SDAC
Making Nation Employable

Name: _____ Batch Code: _____

Database

DAY (1 to 7)	Topic	Planned Date	Actual Date	Status (Completed)	Comment
1	Introduction To Software Data Types Of Data Dbms(What/Why) Rdbms(What/Why) Introduction To Sql (What/Why) Sql Commands(What/Why/How): -Ddl: Drop, Rename, Create, Alter, Truncate -Dml: Update, Insert, Delete -Dql: Select -Dcl: Grant, Revoke -Tcl: Commit, Rollback, Savepoint				
1	Practical				
2	Constraints Types Of Constraints(What/Why/How): -Domain Constraint(Not Null) -Entity Integrity Constraint (Primary Key) -Relational Entity Integrity Constraint (Foreign Key) -Key Constraint(Unique Key, Default, Check)				
2	Practical				
3	Clauses(What/Why/How): -Group By -Having -Order By Function : Built-In Functions: -Aggregate Functions (Average, Sum, Count, Min, Max) -Scalar Functions (Upper, Lower, Round, Substr, Length)				
3	Practical				
4	Joins(What/Why/How): Types Of Joins(What/Why/How): -Inner Join -Outer Join -Left Join -Right Join -Self Join -Cross Join Procedures(What/Why/How)				
5	Practical				
5	Subquery(What/Why/How) Types Of Subquery(What/Why/How): -Single Row -Multi Row Triggers(What/Why/How) Sequence(What/Why/How)				
6	Practical				
7	Final Project				

I acknowledge that I am fully satisfied with the session and have gained a clear understanding of all the topics covered.

Sign: _____

CLASSWORK 1

Sr no.	Questions	Status (Completed)
1	Perform the following query on Employee table having EmployeeID,FirstName,LastName,Department,Salary,Age as attribute	
2	Write a query to add a new column called "Address" to the Employee table.	
3	Write a query to modify the data type of the "Salary" column in the Employee table to a decimal.	
4	Insert atleast 5 employees in employee table.	
5	Write a query to update the salary of an employee with the ID 123 to 60,000.	
6	Write a query to delete an employee with the ID 456 from the Employee table.	
7	Write a query to retrieve all employees from the Employee table.	
8	Write a query to retrieve the names of all employees who are in the "Sales" department.	
9	Write a query to retrieve salary of all employee.	
10	Retrieve the first name, last name, and age of all employee	
11	Write a query to retrieve name,salary.	
12	Write a query to rename column	
13	Write a query to drop column	
14	Write a query to delete all employee record.	

HOMEWORK 1

Sr no.	Questions	Status (completed)
1	create table books with attributes bookid (Integer), title (varchar(100)), author (varchar(100)), price (decimal(10,2)), publishyear (Integer)	
2	Write a SQL query to add a new column called "PublicationYear" to the "Books" table.	
3	Write a SQL query to modify the data type of the "Price" column in the "Books" table to DECIMAL.	
4	Write a SQL query to insert at least 5 books into the "Books" table.	
5	Write a SQL query to update the price of a book with the ID 123 to 30.00.	
6	Write a SQL query to delete a book with the ID 456 from the "Books" table.	
7	Write a SQL query to retrieve all books from the "Books" table.	
8	Write a SQL query to retrieve the titles of all books published in the year 2020.	
9	Write a SQL query to retrieve the price of all books from the "Books" table.	
10	Write a SQL query to retrieve the title, author, and publication year of all books.	
11	Write a SQL query to retrieve the title and price of all books.	
12	Write a SQL query to rename the "Author" column to "BookAuthor" in the "Books" table.	
13	Write a SQL query to drop the "PublicationYear" column from the "Books" table	
14	Write a SQL query to delete all book records from the "Books" table	

CLASSWORK 2

Sr no.	Questions	Status (Completed)
1	Define a table named "Employees" with the following columns: Employeeid (INT, PRIMARY KEY) Firstname (VARCHAR(50)) Lastname (VARCHAR(50)) Department (int) Salary (DECIMAL(10, 2))	
2	Define a table named "Departments" with the following columns: Departmentid (INT, PRIMARY KEY) Departmentname (VARCHAR(50))	
3	Alter the "Employees" table to add a foreign key constraint that references the "Departments" table. Ensure that each employee is associated with a valid department.	
4	Attempt to insert a new employee with a department that does not exist in the "Departments" table, and observe the outcome.	
5	Insert at least five employees into the "Employees" table.	
6	Insert at least three departments into the "Departments" table.	
7	Update the salary of one employee in the "Employees" table	
8	Delete one department from the "Departments" table, ensuring that there are no orphaned records in the "Employees" table.	
9	Retrieve the first and last names of all employees.	

HOMEWORK 2

Sr no.	Questions	Status (completed)
1	Define a table named "Products" with the following columns:ProductID (INT, PRIMARY KEY), ProductName (VARCHAR(100)),Price (DECIMAL(10, 2)),CategoryID (INT)	
2	Define a table named "Categories" with the following columns:CategoryID (INT, PRIMARY KEY), CategoryName (VARCHAR(50))	
3	Define a table named "Orders" with the following columns:OrderID (INT, PRIMARY KEY), CustomerID (INT), OrderDate (DATE).	
4	Define a table named "OrderDetails" with the following columns:OrderDetailID (INT, PRIMARY KEY), OrderID (INT, FOREIGN KEY referencing Orders(OrderID)),ProductID (INT, FOREIGN KEY referencing Products(ProductID))Quantity (INT)	
5	Alter the "Products" table to add a foreign key constraint that references the "Categories" table to ensure each product is associated with a valid category.	
6	Alter the "OrderDetails" table to add foreign key constraints referencing "Orders" and "Products" tables to ensure each order detail links to valid orders and products.	
7	Insert at least three categories into the "Categories" table.	
8	Insert at least five products into the "Products" table.	
9	Insert at least three orders into the "Orders" table.	
10	Insert order details into the "OrderDetails" table for the inserted orders.	
11	Attempt to insert a new product with a CategoryID that does not exist in the "Categories" table and observe the outcome.	
12	Update the price of one product in the "Products" table.	
13	Delete one category from the "Categories" table, ensuring that there are no products left without a valid category.	
14	Retrieve the names of all products along with their category names.	

CLASSWORK 3

Sr no.	Questions	Status (Completed)
1	Calculate the total number of employees in the company.	
2	Find the average salary of all employees.	
3	Find the maximum salary earned by any employee.	
4	Find the minimum salary earned by any employee.	
5	Display the first and last names of all employees in uppercase.	
6	Display the length of each employee's first name.	
7	Concatenate the first and last names of each employee, separated by a space.	
8	Find the top 5 employees with the highest salaries.	
9	Calculate the total salary expenses for each department.	
10	Find the department with the highest average salary of employees	
11	Identify departments with more than 10 employees.	
12	Calculate the minimum and maximum salary within each department	
13	List the employees in alphabetical order of their last names.	
14	Retrieve departments with an average salary greater than $60,000.	
15	Write a SQL query to list all employees from the "Employees" table in descending order of their salaries.	

HOMEWORK 3

Sr no.	Questions	Status (completed)
1	Calculate the total number of products available in the "Products" table.	
2	Find the average price of all products in the "Products" table.	
3	Find the maximum price of any product in the "Products" table.	
4	Find the minimum price of any product in the "Products" table.	
5	Display the names of all products in uppercase.	
6	Display the length of each product's name.	
7	Concatenate the product name and category name for each product, separated by a space.	
8	Find the top 5 products with the highest prices.	
9	Calculate the total sales (sum of quantity sold) for each product in the "OrderDetails" table.	
10	Find the category with the highest average price of products.	
11	Identify categories that have more than 10 products.	
12	Calculate the minimum and maximum price of products within each category.	
13	List all products in alphabetical order of their names.	
14	Retrieve categories that have an average product price greater than $100.	
15	List all products from the "Products" table in descending order of their prices.	

CLASSWORK 5

Sr no.	Questions	Status (completed)
1	Write a SQL query that retrieves a list of employees along with their department names using an INNER JOIN between the "Employees" and "Departments" tables	
2	Write a SQL query to list all departments and the employees working in each department using a LEFT JOIN between the "Departments" and "Employees" tables. Include departments with no employees.	
3	Write a SQL query to list all employees and the department each employee is assigned to using a RIGHT JOIN between the "Employees" and "Departments" tables. Include employees without assigned departments	
4	Write a SQL query to retrieve all employees and all departments. Use a FULL OUTER JOIN between the "Employees" and "Departments" tables	
5	Display all employees and their managers, including employees without assigned managers.	
6	Create a procedure named 'add_employee' to add new employees to the 'employees' table.	
7	Call the 'add_employee' procedure to add two new employees to the table.	
8	Create a procedure named 'update_employee' to update existing employee information in the 'employees' table.	
9	Call the 'update_employee' procedure to update the job title and department of an existing employee.	
10	Create a procedure named 'delete_employee' to delete existing employees from the 'employees' table.	

HOMEWORK 5

Sr no.	Questions	Status (completed)
1	Write a SQL query that retrieves a list of products along with their category names using an INNER JOIN between the "Products" and "Categories" tables.	
2	Write a SQL query to list all categories and the products under each category using a LEFT JOIN between the "Categories" and "Products" tables. Include categories with no products.	
3	Write a SQL query to list all products and the category each product belongs to using a RIGHT JOIN between the "Products" and "Categories" tables. Include products without assigned categories.	
4	Write a SQL query to retrieve all products and all categories using a FULL OUTER JOIN between the "Products" and "Categories" tables.	
5	Write a SQL query to display all orders and the customers who placed them, using a LEFT JOIN between the "Orders" and "Customers" tables. Include orders without assigned customers.	
6	Write a SQL procedure named 'add_product' to add new products to the 'Products' table.	
7	Execute the 'add_product' procedure to add two new products to the 'Products' table.	
8	Write a SQL procedure named 'update_product' to update existing product information in the 'Products' table.	
9	Execute the 'update_product' procedure to update the price and category of an existing product.	
10	Write a SQL procedure named 'delete_product' to delete existing products from the 'Products' table.	

CLASSWORK 6

Sr no.	Questions	Status (completed)
1	Write a SQL query to retrieve all employees from the "Employees" table who work in a specific department (e.g., "Sales"). Use a subquery to filter employees based on the department name	
2	Write a SQL query to find the total salary of all employees in a specific department (e.g., "HR"). Use a subquery to calculate the sum of salaries for that department	
3	Write a SQL query to find the employee(s) with the highest salary from the "Employees" table. Use a subquery to compare salaries and retrieve the employee(s) with the highest salary	
4	Create a trigger that automatically creates a copy of the inserted employee record in a "BackupEmployees" table.	
5	Create a trigger that captures the old values of an employee record before it's updated and stores them in a "EmployeeHistory" table.	
6	Create a trigger that copies the employee record to a separate "DeletedEmployees" table before it's deleted from the main table.	
7	Create a trigger named "monitorhighsalaries" that fires whenever an employee's salary in the "Employees" table is updated to a value greater than $100,000. The trigger should log the employeeid, oldsalary, newsalary, and updatetimestamp in a separate "salaryupdates" table.	
8	Update the salary of an employee in the "Employees" table to be greater than $100,000 and observe how the trigger logs the change in the "salaryupdates" table.	

HOMEWORK 6

Sr no.	Questions	Status (completed)
1	Write a SQL query to retrieve all products from the "Products" table that belong to a specific category (e.g., "Electronics"). Use a subquery to filter products based on the category name.	
2	Write a SQL query to find the total quantity sold of all products in a specific category (e.g., "Clothing"). Use a subquery to calculate the sum of quantities sold for that category.	
3	Write a SQL query to find the product(s) with the highest price from the "Products" table. Use a subquery to compare prices and retrieve the product(s) with the highest price.	
4	Create a trigger that automatically creates a copy of any newly inserted product record in a "BackupProducts" table.	
5	Create a trigger that captures the old values of a product record before it's updated and stores these values in a "ProductHistory" table.	
6	Create a trigger that copies the product record to a "DeletedProducts" table before it is deleted from the main "Products" table.	
7	Create a trigger named "MonitorHighPrices" that fires whenever a product's price is updated to a value greater than $1,000. The trigger should log the ProductID, OldPrice, NewPrice, and UpdateTimestamp in a separate "PriceUpdates" table.	
8	Update the price of a product in the "Products" table to be greater than $1,000 and observe how the "MonitorHighPrices" trigger logs the change in the "PriceUpdates" table.	