

2023S – Database Design & SQL

SQL Project – 8%

Create the database of your project using **Oracle Only**

Populate tables with data (5 – 10 records for each table)

This is an individual Project!

**Rename at least one column in each SQL Statement (optional)

****Rename each table (i.e Customer → Customer_697)**

e.g CustomerName As CustomerName_697697

1. Write more than **50 SQL** Statements according to the following criteria

- **At least 5 SQL statements from each categories A-F (Max 8)**
- **At least 5 SQL Statements from Advance Category**
- Try to create complex but meaningful queries than simple queries
- Complex queries and meaningful will get more marks

Provide Screen Shots for

- **SQL Statement(s)**
- **Output (show only first 3 /5 records)**

SQL Categories:

Category A:

- Select columns from a table
e.g. Select customer_id, Customer_name from Customer
- Computed Columns

(Operators +, -, *, /)

Select order_id,order_total,order_total*0.5 as discount from orders

- Null Values (IS NULL , IS NOT NULL)

Select customerid, total from customer where discount IS NULL

- String concatenation
Select Firstname + ' '+LastName from Student

- Distinct Keyword

- Negating a condition (NOT operator)
Select customer_name,discount from customer where NOT country='Canada'

Category B:

- Between..... operator
- IN Operator (NOT IN)
- LIKE Operator (pattern matching)

Select first_name,last_name from employee where last_name LIKE 'aur'

Where Clause with comparison operator

- Comparison Operators (maximum 2 operators only)
=, -, >, <, >=, <=, !=
Select emp_name from employee where salary >= 5000

Category C:

- Logical Operator
AND, OR, NOT
- Combination of logical operators

e.g. Select customer_name, country from customer (city ='Toronto OR city='Brampton')
AND country ='Canada'

- Order By
 - ASC,DESC,FETCH,OFFSET,NULLS FIRST/LAST
- Aggregate function

e.g. AVG, MIN, MAX,COUNT,SUM + with null values + with distinct values

Category D:

- Group By
- Group By Having
- Built In Functions - Character Functions , Numeric Function, Date Functions
- Conversion Functions – TO_CHAR(), TO_DATE()
- LOWER,UPPER,INITCAP,CONCAT,SUBSTR,INSTR,TRIM,PAD,ROUND,CEIL.
NVL.COALESCE,LISTAGG,NULLIF

Category E:

- Multiple Table Queries
 - Inner Join
 - Left Outer Join
 - Right Outer Join
 - Cross Join
 - Self-Join

Category F:

- Single row subqueries

Select customer_id, last_name from customer where salary = (select avg (salary) from employees)

- Correlated Subqueries

Where clause with correlated sub query

EXISTS Operator

NOT EXISTS Operator

- Set Operators (UNION, INTERSECT, MINUS)

Advance Category:

- Other SQL statements not included above
- Complex SQLs (Nested Subqueries + subqueries with JOIN etc.)