Abhishek	E-101	1234567890	abhishek@gmail.com	102

Schema:-

create table employee(empid int primary key,empname varchar(100), department varchar(50),contactno bigint, emaildid varchar(100), empheadid int)

Table :- EmpDept

DeptId	DeptName	Dept_off	DeptHead
E-101	HR	Monday	105
E-102	Development	Tuesday	101
E-103	Hous Keeping	Saturday	103
E-104	Sales	Sunday	104
E-105	Purchage	Tuesday	104

Schema:-

create table empdept(deptid varchar(50) primary key,deptname varchar(100), dept_off varchar(100), depthead int foreign key references employee(empid))

Table :- EmpSalary

EmpId	Salary	IsPermanent
101	2000	Yes
102	10000	Yes
103	5000	No
104	1900	Yes
105	2300	Yes

Schema:-

create table empsalary(empid int foreign key references employee(empid), salary bigint, ispermanent varchar(3))

Table :- Project

ProjectId	Duration
p-1	23
p-2	15
p-3	45
p-4	2
p-5	30

Schema:-

create table project(projectid varchar(50) primary key, duration int)

Table :- Country

cid	cname
c-1	India
c-2	USA
c-3	China
c-4	Pakistan
c-5	Russia

Schema:-

create table country(cid varchar(50) primary key, cname varchar(100))

Table :- ClientTable

ClientId	ClientName	cid
cl-1	ABC Group	c-1
cl-2	PQR	c-1
cl-3	XYZ	c-2
cl-4	tech altum	c-3
cl-5	mnp	c-5

Schema:-

create table clienttable(clientid varchar(50) primary key, clientname varchar(100), cid varchar(50) references country(cid))

Table :- EmpProject

EmpId	ProjectId	ClientID	StartYear	EndYear
101	p-1	Cl-1	2010	2010
102	p-2	Cl-2	2010	2012
103	p-1	Cl-3	2013	
104	p-4	Cl-1	2014	2015
105	p-4	Cl-5	2015	

Schema:-

create table empproject(empid int foreign key references employee(empid), projectid varchar(50) foreign key references project(projectid), clientid varchar(50) foreign key references clienttable(clientid),startyear int, endyear int)

Project #11

Q1. Select the department name of the company which is assigned to the employee whose employee id is grater 103.

Q2. Select the name of the employee who is working under Abhishek.

Q3. Select the name of the employee who is department head of HR.

Project #12

Q1. Select the name of the employee head who is permanent.

Q2. Select the name and email of the Dept Head who is not Permanent.

Q3. Select the employee whose department off is monday

Project #13

Q1. select the indian clinets details.

Q2. select the details of all employee working in development department

Q3. How many permanent candidate take salary more than 5000.

Q4. Select the detail of employee whose emailId is in gmail.

Q5. Select the details of the employee who work either for department E-104 or E-102.

Project #14

Q1. List the number of department of employees in each project.

Q2. select the name of the employee whose name's 3rd charactor is 'h'.

Q3. Select the name and email of the Dept Head who is not Permanent.

Project #15

Q1. What is the department name for DeptID E-102?

Q2. What is total salarythat is paid to permanent employees?

Q3. List name of all employees whose name ends with a.

Q4. Select the name of the employee head who is not permanent.

Project #16

Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii) which are based on tables

TABLE : ACCOUNT

ANO	ANAME	ADDRESS
101	Nirja Singh	Bangalore
102	Rohan Gupta	Chennai
103	Ali Reza	Hyderabad
104	Rishabh Jain	Chennai
105	Simran Kaur	Chandigarh

TABLE: TRANSACT

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	102	12000	Deposit	2017-11-06

To display details of all transactions of TYPE Withdraw from TRANSACT table
To display ANO and AMOUNT of all Deposit and Withdrawals done in month of 'May' 2017 from table TRANSACT
To display first date of transaction (DOT) from table TRANSACT for Account having ANO as 102
To display ANO, ANAME, AMOUNT and DOT of those persons from ACCOUNT and TRANSACT table who have done transaction less than or equal to 3000

Project #17

Consider the following tables EMP and SALGRADE, write the query for (i) to (vi) and output for (vii) to (x)

TABLE: EMPLOYEE

ECODE	NAME	DESIG	SGRADE	DOJ	DOB
101	Vikrant	Executive	S03	2003-03-23	1980-01-13
102	Ravi	Head-IT	S02	2010-02-12	1987-07-22
103	John Cena	Receptionist	S03	2009-06-24	1983-02-24
105	Azhar Ansari	GM	S02	2009-08-11	1984-03-03
108	Priyam Sen	CEO	S01	2004-12-29	1982-01-19

TABLE: SALGRADE

SGRADE	SALARY	HRA
S01	56000	18000
S02	32000	12000
S03	24000	8000

(i) To display details of all employee in descending order of their DOJ
(ii) To display NAME AND DESIG of those employees whose sgrade is either 'S02' or 'S03'
(iii) To display NAME, DESIG, SGRADE of those employee who joined in the year 2009
(iv) To display all SGRADE, ANNUAL_SALARY from table SALGRADE [where ANNUAL_SALARY = SALARY*12]

Project #18

Write SQL queries for (i) to (iv) and write outputs for SQL queries (v) to (viii), which are based on the table given below:

Table: TRAINS

TNO	TNAME	START	END
11096	Ahimsa Express	Pune Junction	Ahmedabad Junction
12015	Ajmer Shatabdi	New Delhi	Ajmer Junction
1651	Pune Hbj Special	Pune Junction	Habibganj
13005	Amritsar Mail	Howrah Junction	Amritsar Junction
12002	Bhopal Shatabdi	New Delhi	Habibganj
12417	Prayag Raj Express	Allahabad Junction	New Delhi
14673	Shaheed Express	Jaynagar	Amritsar Junction
12314	Sealdah Rajdhani	New Delhi	Sealdah
12498	Shane Punjab	Amritsar Junction	New Delhi
12451	Shram Shakti Express	Kanpur Central	New Delhi
12030	Swarna Shatabdi	Amritsar Junction	New Delhi

Table: PASSENGERS

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N AGRAWAL	MALE	45	2018-12-25
P002	12015	P TIWARY	MALE	28	2018-11-10
P003	12015	S TIWARY	FEMALE	22	2018-11-10
P004	12030	S K SAXENA	MALE	42	2018-10-12
P005	12030	S SAXENA	FEMALE	35	2018-10-12
P006	12030	P SAXENA	FEMALE	12	2018-10-12
P007	13005	N S SINGH	MALE	52	2018-05-09
P008	12030	J K SHARMA	MALE	65	2018-05-09
P009	12030	R SHARMA	FEMALE	58	2018-05-09

(i) To display details of all Trains which starts from New Delhi
(ii) To display PNR, PNAME, GENDER and AGE of all passengers whose AGE is bel 50
(iii) To display total numbers of MALE and FEMALE passengers
(iv) To display records of all passengers travelling in trains whose TNO is 12015

Project #19

Consider the table SHOPPE and ACCESSORIES, write the query for (i) to (v) and output for (vi) to (x)

Table : SHOPPE

Id	SName	Area
S01	ABC Computronics	CP
S02	All Infotech Media	GK II
S03	Tech Shoppe	CP
S04	Geeks Tecno Soft	Nehru Place
S05	Hitech Tech Store	Nehru Place

Table : ACCESSORIES

No	Name	Price	Id
A01	Mother Board	12000	S01
A02	Hard Disk	5000	S01
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board	13000	S02
A06	Keyboard	400	S03
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

(i) To display Name and Price of all the Accessories in descending order of their Price
(ii) To display Id and Sname of all the Shoppe location in 'Nehru Place'
(iii) To display Name, Minimum and Maximum Price of each Name from ACCESSORIES table
(iv) To display Name, Price of all Accessories and their respective SName from table SHOPPE and ACCESSORIES where Price is 5000 or more.

Project #20

a) In a database there are two tables : Write MYSQL queries for (i) to (iii)

Table : Item

ICode	IName	Price	Color	VCode
S001	Mobile Phones	30000	Silver	P01
S002	Refrigerator	20000	Cherry	P02
S003	TV	45000	Black	P03
S004	Washing Machine	12000	White	P04
S005	Air Conditioner	50000	White	P05

Table : Vendor

VCode	VName
P01	Rahul
P02	Mukesh
P03	Rohan
P04	Kapil

(i) To display ICode, IName and VName of all the vendors, who manufacture "Refrigerator".
(ii) To display IName, ICode, VName and price of all the products whose price >=23000
(iii) To display Vname and IName manufactured by vendor whose code is "P04".

Project #21

In a database there are two tables : Write MYSQL queries for (i) to (vi)

Table : Doctors

DocID	DocName	Department	NoofOpdDays
101	J K Mishra	Ortho	3
102	Mahesh tripathi	ENT	4
103	Ravi Kumar	Neuro	5
104	Mukesh Jain	Physio	3

Table : Patients

PatNo	PatName	Department	DocId
1	Payal	ENT	102
2	Naveen	Ortho	101
3	Rakesh	Neuro	103
4	Atul	Physio	104

(i) To display PatNo, PatName and corresponding DocName for each patient.
(ii) To display the list of all doctors whose NoofOpdDays are more than 3
(iii) To display DocName, Department,PatName and DocId from both the tables where DocID is either 101 or 103
(iv) To display total no of different departments from Patients table.

Project # 22

Employee table

Empid	Empname	Department	Salary
1	User1	HR	15000
2	User2	HR	12000
3	User3	Development	14000

4	User4	Development	22000
5	User5	Testing	33000

Q1. Write a query to find the average salary for each department, excluding employees with salaries above a certain threshold.

Q2. Write a query to find the nth highest salary in an employee table.

Project #23

- **Customers Table:**

Customer ID	Name	City
1	John Levi	New York
2	Jane Tye	Los Angeles
3	Mike Foley	Chicago
4	Alice White	New York

- **Orders Table:**

Order ID	Customer ID	Order Date	Order Total
100	1	2023-07-01	100.00
101	2	2023-06-15	50.00
102	3	2023-07-05	150.00
103	1	2023-07-07	75.00
104	4	2023-07-02	200.00

Q1. Find the total number of orders placed by each customer, excluding orders placed in June.

Q2. Find the customer who has placed the highest total order value.

Q3. List all orders placed on specific dates (eg., 2023-07-04 and 2023-07-06) and their corresponding customer names.

Q4. Find the average order value for each city.

Q5. Identify customers who haven't placed any orders.

Project #24

- **Customers Table:**

Customer ID	Name	City
1	John Levi	New York
2	Jane Tye	Los Angeles
3	Mike Foley	Chicago
4	Alice White	New York

- **Orders Table:**

Order ID	Customer ID	Order Date	Order Total
100	1	2023-07-01	100.00
101	2	2023-06-15	50.00
102	3	2023-07-05	150.00
103	1	2023-07-07	75.00
104	4	2023-07-02	200.00

Q1. Find the month with the highest total order value.

Q2. Write a query to display the top 2 customers with the most orders in the last 30 days.

Project #25

SQL Exercises

Create the following table to store “Employee” details

Employee ID	Employee name	Deptid	Salary	City	Age
101	Chatrapathi	1	12000	Chennai	34
102	Abin Krishnan	1	15000	Noida	36
103	Praveen joseph	2	12000	Delhi	42
104	Remi jullian	1	18000	Pune	44
105	Ramesh	3	22000	Delhi	41
106	Vishal chug	4	15000	Noida	48
107	Jayaseelan	5	28000	Hyderabad	49

108	Priya	6	15000	Hyderabad	46
109	Sankara narayanan	7	25000	Noida	50
110	Kamesh iyer	4	23000	Delhi	42

Constraints to be added

a. Employee ID is a primary key
b. Employee name can't be null
c. Dept id references dept table
d. Salary should be above 10000 min
e. Age should be above 22

Create the following table to store "Dept" details

Deptid	Deptname
1	HR
2	Testing
3	Development
4	Accounts
5	System admin
6	Project management
7	Marketing
8	Business analyst
9	DB developers
0	Architects

Constraints to be added

a. Deptid should be a primary key
b. Depetname can't be null

Queries to be performed

a. Display the employee names who are working in “Noida”
b. Display the average salary of the employees
c. Display no of employees are working in a organization
d. Display the no of employees working in ‘Testing’ dept
e. Display the employee names who are working in ‘HR’ dept
f. Display the employee who is earning Highest salary each dept
g. Display the dept where there are no employees
h. Display the employee who is earning more salary among others
i. Display the no of employees who are working in ‘Hyderabad’
j. Display the count of employees who are not working in ‘Chennai’
k. Display the average salary of employees who are working in ‘Hyderabad’
l. Display the deptname of employee ‘Remi jullian’
m. Display the employees who are earning more than 25000
n. Display the deptid of vishal chug