

# ATOMIC ENERGY CENTRAL SCHOOL, MYSURU

Session: 2025 -26

Class :XII

Subject : Computer Science

## WORKSHEET NO:1

Name of the Topic : DBMS and Python DB Connectivity

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### Section A:

- Identify the name of connector to establish bridge between Python and MySQL  
a. mysql.connection      b. connector      c. mysql.connector      d. mysql.connect
- In the following connection string: Identify the elements:  
connect(\_\_\_\_<<1>>\_\_\_\_ = 127.0.0.1, \_\_\_\_\_<<2>>\_\_\_\_\_ = " root", \_\_\_\_\_<<3>>\_\_\_\_\_ = „admin“)  
a. <<1>> = User, <<2>> = password, <<3> = host  
b. <<1>> = host, <<2>> = user, <<3> = password  
c. <<1>> = host, <<2>> = password, <<3> = user  
d. <<1>> = IP, <<2>> = user, <<3> = password
- Which function is used to fetch n number of records from cursor?  
a. fetchall()      b. fetchmany()      c. fetchone()      d. fetch()
- Which cursor function is used to send query to connection?  
a. query()      b. execute()      c. run()      d. send()
- What is the full form of SQL?  
a. Structured Query Language      b. Structured Query List      c. Simple Query Language      d. Data Derivation Language
- Which command is used for cleaning up the environment (sql with Python)?  
a. my.close      b. is.close      c. con.close      d. mycon.close
- Which is the subset of SQL commands used to manipulate database structure including tables?  
a. Data Definition Language (DDL)      b. Data Manipulation Language (DML)      c. Both (a) and (b)      d. None
- An attribute in a relation is foreign key if it is the \_\_\_\_\_key in any other relation.  
a. Candidate      b. Primary      c. Super      d. Sub
- Which operator performs pattern matching?  
a. BETWEEN operator      b. LIKE operator      c. EXISTS operator      d. None of these
- Which attribute of of cursor is used to get number of records stored in cursor (Assuming cursor name is mycursor)?  
a. mycursor.count      b. mycursor.row\_count      c. mycursor.records      d. mycursor.rowcount
- A table can have more than one primary key. (True/False)
- All candidate keys can potentially be primary keys. (True/False)

- 13 An alternate key is a candidate key that was not chosen as the primary key. (True/False)
- 14 DDL commands are used to manipulate data stored in the table. (True/False)
- 15 The CREATE statement is a DML command. (True/False)
- 16 The UPDATE command can be used to change data in existing rows. (True/False)
- 17 The ALTER command is used to change the structure of a table. (True/False)
- 18 GROUP BY is used to sort data in ascending or descending order. (True/False)
- 19 LIKE is used in SQL to perform pattern matching. (True/False)
- 20 A GROUP BY clause is often used with aggregate functions like COUNT, SUM, or AVG. (True/False)
- 21 Which of the following is a DDL command?
  - A. SELECT
  - B. INSERT
  - C. CREATE
  - D. UPDATE
- 22 What does the LIKE operator do in SQL?
  - A. Compares two tables
  - B. Matches a value based on a pattern
  - C. Sorts the data
  - D. Deletes specific rows
- 23 Which of the following is a DML command?
  - A. DROP
  - B. DELETE
  - C. CREATE
  - D. RENAME
- 24 Which SQL command is used to group rows with the same values?
  - A. ORDER BY
  - B. GROUP BY
  - C. JOIN
  - D. UNION
- 25 Which command is used to create a new table in a database?
  - A. MAKE TABLE
  - B. CREATE TABLE
  - C. NEW TABLE
  - D. ADD TABLE

**Section B:**

1. Write SQL commands for (a) to (e) on the basis of table CLUB.

Table: CLUB

COACH ID	COACH NAME	AGE	SPORTS	DATEOFAPP	PAY	SEX
1.	KUKREJA	35	KARATE	27/03/1997	1000	M
2.	RAVINA	34	KARATE	20/01/1998	1200	F
3.	KARAN	34	SQUASH	19/02/1998	2000	M
4.	TARUN	33	BASKETBALL	01/01/1998	1500	M
5.	ZUBIN	36	SWIMMING	12/01/1998	750	M
6.	KETAKI	36	SWIMMING	24/02/1998	800	F
7.	ANKITA	39	SQUASH	20/02/1998	2200	F
8.	ZAREEN	37	KARATE	20/02/1998	1100	F
9.	KUSH	41	SWIMMING	13/01/1998	900	M
10.	SHAIYA	37	BASKETBALL	19/02/1998	1700	M

- To show all information about the swimming coaches in the club.
  - To list names of all coaches with their date of appointment (DATOFAPP) in descending order.
  - To display a report, showing coachname, pay, age and bonus (15% of pay) for all the coaches.
  - To insert in a new row in the **CLUB** table with the following data:  
11, "PRAKASH", 37, "SQUASH", {25/02/98}, 2500, "M"
  - Display Coachname ,Sports,Pay from the table
2. Write SQL command for (a) to (e) on the basis of tables INTERIORS and NEWONES.

Table: INTERIORS

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	Red rose	Double bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15

Table: NEWONES

NO	ITEMNAME	TYPE	DATEOFSTOCKS	PRICE	DISCOUNT
11	White wood	Double bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/13	7000	10

- To show all information about the sofas from the **INTERIORS** table.
- To list the **ITEMNAME** which are priced at more than 10,000 from the **INTERIORS** table.
- To list **ITEMNAME** and **TYPE** of those items, in which **DATEOFSTOCK** is before 22/01/02 from the **INTERIORS** table in the descending order of **ITEMNAME**.
- To display **ITEMNAME** and **DATEOFSTOCK** of those items, in which the discount Percentage is more than 15 from **INTERIORS** table.
- To count the number of items, whose type is "**Double Bed**" from **INTERIOR** table.

### Section C:

- Consider the following Python code for updating the records:  

```
def Update(eno):
#Assume basic setup import, connection(con) and cursor(mycursor) is created
query="update emp set salary=90000 where empno=" + str(eno)
mycursor.execute(query)
```

Code is running but the record in actual database is not updating, what could be the possible

- reason?
- 2 Consider the following python code to display all records from table: EMP
- ```
def showAll():
#Assume basic setup import, connection(con) and cursor(mycursor) is created
query="select * from emp"
mycursor.execute(query)
results = mycursor.fetchall()
for results in row:
print(results)

```
- But query is giving error, What could be the possible reason?
- 3 Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:
- ```
def Search(eno):
#Assume basic setup import, connection and cursor is created
query="select * from emp where empno=_____".format(eno)
mycursor.execute(query)
results = mycursor._____
print(results)

```
- 4 Name the command/clause which is used to display the records in ascending or descending order.
- 5 What is the use of “like” in SQL? Explain with an example
- 6 Name the command used to : (a) View the structure of table.(b) Delete the structure of table?
- 7 Give example of any two: (a) DML commands.(b) DDL commands
- 8 What is the purpose of the following clauses in a select statement?  
i) ORDER BY ii) GROUP BY
- 9 What is the difference between Primary Key and Candidate Key?
- 10 What is the difference in fetchall() and fetchone()?

### Section D:

- 1 From the following Tables (EMP) AND (JOB) answer the question (i) , (ii) and (iii)

**TABLE: EMP**

EMPNO	ENAME	JOB	SALARY	DEPTNO
E001	PETER	ADMIN	4500	10
E002	SCOTT	SALESMAN	3500	20
E003	ALBERT	CLERK	2800	10
E004	RUSSEL	CLERK	2900	40

**TABLE:JOB**

DEPTNO	DNAME	DLOCATION	DHEAD
10	PETER	ADMIN	4500
20	SCOTT	SALESMAN	3500
30	ALBERT	CLERK	2800
40	RUSSEL	CLERK	2900

- (i) Identify the foreign key column in the table EMP
- (ii) Can we delete the record of PETER from table JOB?
- (iii) If not give reason
- 2 Observe the following table and answer the question (i) , (ii) and (iii)

**TABLE: VISITOR**

VisitorID	VisitorName	ContactNumber
V001	ANAND	9898989898
V002	AMIT	9797979797
V003	SHYAM	9696969696
V004	MOHAN	9595959595

- (i) Write the name of most appropriate columns which can be considered as Candidate keys
- (ii) Out of selected candidate keys, which one will be the best to choose as Primary

Key?

(iii) What is the degree and cardinality of the table

3 Write the output for SQL queries (i) to (iii), which are based on the table: Employees

**Employees**

Empid	Firstname	Lastname	Designation	City	Salary
010	Ravi	Kumar	Manager	GZB	75000
105	Harry	Waltor	Manager	GZB	65000
152	Sam	Tones	Director	Paris	80000
215	Sarah	Ackerman	Manager	Upton	75000
244	Manila	Sengupta	Clerk	New Delhi	50000
300	Robert	Samuel	Clerk	Washington	45000
335	Ritu	Tondon	Clerk	GZB	40000
400	Rachel	Lee	Salesman	New York	32000
441	Peter	Thompson	Salesman	Paris	28000

(i) Select Designation , count(\*) from Employees Group by Designation Having count(\*)>=3;

(ii) Select Max (salary), Min(Salary) from Employees Where City in ('GZB', 'Paris');

(iii) Select Firstname, Lastname from Employees where Firstname like 'R%';

4 Answer the following:

i) Name the package for connecting Python with MySQL database. (0.5m)

ii) What is the purpose of cursor object? (0.5m)

iii) Write the steps to perform an Insert query in database connectivity application.

Table 'student' values are rollno, name, age (10,'Ashok',26) (2m)

5 Write SQL queries for the following:

i. Create the table Product with appropriate data types and constraints.

ii. Identify the primary key in Product.

iii. Insert records into the table Product

### Section E:

1 Explain the following relational terms:

(a) Tuple (b.) Attribute (c). Relation (d). Domain (e).Cardinality

2 Write SQL commands for (a) to (e) on the basis of table GRADUATE.

**Table: GRADUATE**

S.N O.	NAME	STIPEN D	SUBJECT	AVERAG E	DI V
1	KARAN	400	PHYSICS	68	1
2	DIVAKAR	450	COMPUTER SC	68	1
3	DIVYA	300	CHEMISTRY	62	2
4	ARUN	350	PHYSICS	63	1
5	SABINA	500	MATHEMATICS	70	1
6	JOHN	400	CHEMISTRY	55	2
7	ROBERT	250	PHYSICS	64	1
8	RUBINA	450	MATHEMATICS	68	1
9	VIKAS	500	COMPUTER SC	62	1
10.	MOHAN	300	MATHEMATICS	57	2

- (a) List the names of those students who have obtained DIV 1 sorted by NAME.
- (b) Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.
- (c) To count the number of students who are either PHYSICS or COMPUTER SC graduates.
- (d) To insert a new row in the GRADUATE table:  
11, "KAJOL", 300, "COMPUTER SC", 75, 1
- (e) Display Name of the students whose average is more than 65.

3 Write SQL commands for (a) to (e) on the basis of Teacher relation given below:

**Relation Teacher**

No.	Name	Age	Department	Date of join	Salary	Sex
1.	Jugal	34	Computer	10/01/97	12000	M
2.	Sharmila	31	History	24/03/98	20000	F
3.	Sandeep	32	Maths	12/12/96	30000	M
4.	Sangeeta	35	History	01/07/99	40000	F
5.	Rakesh	42	Maths	05/09/97	25000	M
6.	Shyam	50	History	27/06/98	30000	M
7.	Shiv Om	44	Computer	25/02/97	21000	M
8.	Shalakra	33	Maths	31/07/97	20000	F

- (a) To show all information about the teacher of history department
- (b) To list the names of female teacher who are in Hindi department
- (c) To list names of all teachers with their date of joining in ascending order.
- (d) To display teacher's Name, Salary, Age for male teacher only
- (e) To count the number of teachers with Age>23.

4 Write SQL command for (a) to (e) on the bases of tables FURNITURE AND ARRIVALS.

**Table: FURNITURE**

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby cot	20/01/02	7000	20
3	Dolphin	Baby cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort zone	Double Bed	12/01/02	25000	25
6	Donald	Baby cot	24/02/02	6500	15
7	Royal Finish	Office Table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	Eating paradise	Dining Table	19/02/02	11500	25

**Table: ARRIVALS**

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby cot	21/02/02	7500	15

- a) To show all information about the baby cots from the FURNITURE table.
- (b) To list the ITEMNAME which are priced at more than 15000 from the FURNITURE table.
- (c) To list ITEMNAME AND TYPE of those items, in which DATEOFSTOCK is before 22/01/02 from the FURNITURE table in descending order of ITEMNAME.
- (d) To display ITEMNAME and DATEOFSTOCK of those items, in which the DISCOUNT percentage is more than 25 from FURNITURE table.
- (e) To insert a new row in the ARRIVALS table with the following data: 14, "Velvet touch", Double bed", {25/03/03}, 25000, 30

5 Complete the following database connectivity program by writing missing statements and perform the

given query.

```
#to view data from table based on search
import _____ as mc #1
mydb=mc._____(host="localhost",user="root",passwd="Aecs@123") #2
if mydb._____ #3
    print("connection successful\n")
mycursor=mydb._____( ) #4
mycursor.execute("use school")
print("-----Inside Database-----")
print("-----Searching-----")
nm=input("Enter name of student: ")
mycursor.execute("_____") #5
for x in mycursor:
    print (x)
```