

VII. Minimum Theoretical Background:

Microsoft Access stores information which is called a database. To use MS Access, you need to follow these four steps –

- **Database Creation** – Create your Microsoft Access database and specify what kind of data you will be storing.
- **Data Input** – After your database is created, the data of every business day can be entered into the Access database.
- **Query** – This is a fancy term to basically describe the process of retrieving information from the database.
- **Report (optional)** – Information from the database is organized in a nice presentation that can be printed in an Access Report.

VIII. Procedure:

- i. Start Database.
- ii. Click the "Blank desktop database" template.
- iii. Type a file name for the database.
- iv. Choose the folder where to store database.
- v. Click the Create button.
- vi. Save the database.
- vii. Use different features on it and apply it on database.
- viii. Create or Open Database.
- ix. Create table.
- x. Suitable name for table.
- xi. Add fields on table.
- xii. Name of field should be as per proper convention.
- xiii. Choose appropriate data types for representation of type of data.
- xiv. Check the validity of data in each field. Such as primary key assignment.
- xv. Save the table.
- xvi. Close the table.
- xvii. Close the database.

IX. Resources required:

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Hardware: computer system,	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD 500GB	As per batch size	For all Experiments
2	Operating system:	Windows 7 and above /LINUX version 5.0 or later		
3	Software	Any MS Access software.		

Precautions:

- i) All SQL statements must end with a semicolon (;).
- ii) Follow safety practices.

I. Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	hp i7 8040 i3 processor
2	Software	MS ACCESS 2013
3	Any other resource used	Google chrome

III. Result (Output of the executed query):**XIII. Practical Related Questions:**

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise. Use blank pages provided or attach more pages if needed.)

1. Name the types of GUI databases available in your laboratory.
2. Write down the procedure for creating tables in a database.
3. Name open source SQL database management system.

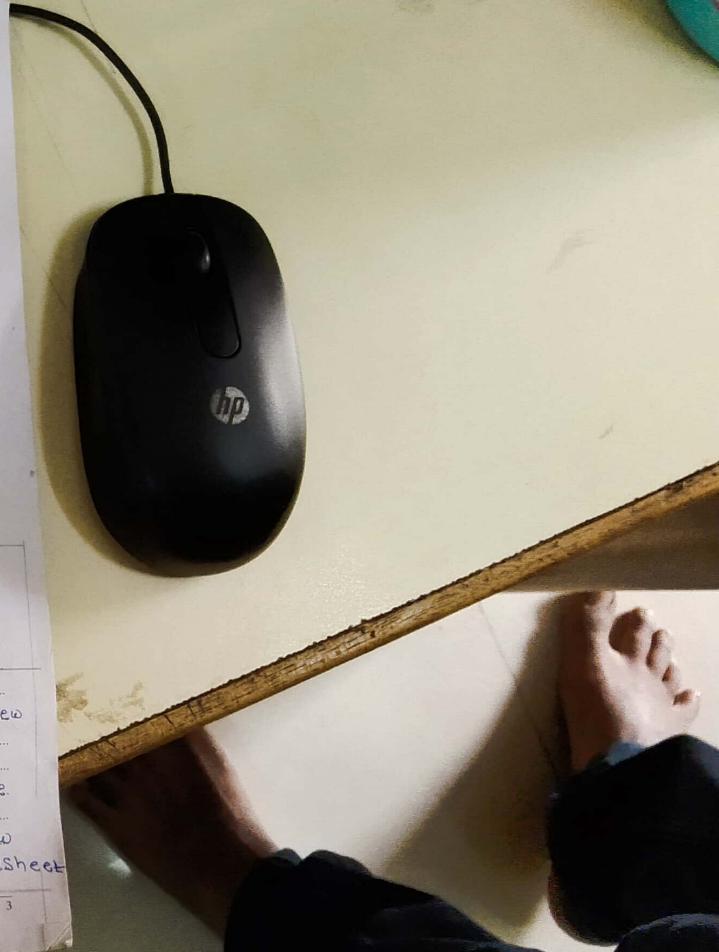
[Space for Answers]

1)

- i) MySQL
ii) My access
iii) Oracle

2)

- i) Click file → New... click MS office button > new
ii) In file name box, type a file name for new database.
iii) To browse to different location to save the database, click the folder icon
iv) Click Create - the new database & a new table named 'table1' is created open in datasheet view.



- ~~Q) same of name source SQL database management system are - i) MS SQL
ii) MySQL
iii) POSTGRE SQL
iv) MONGODB
v) DYNAMODB~~

XIV. Exercise:

Attempt Q1. and teacher shall allot Q. 2 TO Q.5 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

- 1) Create 'student' database and save the database.
- 2) Create 'Employee' database and save it.
- 3) Create multiple tables in database 'Employee' and rename it.
- 4) Create multiple tables in database for 'student' database.
- 5) View the multiple tables in 'student' database

[Space for Answers]

- → ~~i) choose access from 'Start' menu
ii) Select blank database template
iii) Enter file name for your database i.e Student
iv) click the create button & save the database to the location you specified.
v) click on create table button.
vi) Open the table in design view.
vii) Add the field name & datatype & save it.
viii) To view the table Select datasheet view from views group under design tab.
ix) Now enter the data in datasheet view in field id, name, surname, department & mark
x) To set a primary key, select the field & Click on primary key.
xi) For retrieving data on the create tab in other group click on query design add student table & give criteria.
xii) click on run button.~~

IV. References / Suggestions for further Reading:

https://www.ischool.utexas.edu/technology/tutorials/office/access03/access_starting.php

VI. Assessment Scheme:

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Student Team Members

1. APUKA Rendale
2. Sayyatri Rendalkar
3. Maryuri Patil
4.

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
15	9	24	<i>Fatil</i>

Practical No.2: Write MS Access Code to apply given validation on table and set error messages, set default value for column, set and remove database password.

I. Practical Significance:

Student will learn to create a simple structure of database which contains multiple tables. Each table has its own structure. This practical is useful to apply validation on table and set error messages, set default value for column, set and remove database password.

II. Relevant Program Outcomes(POs):

- **Basic knowledge:** Apply knowledge of basic mathematics, sciences and engineering to solve the broad-based Computer engineering problem.
- **Discipline knowledge:** Apply Computer engineering discipline - specific knowledge to solve core computer engineering related problems.
- **Experiments and practice:** Plan to perform experiments and practices to use results to solve broad-based Computer engineering problems.
- **Individual and team work:** Function effectively as a leader and team member in diverse/ multidisciplinary teams.
- **Communication:** Communicate effectively in oral and written form.

III. Competency and Practical skills:

This practical is expect to develop the following skills in you

Develop MS Access code to solve computer engineering related problem.

1. Write MS Access code to apply given validation.
2. Write MS Access code to set default value for column.
3. Write MS Access code to set and remove database password.
4. Follow ethical practices.

IV. Relevant Course Outcomes:

- Create and Manage Database using SQL command.

V. Practical Outcome (POs):

- 1) Perform following in GUI based database using GUI only
- 2) Apply given validation on table and set error messages.
- 3) Set default value for column.
- 4) Set and remove database password.

VI. Relevant Affective domain related Outcome(s):

1. Follow safety measures
2. Follow ethical practices.

VII. Minimum Theoretical Background:

Protecting the validity of your data is one of the most important tasks of a database developer. To ensure that users enter accurate data, start at the foundation. By using validation rules, you can ensure accurate data entry. You can use the Validation Rule property to specify requirements for data entered into a record, field, or control. When data is entered that violates the Validation Rule setting, you can use the Validation Text property to specify the message to be displayed to the user.

The Validation Rule and Validation Text properties don't apply to check box, option button, or toggle button controls when they are in an option group. They apply only to the option group itself. Set the Default Value of each control so they offer the same value as soon as you move into the new record.

L Procedure:

1. Open Database
2. Open the table in Design View
3. At the bottom of the screen find the "Validation rule" field.
4. In the Validation Rule field type validation rule.
5. In the Validation Text field type an error message like.
6. Save the database.
7. Use different features on it and apply it on database
8. Close the database

Resources required:

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Hardware: computer system,	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD 500GB	As per batch size	For all Experiments
2	Operating system:	Windows 7 and above /LINUX version 5.0 or later		
3	Software	Any MS Access software.		

Precautions:

- i) All SQL statements must end with a semicolon (;).
- ii) Follow safety practices.

L Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	HP 280 G3, i3 PROCESSOR
2	Software	MS Access 2013
3	Any other resource used	Google Chrome

Result (Output of the executed query):

XIII. Practical Related Questions:

Note: Below given are few simple questions for reference. Teachers may design more such questions as to to ensure the achievement of identified CO.
(Notes: Use Pages VIII to X and XIII to XV for all relevant programming exercises use blank pages provided or attach more pages if needed.)

1. Apply validation to restrict an hours worked field to values between 0 and 40 inclusives. To do so, you'll use the following expression on an Integer field:
 $\text{And } \geq 0 \text{ And } \leq 40$. When a user enters a value other than 0 through 40, Access displays an error message and rejects the input value.
2. Set a default date value in a text box when the user adds a new record.
3. What is the use of Validation Rule and Validation Text?

XIV. Exercise:

Attempt Q1, and teacher shall allot Q. 2 TO Q. 5 from the following:

(Note: Use Pages VIII to X and XIII to XV for all relevant programming exercises use blank pages provided or attach more pages if needed.)

1. Create a validation rule for a field that allows only values over 65 to be entered. If a number less than 65 is entered, a message is displayed.
2. Set course name as a default value in a text box when the user adds a new record.
3. Create a validation rule for a PARENT_MOBILE_NID field that allows only no value that consists of 10 number values. "Mobile number must consist of 10 numbers" this message is displayed if the value entered doesn't fit Validation Rule.
4. Set a database-level password on a database.
5. Remove a database-level password from a database.

[Space for Answer]

- 4) i) Open database click on database tool
ii) Click on encrypt with password
iii) Enter & verify the password that you want to use
iv) Click OK

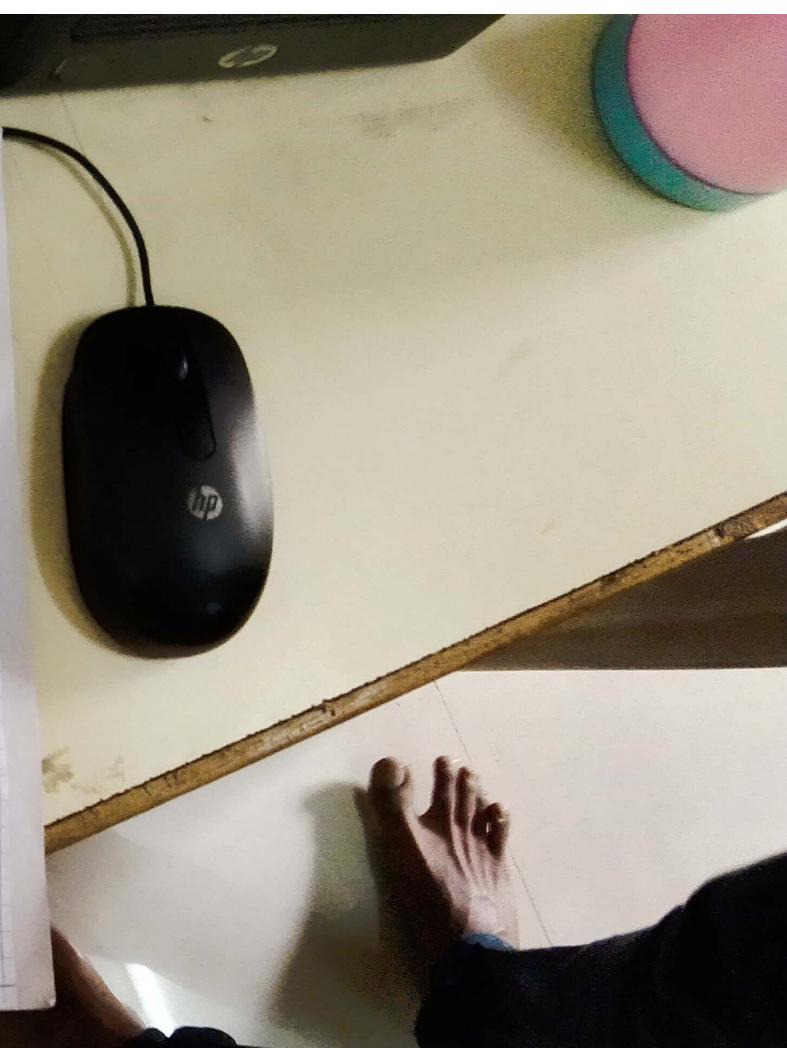
- 5) i) In the database tool tab click on decrypt database
ii) Enter the password & click 'OK'

- 5) Validation rule
 $[0-9][\cdot-9][0-9][0-9][0-9][0-9][0-9][0-9]$
 $[0-9][0-9][0-9]$

- 9)
- i) Open design view of table
 - ii) Select name of course name
 - iii) Open field Property window write default value 'CSF' & save the change.

III - Practice Questions

- 1) Validation rule -
 $\leq 40 \text{ And } \geq 0$
 Validation Text -
 "Enter value of either than 0 through 40"
- i) Select row of data
 - ii) Open field Property window write default values '1/8/12' & save change.
- 2) You can use validation rule property to specify requirement for data entered into a data record, field or control. When data is entered that violates the validation rule setting. You can use Validation text property to specify the message to be displayed to users.
 Example: If salary is greater than 10,000 then validation rule for salary column will be $> 10,000$ & validation text will be "Enter the salary greater than 10000".



1 Validation text
→ "Enter a number"

Validation rule = > 65

Validation text - "Enter a number greater than 65"

References / Suggestions for further Reading:

- <http://en.tekstenuitleg.net/articles/software/access-validation-rule-tutorial>
- <http://allenbrowne.com/ValidationRule.html>

I Assessment Scheme:

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Student Team Members

- Apurv Rendale
- Gayatri Rendalakar
- Mayuri Patil
-

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
15	9	24	<i>Patil</i> 10-7-18

Database Design Project Guidelines 2019

IX. Resources required:

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware Computer System	Computer (i5 or i7 preferable). RAM minimum 2 GB and onwards	As per batch size	
2	Operating system	Windows XP/Windows 7/LINUX version 5.1 and later		
3	Software	MS-Access Any RDBMS software (MySQL, SQL server, Oracle, MySQL Express Edition.)		

X. Presentations:
 Use appropriate Notations for E-R Diagrams.
 Prepare Notation database using 1NF, 2NF and 3NF.
 Follow safety practices.

XI. Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	INTEL (i8) CORE (i7)
2	Software	ORACLE
3	Any other resource used	

XII. Result (Output of the Program):

XIII. Practical Related Questions:
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.
(Note: Use Points VIII to X and XIII to XV for all relevant programming exercise usage pages provided or attach more pages if needed.)

- Draw notations for Multivalued and Derived Attribute.

www.msbtresolution.xyz

⑥ → Notation for multivalued & derived attribute

i) Multivalued attribute -

ii) Derived attribute -

⑦ →

i) Derived attribute -
 There are no derived attribute in Fig 2

ii) Multivalued attribute -
 There are no multivalued attribute in Fig 2

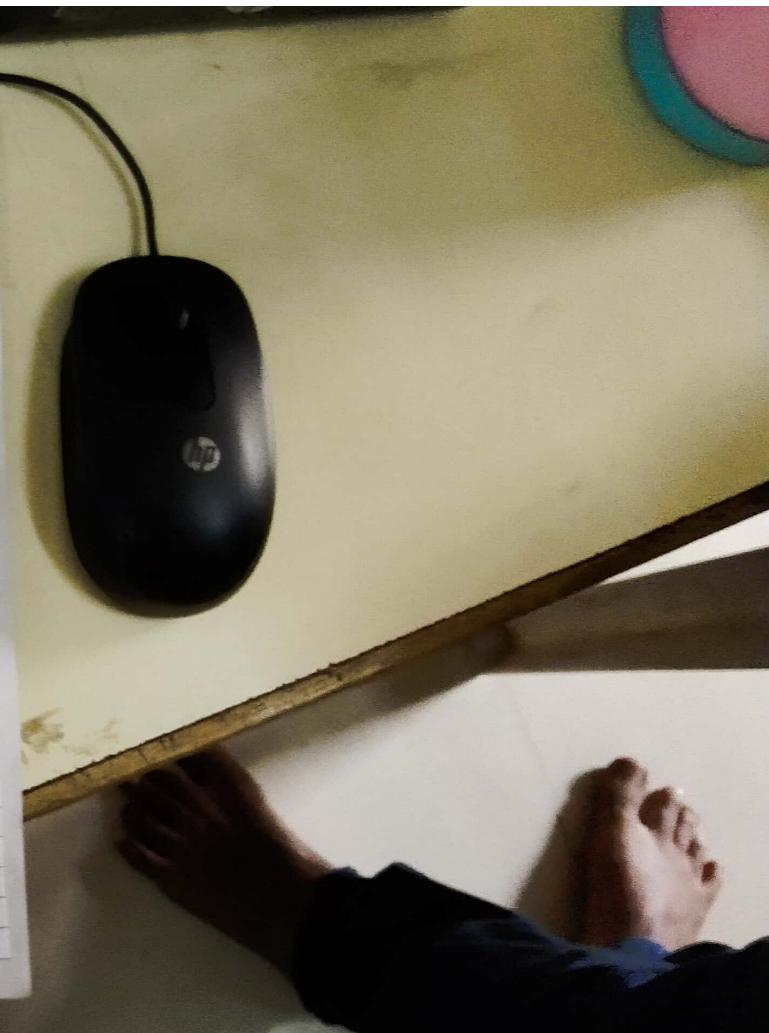
BookId , PubId , StudId
 Foreign Key -
 PubId

• Theory related question :-

⑧ → Notation for Strong entity & weak entity

Strong entity -

Weak entity -



Q2) →
Strong entity

i) A strong entity is one who existence does not depend on other entity.

ii) A Strong entity is always has Primary key set of attribute that describe strong entity.

iii) It is denoted by □

iv) Relation betn strong entity is denoted by ○

Weak entity

i) Weak entity one who exist depends on owner entity.

ii) It doesn't have Primary key set on entity can be denoted by only it self.

iii) It is denoted by []

iv) Relation betn weak entity is denoted by ◊

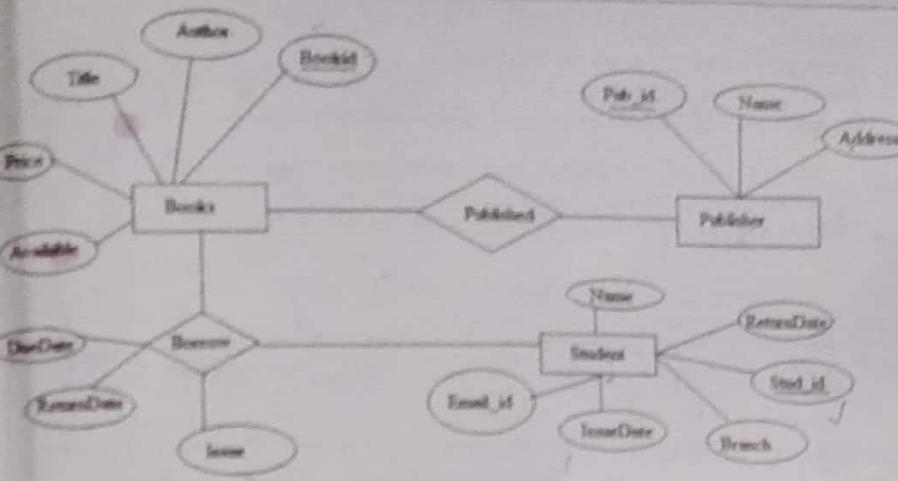


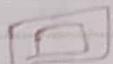
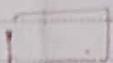
Fig2.ER Diagram for Student Borrowing Books Published by Publisher

- Identify Derived Attribute
- Identify Multivalued Attribute
- Identify Primary Key and Foreign Key
- Consider the database of Fig2 and Draw normalize tables upto 3NF

Key Related Questions:

Draw notations for strong & weak entity.
Difference b/w strong & weak entity.
(Space for answers)

Q3:

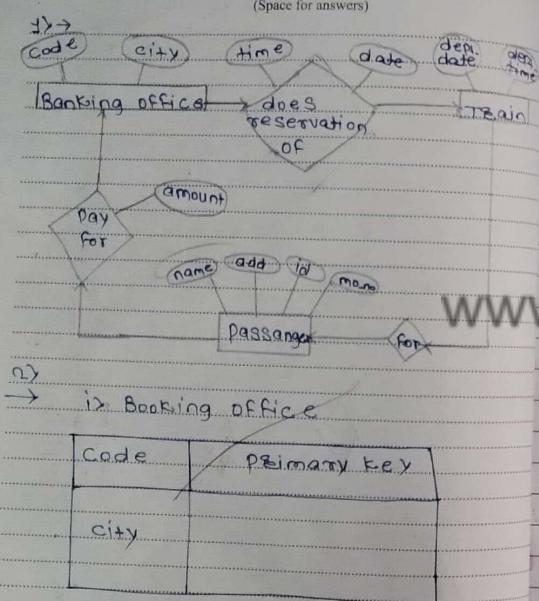


XIV. Exercise:**Attempt Q1. and Q.2 from the following:**

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercises. Use blank pages provided or attach more pages if needed.)

1. Draw ER Diagram for Railway Reservation System using minimum 4 entities.(Hmt, Customer_Details, Train_Details, Payment_Details etc)
2. Normalize the database of Railway Reservation System upto 3NF.

(Space for answers)



ii) Train -

ticket-id	Primary key
dept-date	
dept-time	
boogie-no	

iii) Passenger -

Name	Address
ticket-id	foreign key reference to train table.
mo.no	



XI. Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	HP 2803 i3 processor
2	Software	MS access 2013
3	Any other resource used	google chrome

XII. Result (Output of the SQL Commands):

create table emp
 empno number not null primary key,
 emp-name varchar(20) not null,
 salary number,
 phno number

insert into emp values(44,'Rahul',40000,9696999996)
 insert into emp values(9,'Krunal',400000,98900886)
 create table dept
 dept-id number not null,
 dep-name varchar(20) not null,
 location varchar(20),
 empno number
 primary key (dept no)
 constraint fk_emp foreign key (emp-no)
 references emp (emp-no)

insert into dept values(103,'CSE','Pune',456)
 insert into dept values(486,'ENTC','Mumbai',77)
 Select * from dept
 Select * from emp

eno	ename	salary	phno
4	Rahul	40000	96969996
9	Krunal	400000	98900886

Table: emp (2)



dept-no	dept-name	location	emp->
123	CSE	Pune	4
486	ENTC	Mumbai	9

- Theory Question

→

→ DDL command are as follow -

i) Create -

create table tablename
(

 col1 datatype (size),

 col2 datatype (size),

 coln datatype (size)

)

ii) alter - query to add column in table

- alter table tablename

 add columnname datatype.

iii) drop -

 alter table tablename

 drop column col-name

iv) rename -

 alter table tablename

 rename to new name-

v) desc -

 desc tablename

The describe(desc) command is used to display the structure of table

Syntax -

desc tablename

drop

truncate

i) It used to delete table permanently from database.

ii) Syntax -
drop table tablename.

i) It is used to delete all record from table

ii) Syntax
truncate table tablename.

Exercise

rollno	studname	percentage
1	Rohan	90
2	Priti	95
3	Mayatri	85

Query

→ alter table stud
add city varchar(30)
Select * from stud

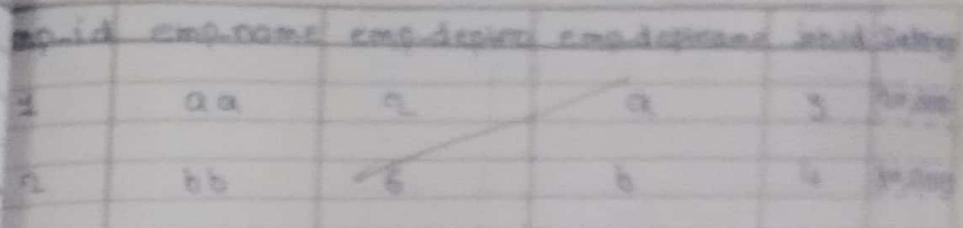
table - Stud		
region	studname	percentage
1	Rohan	90
2	Ariti	95
3	Gayatri	85

3) Query -



alter table Stud
modify studname varchar(3)

insert into employee values(1, 'aa', 2, 2, 1, 2000)
insert into employee values(2, 'a', 2, 2, 1, 2000)
select * from employee



Exercise:

Attempt Q1, and teacher shall allow Q. 2 to Q.4 from the following:

(Note: Use Points VIII to X and XIII to XV for all relevant programming exercise
use blank pages provided or attach more pages if needed.)

1. Create table for stud using attributes Rollno, studname, percentage with primary key for rollno and check constraint on percentage should not greater than 100.
2. Change the stud table structure by adding column city.
3. Increase the size by 10 of studname column.
4. Write output of the following:

www.msbtresolution.xyz

Q1) Create table
passenger (rollno, passenger_name
varchar(20), train_details
varchar(20), travelling_date date
birthdate date);

Write output here: PRACTICE DETAILS
ROLLNO 1234567890 4567890
NAME DILIP KUMAR MISHRA
TRAIN NO 1234567890
BIRTHDAY 12-12-1990

Q2) Alter table stud add column
Ticket_no number;

ROLLNO	PASSANGER_NAME
1	DILIP KUMAR MISHRA
2	ABC 98
3	DEF 99

(Please for answer)

Q3) Query

→ creates table Stud

Rollno Constraint: C1 (rollno primary key);
studname varchar(20);
percentage number check(percentage >= 0 and percentage <= 100);

`insert into stud values (1, 'Rohan', 90)
 insert into stud values (2, 'Priti', 99)
 insert into stud values (3, 'Gayatri', 85)`

`select * from stud`

XV. References / Suggestions for further Reading:

www.w3school.com

XVI. Assessment Scheme:

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Students / Team Members

1. Apurva Rendale
2. Gayatri Rendale
- 3.

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
14	9	23	24-7-18

Practical No. 5: Execute DML Commands in SQL

Practical Significance:

Student should be able to create a database table using integrity constraints and should be able to use Data manipulation language to insert, update, delete and manage the database. This will help to understand different issues involved in design and implementation of database.

Relevant Program Outcomes (POs):

- Discipline knowledge: Apply Computer engineering discipline - specific knowledge to solve core computer engineering related problems.
- Experiments and practice: Plan to perform experiments and practices to use the results to solve broad-based Computer engineering problems.
- Engineering tools: Apply relevant Computer technologies and tools with an understanding of the limitations.
- Communication: Communicate effectively in oral and written form.

Competency and Practical skills:

This practical is expect to develop the following skills:

Design and Execute Data Manipulation Language Queries

1. Creating the database table.
2. Insert single or multiple rows into the table.
3. Update single and multiple rows of the table.
4. Delete single and multiple rows of the table.

Relevant Course Outcome(s):

- Create and Manage Database using SQL commands

Practical Outcome (POs):

- a) Create and Execute DML commands using SQL.

I. Relevant Affective domain related Outcome(s):

1. Follow safety measures
2. Follow ethical practices.

II. Minimum Theoretical Background:

Data Manipulation Language(DML): DML statements are used to insert single as well as multiple rows/tuples, update single or multiple rows/tuples in the table, delete single or multiple rows/tuples from the table and to retrieve the data i.e. rows/tuples from the table. The different DML commands used are:

- 1) INSERT 2) UPDATE 3) DELETE 4) SELECT
- 1) **INSERT INTO:** This statement is used to add new rows/tuples into the relation/table. There are three type of INSERT INTO queries:

- Inserting a single record
 - Inserting a multiple records
 - Inserting a records from another relation/table
- 2) **UPDATE-SET-WHERE:** This statement is used to update or modify single or multiple rows/tuples of the relation/table.
- 3) **DELETE:** This statement is used to delete single or multiple rows/tuples from the relation/table. When all rows/tuples are deleted the structure of relation/table is still retained.
- 4) **SELECT :** This statement is used to retrieve information from the table relation. The DISTINCT keyword with select is used to retrieve only distinct rows/tuples. You can use WHERE clause to retrieve the rows/tuples with specific conditions. WHERE clause filters the rows retrieved from the relation/table and gives only the rows/tuples satisfying the conditions.

VIII. Procedure:

- i. Using the appropriate database to create table by applying integrity constraints.
- ii. Insert single or multiple rows by using INSERT command.
- iii. Display the contents of the table using SELECT command.
- iv. Update single or multiple rows using UPDATE-SET-WHERE command by giving specific condition in WHERE clause.
- v. Display the contents of the table using SELECT command to check the updates.
- vi. Delete single or multiple rows using DELETE command. Use WHERE clause by giving specific condition in WHERE clause to delete particular rows from the table.
- vii. Display the contents of the table using SELECT command to check whether rows are deleted.

IX. Resources required:

Sr. No.	Name of Resource	Specification	Quantity	Ref
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD of 160GB		
2	Operating system	Windows 7 and Above/LINUX version 5.0 or later		
3	Software	Any RDBMS software (MySQL/SQL server/Oracle10g Express Edition)		

X. Precautions:

1. All SQL statements must end with a semicolon (;).
2. Follow safety practices

Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	hp 280 G4, i3 processor
2	Software	oracle
3	Any other resource used	

Result (Output of the Executed Queries):**Practical Related Questions:**

Note: Before given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

- 1) Create a table EMPLOYEE with following schema
`Emp(Emp_no, E_name, Dept_no,Dept_name,Job_id,Salary,hiredate)`
Values(1,'Shreyas',100,Sales,111,40000,'28-09-2014');
- 2) Insert multiple rows in the above table Emp using single INSERT command of SQL.
- 3) Execute the following queries ,debug the errors and write the output:
 - a. Insert into
`Emp(Emp_no,E_name,Dept_no,Dept_name,Job_id,Salary,hiredate)`
Values(1,'Shreyas',100,Sales,111,40000,'28-09-2014');
 - b. Delete Emp where E_name=Shreyas;
 - c. Update set salary =50000 where dept_no=production
 - d. Select * from where salary >=25000 and <=60000

Theory Question:

- (1) Analyze the difference between drop & delete.
- (2) How to delete multiple records?
- (3) Mention TRUE/FALSE. Justify "After 'drop table', the structure of the database remain same".

(Space for answers)

1. `create table employee (`
`emp_no number,`
`e_name varchar(20),`
`dept_no number,`
`dept_name varchar(20),`
`job_id number,`
`salary number,`
`hiredate date)`



output -

emp-no	e-name	dept-no	dept-name	job	sal
101	abc	D301	Manag	No1	30,000
102	Par	D302	Product	No2	40,000
103	XYZ	D303	Clerk	No3	50,000

2.

empno	e-name	dept-no	dept-name	job-id	sal	hiredate
101	abc	D301	Manag	No1	30,000	28/9/14
102	Par	D302	Product	No2	40,000	17/10/14
103	XYZ	D303	Clerk	No3	50,000	16/11/14

XIV. Exercise:

Attempt Q1. and Q. 2 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercises. Use blank pages provided or attach more pages if needed.)

1. Create a table **EMPLOYEE** with following schema:

Emp(Emp_no,E_name,Dept_no,Dept_name,Job_id,Salary,hiredate)

Write SQL queries for following question:

- Insert at least 5 rows in the table.
- Display all the information of EMP table.
- Display the information of employees working in department PRODUCT and salary above 40000.
- Update the salary of employees to 30000 working in department sales.
- Delete the employee working in SALES department having salary below 10000.
- Display the complete record of employees working in SALES Department.

2. Create a tables **EMPLOYEE** and **DEPARTMENT** with following schema by applying Primary key and Foreign key:

*Emp(empno,ename,salary,phno)**Dept(deptno,deptname,location,job_id)*

- Insert 5 rows in both the tables

- Display information of both tables

- Update deptno of employee Shreyas to 201

- Delete the information of employees belonging to department

- Delete the information of Employee and Department and analyze the difference.

(Space for answers)

emp-no	e-name	dept-no	dept-name	job-id	salary	hire-date
101	abc	D301	Mgr	1	30,000	28/9/14
102	Par	D302	Production	2	40,000	30/9/14
103	XYZ	D303	Clerk	3	50,000	16/10/14
	Shreyas	100	Sales	4	40,000	28/9/14

emp-no	emp-name	dept-no	dept-name	job	sal	date
101	abc	D301	Manag	No1	30,000	28/9/14
102	Par	D302	Product	No2	40,000	30/9/14
103	XYZ	D303	Clerk	No3	50,000	16/10/14

emp-no	e-name	dept-no	dept-name	job	sal	date
101	abc	D301	Mgr	1	30,000	28/9/14
102	Par	D302	Sale	2	40,000	17/10/14
103	XYZ	D303	Production	3	50,000	16/10/14

emp-no	e-name	d-no	d-name	id	sal	date
101	abc	D301	Mgr	33	30,000	28/9/14
102	Par	D302	Production	43	40,000	30/9/14



Theory Questions:

→ Drop

Q) The drop command
remove a table
from database.

Q) Drop is DDL
command.

Q) The operation
can not be roll
back.

Q)

→ To delete multiple record use having
'Delete' command. Delete command delete
multiple record of column.

Syntax -

delete from tablename
where condition;

Q)

→ The sentence 'After drop table' the
of database become same" is false because
after dropping the table is deleted in
database therefore there is no table
after dropping table.

Delete

Q)

Q) Delete is
using a row
each time
is blocked by

Q) Delete is
command

Q) Delete can
with
View

insert

into employee values (10, ABC, 10, 10,

Sales, Production, 2-10-12)

insert into employee values (10, ABC, 10,

Sales, 10-01-2000, 10-3-2005)

insert into employee values (10, XYZ, 10, Mgr,

10-03-2000, 10-12-2000)

insert into employee values (10, MNO, 10, Sales,

10-03-2000, 10-12-2000)

www.msbtresolution.xyz

emp-id	e-name	dept	dept	10h	Sal	name	date
no	name	id	name	id	no	date	date
103	ABC	10	Production	1000	5000	2/10/12	
104	DEF	20	Sale	1001	6000	3/10/12	
105	XYZ	30	Mgr	1002	7000	4/8/12	
106	MNO	40	Sale	1003	8000	9/10/11	
107	STU	10	Code	1004	9000	7/9/12	

Select * from employee
where ((deptname = 'Production') & (Sal > 40000))

223

emp id	e-name	dept no	dept name	job id	sal
101	ABC	10	Production	1700	50000

emp id	e-name	dept no	dept name	job id	sal	hire date
102	PQR	20	Sale	1701	8000	17/3/15
104	MNO	20	Sale	1703	9000	16/12/17

d>

→ update set salary = 30000

where

dept-name = 'Production'

www.msbtresolution.xyz

e>

→ delete from emp

where ((dept-name = 'Sales')

& (sal < 10,000))

f>

→ select * from emp

where

dept-name = 'Sales'

V. References / Suggestions for further Reading:

https://www.w3schools.com/sql/sql_select.asp

Operator	Its types
Arithmetic operators	+,-,*,/
Comparison operators	<,>,=,<=,>=,!=
Logical operators	AND,OR,NOT
Set operators	UNION,INTERSECT,MINUS,UNION ALL
Range Searching Operator	Between, Not Between
Pattern matching operator	LIKE,NOT LIKE,IN,NOT IN

Subqueries :- A subquery or inner query or nested query is a query within another query & embedded within where clause.

VIII. Procedure:

- Use the table created in practical 4 and practical 5.
- Display the information of the tables using SELECT statement.
- Execute the SQL queries using Arithmetic Operators.
- Execute the SQL queries using Comparison Operators.
- Execute the SQL queries using Logical Operators.
- Execute the SQL queries using Set Operators.
- Execute the SQL queries using Range Searching Operators.
- Execute the SQL queries using Pattern Matching Operators.

IX. Resources required:

Sr. No.	Name of Resource	Specification	Quantity
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD of 160GB	As per batch size
2	Operating system	Windows 7 and Above/LINUX version 5.0 or later	As per batch size
3	Software	Any RDBMS software (MySQL/SQL server/Oracle10g Express Edition)	As per batch size

X. Precautions:

- All SQL statements must end with a semicolon (;).
- Follow safety practices

Subqueries can be used with SELECT, INSERT, UPDATE & DELETE statements along with the operators =, <,>, >=, IN, BETWEEN, ORDERBY, etc.

Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	Intel Core (R) TM i3 4GB RAM
2	Software	Turbo C++
3	Any other resource used	

Results (Output of the Program):

Practical Related Questions:

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Consider the table EMPLOYEE.

Emp(Emp_no, E_name, Dept_no, Dept_name, Job_id, Salary, hiredate).
Execute and write output of the following queries:

- Select * from Employee where salary > 10000 and less than salary from Emp.
- Select * value from Emp where salary <=50000 and >=25000;
- Select details of employee having salary more than Ashish Salary;
- Select * from Emp where Dept_no > 20;

2. Consider the table EMPLOYEE and DEPARTMENT

Emp(Emp_no, E_name, Dept_no, Dept_name, Job_id, Salary, hiredate), Dept(Dept_no, Dept_name, Loc, job_id);
Execute and write output of the following queries

- Select * from Emp union Select * from Dept;
- Select * from Emp intersect Select * from Dept;
- Select * from Emp minus Select * from Dept;
- Select * from Emp where salary Emp_no between 100 and 200;
- Select * from Emp where E_name IN('Shreyas');

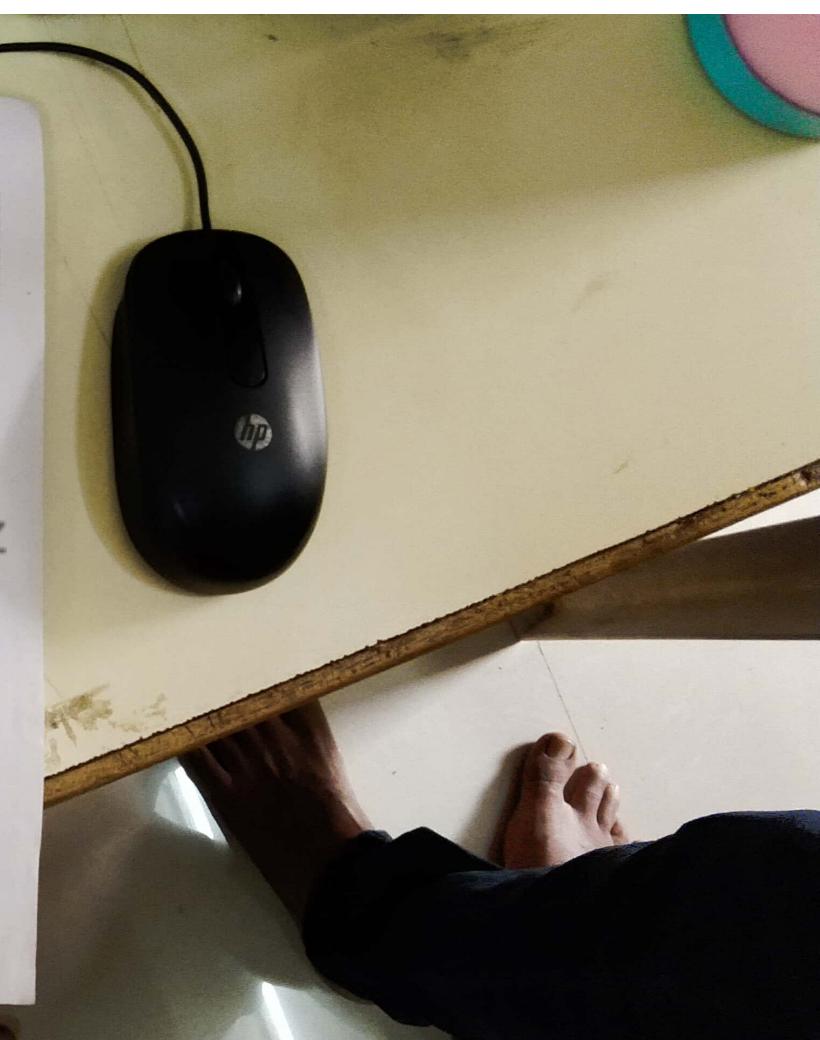
Theory Question:

- What is the use of SET Operators.
- Syntax of (i) BETWEEN (ii) NOT BETWEEN (iii) LIKE (iv) NOT LIKE (v) IN
- Difference between UNION & UNION ALL.

(Space for answers)

1. 1)

2.)

→ Update Employee
Set salary = salary + salary * 0.2

	Name	id	Salary
10	Pqr	13	bbb
53	rrr	110	xzy
1	abc	11	aaa

b)
→ select e-name, emp-no from employee
where salary <= 50,000 and salary >= 25000
Output -

E-name	EMP-no
rrr	53
abc	1

elect * from employee
where salary > (select salary from employee
where e-name = 'ashish');
put:-

Emp-no	E-name	Dept-no	Dept-name	Job-id	Salary
	Pqr	13	bbb	34	60,000
	abc	11	aaa	12	48000

XIV. Exercise:
Attempt Q1. and Q. 2 from the following:
(Note: Use Point VIII to X and XIII to XIV for all relevant programming exercise
use blank pages provided or attach more pages if needed.)

Consider the table EMPLOYEE and DEPARTMENT
Emp(Emp_no, E_name, Dept_no, Dept_name, Job_id,
Salary, hiredate). Dept(E_name, Dept_no, Location);

1. Write SQL Queries for the following:

- Display the name of employees who does not work under any Job_id=2.
- Display names of all employees whose name is exactly 6 characters long.
- List all employees information except job_id =2 and job_id=3.
- List the employee name and salary whose salary is not in the range of 20000 to 35000.
- List Common E_name from Emp and Dept Tables.
- Display the name of employee whose salary becomes more than 50000 after giving 15% increment.

2. Execute and Write output of the following queries:

- Select * from Emp where Salary > 40000 AND Dept_Name='Sales';
- Select * from Emp where NOT(Dept_Name='Sales');
- Select * from Emp where E_name like 'S%';
- Select * from Emp where E_name like '_s%';

Select * from employee
here dept-no <> 13

put -

Dept-no	E-name	Dept-name	Job-id	Salary
110	rrr	xzy	111	40800
11	abc	aaa	12	48000

i)

Select dept-no from emp
union

Select dept-no from dept

O/P :-

Dept_no

10

20

30

40

50

i) query -

Select dept_no from emplo

intersect

Select dept_no from dept

O/P -

Dept_no -

10

20

30

40

ii) query -

Select * from emp

minus

Select * from dept

or

Select dept_no from emplo

minus

Select dept_no from dept

O/P -

dept_no

50

iv) query -

Select * from emplo

where emp_no >= 3 and empno

gt 2

O/P -

EMP-no	E-name	Dept_no	Dept.name	Job	Sal
3	ashish	30	research	7	96000
4	smita	40	Production	8	84000
5	arohi	50	management	9	36000

v)

• Theory question

⇒

→ Advantages of set operation -

It provides better result.

vi)

→ Between -

Select colname from table-name where
col-name between value1 and value2.

ii) Not between -

Select col-name from table-name
where col-name not betw value1 and value2

iii) IN -

Select col-name from table-name
where col-name In (Val1, Val2)



iv) Like-

Select col-name from table-name
where col-name like pattern.

v) Not like -

Select col-name from table-name
where col-name not like pattern

3)

→ Union

Union all

i) Union perform a
distinct on result
set eliminating any
duplicate row.

i) Union all does
remove duplicates
& therefore it is
than Union.

ii) Union must perform
a distinct sort
operation to remove
all duplicate from
result.

ii) When we do
execution plan
union all, it does
not include a
distinct sort.

Exercise

emp(emp-no, e-name, dept-no, dept-name, job-id,
salary, hiredate)

dept(e-name, dept-no, location)

EMP

emp-no	e-name	dept-no	dept-name	job-id	sal	hiredate
1	Varun	7	CEO	101	50,000	14/3/11
2	Sanika	8	Sale	102	36000	28/9/13
3	Tutuja	9	Mgr	103	40000	2/12/14
4	Reena	10	Production	104	20000	16/12/14
5	Sumit	11	Clerk	105	30000	17/3/13

dept.

e-name	dept-no	location
Varun	7	NY
Tutuja	9	NY
Reena	10	Melbourne
Shreya	13	Sydney

Q. 1. i) →

Query - Select * from emp

where NOT (job-id = 2);

31.4

	e-name	dept-no	d-no	job	id	sal	hr
1	Varun						
3	Tutuja	7		CEO	101	50000	14
4	zeena	9		Mgr	103	40000	14
5	sumit	10		Production	104	20000	21
		11		Clerk	105	30000	17

→ 3) query -

```
Select * from emp
where ((job-id)=2) || (job-id!=3)
```

Output:

	emp-no	e-name	dept-no	dept-name	id	sal	hr
1		Varun					
4		Tutuja	7	CEO	101	50000	14
5		zeena	9	Mgr	103	40000	14
		sumit	10	Production	104	20000	21
			11	Clerk	105	30000	17

→ 4) query -

```
Select e-name, sal from emp
where sal not between 20000 and 35000
```

O/P :-

e-name	Sal
Varun	50000
Sanika	36000
Tutuja	40000

5) →

Select e-name from emp
intersect

Select e-name from dept

O/P :-

e-name
Varun
Tutuja

6) →

Select e-name (Sal + Sal * 0.15) from emp
where sal > 75000

O/P :-

e-name	Sal
Varun	59500

7) a) →

Select * from emp
where sal > 30000 and dept-name = 'sales'

(Space for answers)

Q) O/P:-

emp-no	e-name	dept-no	dept-name	job	sal
				id	
2	Sanika	8	Sales	102	36000

Q) →

select * from emp
where NOT (dept-name = 'Sales')

O/P:-

emp-no	e-name	dept-no	dept-name	job	sal
				id	
1	Varun	7	CEO	101	50000
3	Rutuja	9	Mgr	103	40000
4	Reena	10	Produ	104	30000
5	Sumit	11	Clerk	105	30000

Q) →

select * from emp
where e-name like 'S%'

O/P:-

emp-no	e-name	dept-no	dept-name	job	sal
				id	
2	Sanika	8	Sale	102	36000

d) →

select * from emp
where e-name like '-a%'

O/P:-

emp-no	e-name	dept-no	dept-name	job	sal	hiredate
				id		
1	Varun	7	CEO	101	50000	14/3/12
2	Banita	8	Sale	102	36000	28/3/12
3	Rutuja	9	Mgr	103	40000	2/12/12

www.msbtresolution.xyz

- CONCAT
- SUBSTR
- LENGTH
- INSTR
- LPAD/RPAD
- LTRIM/RTTRIM

2. ARITHMETIC FUNCTIONS: SQL numeric functions are used for numeric manipulation and/or mathematical calculations.

- ABS
- CEILING
- FLOOR
- EXP
- POWER
- SQRT
- MOD

3. DATE & TIME FUNCTIONS: SQL Date & Time functions are used for operations on date and time provided by users. Teacher may teach additional functions other than this.

- SYSDATE
- NEXT_DAY
- ADD_MONTHS
- LAST_DAY
- MONTHS_BETWEEN
- LEAST
- GREATEST
- DATE_ADD
- DATE_SUB
- NOW()
- DATEDIFF
- FLOOR

4. AGGREGATE FUNCTIONS: An aggregate function allows you to perform a calculation on a set of values to return a single scalar value. We often use aggregate functions with the GROUP BY and HAVING clauses of the SELECT statement.

- AVG
- COUNT
- MAX
- MIN
- SUM

Procedure:

- i. Use the Emp and Dept Table created in practical 4 and practical 5.
- ii. Display the information of the tables using SELECT statement.
- iii. Execute the SQL queries using Numeric Functions.
- iv. Execute the SQL queries using String Functions.
- v. Execute the SQL queries using Date and Time Functions.
- vi. Execute the SQL queries using Aggregate Functions.

Resources required:

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD of 160GB	As per batch size	For all Experiments
2	Operating system	Windows 7 and Above/LINUX version 5.0 or later		
3	Software	Any RDBMS software (MySQL/SQL server/Oracle10g Express Edition)		

Precautions:

1. All SQL statements must end with a semicolon(;) .
2. Follow safety practices.

Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	intel i3 4GB RAM
2	Software	oracle
3	Any other resource used	

Results (Output of the Program):

III. Practical Related Questions:

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

Consider the table EMPLOYEE and DEPARTMENT.

Emp(Emp_no, E_name, Dept_no, Dept_name, Job_id, Salary, hiredate).



1. Write Output of the following queries:

- a) Select abs(-25) from dual; = 25
- b) Select exp(4) from dual;
- c) Select power(4,2) from dual;
- d) Select mod(10,3) from dual;
- e) Select sqrt(16) from dual;

2. Write Output of the following queries:

- a) select concat('Shreyas','NBA') from dual;
- b) select initcap('shreyas'), 's' from dual;
- c) select initcap('shreyas'), 'S' from dual;
- d) select lower('SALES') from dual; = SALES

3. Write Output of the following queries:

- a) select sysdate from dual;
- b) select next_day(sysdate, 'TUE') from dual;
- c) select add_months(sysdate, 2) from dual;
- d) select last_day(sysdate) from dual;
- e) select months_between(sysdate, hiredate) from Emp; = 28

Theory Question :

- (i) Use of format() function with syntax & example.
- (ii) Use of months_between function with syntax & example.
(Space for answers)

Q. 1)

a) ABS(-15)

15

b) EXP(4)

54.5981500331442390781102610028608784031

c) Power(4, 2)

16

d) Mod(10, 3)

1

e) Sqrt(16)

4

2
2. CONCAT ('SHREYAS', 'NBA')
Shreyasnba
3. LTRIM ('SHREYASSS', 'S')
hreyasss
4. RTRIM ('SHREYASSS', 'S')
Shreya
5. LOWER ('SALES')
Sales
6. SYSDATE
11-SEP-18
7. NEXT_DAY (SYSDATE, THUR)
13-SEP-18
8. ADD_MONTHS (SYSDATE, 2)
11-NOV-18
9. LAST_DAY (SYSDATE)
30-SEP-18
10. Months_Between ('20-FEB-19', '15-FEB-18')
12. 1612903925806451612903125806451612903



• Theory questions -

- 1) The format() function Format a number
→ as a format of '# ## ## ## ##'
✓ If to certain number of decimal places
then if(return the result of a query
Syntax -

format(number,decimal-Places);

for e.g -

select format(280500.6634)

2)

- The month-between() function
used to get the number of months between date(date1, date2)

Syntax -

month-between(date1, date2);

for e.g -

select month-between('01-02-15' IS');

Exercise

1) UPPER('PRODUCTION')
PRODUCTION

LENGTH('SALES')

5

SUBSTR('PRODUCTIONSALES', 3, 4)
ODUC

> INSTR('PRODUCTION', 'RO', 3, 2)
0

> GREATEST('10-JAN-07', '12-OCT-07')

> Select * from emp
where salary > (select avg of(Salary)) from emp.

> Select count(dept-name) from emp
where dept-name = 'Sales'

> i) select max(Salary) from emp
ii) select min(Salary) from emp

Select sum(Salary) from emp
where dept-name = 'Production'

Ques. Management Information System

VIII. Procedures:

1. Use the Emp and Dept Table created in practical 4 and practical 5.
2. Display the information of the tables using SELECT statement.
3. Execute the SQL queries using Select, Where and Group By Clause.
4. Execute the SQL queries using Select, Where, Group By and Having Clause.
5. Execute the SQL queries using Select, Where and Order By Clause.

IX. Resources required:

No.	Name of Resources	Specification	Quantity	Rate
1	Hardware: Computer System	Computer (i5-7th generation), RAM minimum 2 GB and maximum, HDD of 160GB		
2	Operating system	Windows 7 and Altera LPMICE version 5.0 or later	As per batch	
3	Software	Any DBMS software (MySQL, SQL, oracle Database Express Edition.)	one	

X. Precautions:

1. All SQL statements must end with a semicolon(;) .
2. Follow safety practices.

XI. Resources used:

No.	Name of Resources	Specification
1	Computer System with broad specifications	intel i5 4GB RAM
2	Software	ORACLE
3	Any other resource used	

XII. Results (Output of the Program)

www.msbtresolution.xyz

EMP-100		SUM (SALARY)	
50		42000	
60		60000	
40		52000	
30		50000	

EMP-100		DEPT-100	
50		10000	
40		10000	
60		10000	
50		10000	
30		10000	

Dept-no		Min(Salary)	
1		30000	
2		60000	
3		42000	

EMP-100		JOB-100	
20		developer	
50		tester	
30		worker	
40		worker	

- VIII. Procedure:**
- Use the Emp and Dept Table created in practical 4 and practical 5.
 - Display the information of the tables using SELECT statement.
 - Execute the SQL queries using Select , Where and Group By Clause.
 - Execute the SQL queries using Select , Where ,Group By and Having Clause
 - Execute the SQL queries using Select , Where and Order By Clause.

IX. Resources required:

Sr. No.	Name of Resource	Specification	Quantity
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD of 160GB	
2	Operating system	Windows 7 and Above/LINUX version 5.0 or later	As per batch size
3	Software	Any RDBMS software (MySQL/SQL server/Oracle10g Express Edition)	

X. Precautions:

- All SQL statements must end with a semicolon (;).
- Follow safety practices

www.msbttesolution.xyz

XI. Resources used:

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	intel i3 4GB RAM
2	Software	oracle 11g
3	Any other resource used	

XII. Results (Output of the Program):

EMP-NO	SUM (SALARY)
30	43000
20	60000
40	33000
10	50000

EMP-NO	DEPT-NO
10	1
20	2
50	4
30	3

Dept-no	Min (salary)
1	50000
2	60000
3	43000

EMP-NO	JOBTYPE
20	developer
50	tester
30	worker
10	worker

I. Practical Related Questions:

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

Create a tables EMPLOYEE and DEPARTMENT with following schema:

*✓ Emp(empno, empname, salary, phno)
Dept(deptno, empno,
deptname, location, jobtype)*

1. Write Output of the following queries:

- Select empno,sum(salary) from Emp e,Dept d where e.empno=d.empno group by deptno;
- Select empno,deptno from Dept group by deptname;
- Select min(salary) from Emp e,Dept d where e.empno=d.empno group by deptno;
- Select empno,jobtype from Dept order by deptname;
- Explain order by clause (asc/desc) with suitable example.

2. Write Output of the following queries:

- Display minimum salary of employee from every department.
- Display total salary of every department.

Let Display the department having total employees more than 5.

- Display details of employees with the employee name in ascending order.

(Space for answers)

Q.2)

www.msbtresolution.xyz

d> emp.no	Emp.name	salary	Ph.no
10-	ayesha	50000	9900899977
40	priya	330000	99888998877
20	Purna	60000	9900900877
30	teena	430000	990000008877

XIV. Exercise:

Attempt Q1. from the following:
 (Note: Use Point VII to X and XIII to XIV for all relevant programming exercise
 use blank pages provided or attach more pages if needed.)

Create a tables EMPLOYEE and DEPARTMENT with following schema:
 Emp(empno, empname, salary, phno)
 Dept(deptno, empno,
 deptname, location, jobtype)

1. Write SQL Queries for the following:

- Display total salary spent for each job category.
- Display lowest paid employee details under each department.
- Display number of employees working in each department and their department name.
- Display the details of employees with the salary in increasing order.
- Display the details of employees earning salary greater than 60000 from every department.
- List the number of employees from every department with sorted order(ascending).
- List the number of employees from every department getting salary more than 45000.
- List the employee details of employee working in PRODUCTION department having salary more than average salary of all the employees

5

(Space for answers)

1) jobtype
 → a) select * sum(salary) from emp e, dept d
 where e.empno = d.empno group
 by jobtype.

b) select deptname min(salary) from emp e, dept d where e.empno = d.empno group by deptname.

c) select deptname, empno from dept d

d) select * from emp order by salary

e) select deptname sal from emp e, dept d
 where sal > 60000.

f) select deptname, empno from dept d
 by empno asc.

g) select deptname, empno from dept d
 where sal < 45000.

h) Select * from emp where deptname =
 Production & sal > (select avg(sal) from

References / Suggestions for further Reading:

1. <https://www.w3schools.com>

i. Assessment Scheme:

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Students / Team Members

1. Aparna Rendale
2. Gayatri Rendalekar
3. ...

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
14	9	23	Rati 5-9-18

IX. Resources required

Sr. No.	Name of Resource	Specification	Qty.
1	Hardware: computer system	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD 500GB	As per batch size
2	Operating system:	Windows 7 and above /LINUX version 5.0 or later	
3	Software	Any RDBMS software (MySQL/SQL server/Oracle 10g Express Edition)	

X. Precautions

1. All SQL statements must end with a semicolon (;).
2. Follow safety practices.

XI. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	Intel i3 4GB RAM
2	Software	Oracle
3	Any other resource used	

XII. Results (Output of the executed query)

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write output of following query
Select * from emp, dept where emp.deptno = dept.deptno;
2. Write output of following query
Select * from emp LEFT OUTER JOIN dept on(emp.deptno=dept.deptno);
3. Write output of following query
Select * from emp RIGHT OUTER JOIN dept on(emp.deptno=dept.deptno);
4. Write output of following query
Select * from emp FULL OUTER JOIN dept on(emp.deptno=dept.deptno);

Q.1						
	emp_name	Salary	Ph_no	dept_no	emp_dept_name	
1	ayesha	50000	99000877	1	10	Civil
2	Purna	60000	9900088	2	20	CSE
3	teena	480000	9900087	3	30	mech

Q.2						
	location	job_type				
1	pune	Worker				
2	mumbai	developer				
3	pune	Worker				

Q.3						
	emp_name	Salary	Ph_no	dept_no	name	
1	ayesha	50000	99000877	1	10	Civil
2	Purna	60000	9900088	2	20	CSE
3	teena	480000	9900087	3	30	mech
4	Priva	83000	98889887	-	-	-

Q.4						
	location	JobType				
1	pune	Worker				
2	mumbai	developer				
3	pune	Worker				

IX	→	EMP-no	EMP-name	Salary	Ph-no	dept-no
		10	Ayesha	50000	9900997	1
X		20	Purna	60000	9900908	2
XI		30	Teena	43000	9900087	3
XII		-	-	-	-	4

(Space for answers)

X.	location	Job-type
	Pune	worker
XI	Mumbai	developer
XII	Pune	worker
XIII	Mumbai	tester

4>

XI	→	EMP-no	E-name	Sal	Ph-no	dept-no
		10	Ayesha	50000	99008734	1
XII		20	Purna	60000	9900808	2
XIII		30	Teena	43000	9990088	3
XIV		40	Priya	33000	9988897	-
XV		-	-	-	-	4 5

XIV. Exercise

Attempt Q1. and Q. 2 to Q.3 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Perform RIGHT JOIN on EMP and DEPT table.
2. Perform INNER JOIN on EMP and DEPT table.
3. Perform LEFT JOIN on EMP and DEPT table.
4. Cross join with suitable example.

(Space for Answer)

dept-name	location	Job-type
Civil	Pune	worker
GSE	Mumbai	developer
Mech	Pune	worker
-	-	-
EE	Mumbai	tester

Exercise -

4> The SQL cross join produce a result set which is the number of rows in the second table if no where clause is used along with cross join.

1.	What is a View?
2.	Explain the difference between View and Table.
3.	What is a Unique Index?
4.	What is a Primary Key?
5.	What is a Foreign Key?

- View is used
to store particular
columns in table.
- 1) WHERE clause
for searching
purpose.
- 2) An index which
entry for each
value appears in
index column.
- Data for a View
is built in a table
created by database
engine in TEMP table
space.
 - Unique index ensure that value in the
index key column are unique.

www.msbtresolution.xyz

A **synonym** is an alternative name for objects such as tables, views, sequences, procedures, and other database objects. DML operation performed on synonym will affect the table. The main functionality of synonym is to access the database objects from different schemas without using the schema names.

VIII. Procedure

- Write and execute query for simple and composite index.
- Write and execute query for creating, altering and dropping sequence.
- Write and execute query for creating and dropping synonym.

IX. Resources required

Sr. No.	Name of Resource	Specification	Qty.
1	Hardware: computer system,	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD 500GB	As per batch size
2	Operating system:	Windows 7 and above /LINUX version 5.0 or later	
3	Software	Any RDBMS software (MySQL/SQL server/Oracle10g Express Edition)	

X. Precautions

- All SQL statements must end with a semicolon (;).
- Follow safety practices.

XI. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	intel i3 4GB RAM
2	Software	oracle
3	Any other resource used	

XII. Result (Output of the executed query)**XIII. Practical Related Questions**

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.
 (Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

- How to distinguish between index & view?
- What is an unique index?

(10)

Practical related question

a) View

Index

View is used only particular column in table.

1) index is used for searching purpose.

2) Data for a View is built in a table. Created by database engine in TEMP table place.

3) Unique index ensure that value in the index key column are unique.

55



CREATE INDEX Indo
ON depts(name)

O/P

name	id	Salary
Sham	3	50000
Ram	1	60000
Sita	5	90000
Vichal	7	80000

SK

CREATE INDEX ind1
ON depts(id, salary)

O/P -

name	id	Salary
Sham	3	50000
Ram	1	40000
Sita	5	90000
Vichal	7	80000
Sita	5	90000

→

drop index Indo

→

create sequence sal
start with 1
increment by 1

O/P :-

10

name	id	salary
Tom	3	50000
Sham	1	40000
Sita	5	90000
Vichal	7	80000

3) Alter sequence salary
increment by 3

DIP-

name	id	Salary
Tom	3	50000
Sham	1	40000
Sita	5	90000
Vichal	7	80000

6) Create synonym sal
for salary

DIP-

name	id	Salary
Tom	3	50000
Sham	1	40000
Sita	5	90000
Vichal	7	80000

7) Drop Synonym salary

DIP-

name	id	salary
Tom	3	50000
Sham	1	40000
Sita	5	90000
Vichal	7	80000

- (c) Write output of following query
1. create index sid on emp(empno); →
 2. create index cid on emp(empno,ename);
 3. create sequence emp_sequence
increment by 1
start with 1
nomaxvalue
nocycle
cache 10;
 4. alter sequence emp_sequence
increment by 15
maxvalue 1000
cycle
cache 20;
 5. drop sequence emp_sequence;
 6. create synonym emp_synonym for emp; drop synonym emp_synonym;

XIV. Exercise

Attempt Q1. and teacher shall allot Q. 2 TO Q.7 from the following:

(Note: Use Point VIII to XI and XIII to XV for all relevant programming exercise
use blank pages provided or attach more pages if needed.)

1. Create simple index dept_simple_index on dept table.
2. Create composite index dept_composite_index on dept table.
3. Drop index dept_simple_index and dept_composite_index
4. Create sequence dept_sequence on dept table.
5. Alter sequence dept_sequence.
6. Create synonym dept_synonym on dept table.
7. Drop synonym dept_synonym.

(Space for answers)

Basic Loop Statement

- Basic loop structure encloses sequence of statements in between the LOOP and END
- LOOP statements: With each iteration, the sequence of statements is executed and then control resumes at the top of the loop.
- Syntax

```
LOOP  
Sequence of  
statements;  
END LOOP;
```

WHILE LOOP Statement

- A WHILE LOOP statement in PL/SQL programming language repeatedly executes a target statement as long as a given condition is true.
- Syntax

```
WHILE  
condition LOOP  
sequence of sta  
END LOOP;
```

FOR LOOP Statement

- A FOR LOOP is a repetition control structure that allows you to efficiently write a loop that needs to execute a specific number of times.
- Syntax

```
FOR counter IN initial_value .. final_value LOOP  
sequence of statements;  
END LOOP;
```

Nested Loops

- PL/SQL allows using one loop inside another loop. Following section shows examples to illustrate the concept.
- The syntax for nested basic LOOP statements in PL/SQL is as follows:

```
LOOP  
Sequence of  
statements;  
LOOP  
Sequence of  
statements;
```

Date Management System (22319)

VII. **Procedure**

- Write a program on SQL's command prompt.
- Execute the program
- Check the output

VIII. **Resources required**

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware: Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards and HDD minimum 5GB	As per batch size	For all Experiments
2	Operating system	Windows XP/Windows 7/LINUX version 5.0 or later		
3	Software	Oracle /MySQL/SQL Server 2005/2008/2011		

X. **Precautions**

- All Program statements must end with a semicolon ;.
- Use proper format specifier for DBMS_OUTPUT.PUT_LINE statement.
- Follow safety practices

XI. **Resources used**

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	intel i3 4GB RAM
2	Software	oracle
3	Any other resource used	

XII. **Result (Output of the Program)**

www.msbtesolution.xyz

XIII. **Practical Related Questions**
Note: Below given are few sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified CO.

How to declare constant in PL-SQL.
(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

- Write a PL/SQL program to display 1 to 10 numbers in reverse order using for loop

declare
 no number(a);
begin
 for no in REVERSE 1..10
 loop
 dbms_output.put_line('Value of no:' || no);
 end loop;
end;

10
Value of no: 10
Value of no: 9
Value of no: 8
Value of no: 7
Value of no: 6
Value of no: 5
Value of no: 4
Value of no: 3
Value of no: 2
Value of no: 1

declare
 n number := 5;
 fact number := 1;
begin
 loop while n > 0
 fact := fact * n;
 n := n - 1;
 end loop;
 dbms_output.put_line('Factorial is:' || fact);

2. Write PL/SQL program to find factorial of number 5 using while loop
 (Space for answers)

end;
 /

Q19 -
 factorial: 120

Exercise-

1) declare
 a number:=10;
 b number:=12;
 c number:=15;
 begin
 dbms_output.put_line ('a='||a||'b='||b||'c='||c);
 if(a>b) and (a>c) then
 dbms_output.put_line ('a= greater);
 else
 if(b>c) then
 dbms_output.put_line ('b='||greater);
 else
 dbms_output.put_line ('c='|| greater);
 endif;
 end if;
 end;

2) declare
 n number:=2
 begin
 while(n<=100) loop
 dbms_output.put_line (n);
 n:=n+2;
 end loop;
 end;

www.msbtresolution.xyz

XIV. Exercise

Attempt Q1. and teacher shall allot Q. 2 OR Q.3 from the following:

(Note: Use Point VIII to X and XIII to XV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

Theory-Enlist data types available in PLSQL.

1. Write a PL/SQL program to accept three numbers and display the largest number.

2. Write a PL/SQL program to display even numbers between 1 to 100.

3. Complete the given table:

Program Code	Write Output
a) DECLARE i number := 0; BEGIN LOOP dbms_output.put_line ('i =' i); i:=i+1; EXIT WHEN i>10; END LOOP; END;	i = 0 i = 8. i = 1 i = 9 i = 2 i = 10 i = 3 i = 4 i = 5 i = 6 i = 7 i = 8 i = 9 i = 10
	63

```
b) DECLARE
    num Number(3) :=123;
    ans Number(3) :=0;
    i Number(3) :=0;
BEGIN
    WHILE num != 0
    LOOP
        i:=mod(num,10);
        ans:=(ans * 10 ) + i;
        num:=floor(num/10);
    END LOOP;
    dbms_output.put_line('reverse of given number is: ' || ans);
END;
```

REVERSE OF GIVEN
NUMBER IS: 321

(Space for answers)

www.msbtresolution.xyz

XV. References / Suggestions for further Reading

1. https://www.tutorialspoint.com/plsql/plsql_case_statement.htm
2. <https://intellipaat.com/tutorial/oracle-plsql-tutorial/plsql-control-structures/>
3. <http://w3school.com>

XVI. Assessment Scheme

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Students /Team Members

1. Apurva Rendale
2. Sayyatri Rendalkar
3.

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
15	9	24	Rati 25-3-18

XI. Result / Output of the Program

VII. Practical Related Questions

Note: Below given are some sample questions for reference. Teacher must design more such questions so as to ensure the achievement of identified C.O.

(Notes: Use Point VII to X and XII to XV for all relevant programming exercise use-blank pages provided or attach more pages if needed.)

1. Which of the following is handled with the help of exception-handling section in an PL/SQL block? For eg., SELECT INTO statement, which does not return any rows.
 - a. A routine error
 - b. A syntax error
 - c. Both A & B
 - d. None of the above
2. For a user-defined exception, SQLCODE returns 1, and SQLERRM returns _____
a. User-defined exception
b. None of the above
c. 0

(Space for answers)

VIII. Procedure

- Use the Emp and Depts Table created in practical 4 and practical 5.
- Display the information of the tables using SELECT statement.
- Execute the Create User Statement.
- Execute the Grant Statement.
- Execute the Revoke Statement.

IX. Resources required

Sr. No.	Name of Resource	Specification	Quantity	Remarks
1	Hardware Computer System	Computer (i3-i5 preferable), RAM minimum 2 GB and onwards, HDD of 160GB	As per batch size	For all Experiments
2	Operating system	Windows 7 and Above/LINUX version 5.0 or later		
3	Software	Any RDBMS software (MySQL/SQL server/Oracle19g Express Edition)		

X. Precautions

- All SQL statements must end with a semicolon (;).
- Follow safety practices.

www.msbtresolution.xyz

XI. Resources used

S. No.	Name of Resource	Specification
1	Computer System with broad specifications	intel i3 4GB RAM
2	Software	ORACLE
3	Any other resource used	

XII. Results (Output of the Program)

XIII. Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

- (a) State the use of 'with grant options' clause in grant command.
Consider tables EMPLOYEE and DEPARTMENT with following schema:
Emp(empno, empname, salary, phone) Dept(deptno, empno, deptname, location, jobtype)

XIV. Exercise

Attempt Q1, and teacher shall allot Q. 2 to Q.9 from the following:
 (Note: Use Point VIII to X and XIII to XIV for all relevant programming exercise use blank pages provided or attach more pages if needed.)

1. Create user john and implement the following commands on table Emp and Dept.
2. Write a query to grant select,insert,delete privileges on columns of empno and salary nts table.
3. Write a query to grant update privileges on columns of empno and salary nts table.
4. Write a query to revoke all above privileges from Emp and Dept table.
5. Write query to create role dept_pvr;
6. Write query to assign system privileges-create table,create view to role dept_pvr;
7. Write query to assign above system privileges to users jyoti and john.
8. Write query to assign object privileges-select, insert, delete to role dept_pvr1;
9. Write query to assign above object privileges to users jyoti and john.

(Space for answers)

- 1) create user john identified by john
 2) grant select, insert, update, delete on EMP to John.
 grant select, insert, delete on EMP to John.
 3) grant update (emp-no, salary) on EMP to John.
 4) revoke select, insert, delete, update (emp-no, salary) on EMP to John.
 revoke select, insert, delete, update (empno, salary) on dept to John.
 5) create role dept_pvr
 6) grant create table, view to dept_pvr
 7) grant dept_pvr to Joyti, john
 8) grant select, insert, delete to dept_pvr1
 9) grant select, insert, delete on EMP from Joyti, john

References / Suggestions for further Reading

1. <https://www.w3schools.com>

V. Assessment Scheme

Performance indicators		Weightage
Process related (15 Marks)		60%
1.	Formation of MS Access Code	25%
2.	Execution of MS Access Code	25%
3.	Follow ethical practices.	10%
Product related (10 Marks)		40%
4.	Correctness of MS Access Code	15%
5.	Timely Submission of Practical	15%
6.	Answer to sample questions	10%
Total (25 Marks)		100%

List of Students / Team Members

1. Arunika Pendale
2. Mayathi Pendale
3.

Marks Obtained			Dated signature of Teacher
Process Related(15)	Product Related(10)	Total(25)	
15	9	24	Rati 29-9-18