**Problem statement 1.**

**Consider following Bank database schema and solve given queries:**

**Account(Acc\_no, branch\_name,balance) branch(branch\_name,branch\_city, assets)**

**customer(cust\_name,cust\_street,cust\_city) Depositor(cust\_name,acc\_no)**

**Loan(loan\_no,branch\_name,amount) Borrower(cust\_name,loan\_no)**

Q.1 Create above tables with appropriate constraints like primary key, foreign key, not null etc. with suitable data

Q.2. Create synonym for customer table as cust.

Q.3 Add customer phone number in Customer table.

Q.4 Delete phone number attribute from Customer table.

Q.5. Find the names of all branches in loan relation.

Q.6. Find all customers who have a loan from bank. Find their names,loan\_no and loan amount. Q.7. List all customers in alphabetical order who have loan from Akurdi branch.

Q.8. Find average account balance at Akurdi branch.

Q.9. Find no. of depositors at each branch.

**QUESTIONS:.**

1. What are constraints and types of constraints.
2. What are different types of keys with their difference between them.
3. What is synonym and its use
4. What are DDL and DML commands.
5. What are the aggregate functions.
6. What is difference between MARIADB, SQL, MYSQL.

**Problem statement 2. Consider following Bank database schema and solve given queries:**

**Account(Acc\_no, branch\_name,balance)**

**branch(branch\_name,branch\_city, assets)**

**customer(cust\_name,cust\_street,cust\_city)**

**Depositor(cust\_name,acc\_no)**

**Loan(loan\_no,branch\_name,amount)**

**Borrower(cust\_name,loan\_no)**

Q.1 Create above tables with appropriate constraints like primary key, foreign key constrains, not null etc. with suitable data

Q.2. Modify “assets” attribute of branch table to “Property”

Q.3. Find all loan numbers for loans made at Akurdi Branch with loan amount > 12000.

Q.4. Find the average account balance at each branch

Q.5. Find the branches where average account balance > 12000.

Q.6. Find number of tuples in customer relation.

Q.7. Calculate total loan amount given by bank.

Q.8. Delete all loans with loan amount between 1300 and 1500.

**QUESTIONS:.**

1. What are constraints and types of constraints.
2. What are different types of keys with their difference between them.
3. What is synonym and its use
4. What are DDL and DML commands.
5. What are different types of clauses with their difference.
6. What are the logical operators and its use.

**Problem statement 3**.

1. **Consider following database schema and solve given queries**

cust\_mstr(cust\_no,fname,lname)

add\_dets(code\_no,add1,add2,state,city,pincode)

1. Create above Tables with suitable data
2. Retrieve the address of customer Fname as 'xyz' and Lname as 'pqr'
3. Create View on add\_dets table by selecting any two columns and perform insert update delete operations
4. **Create following Tables**

emp\_mstr(e\_mpno,f\_name,l\_name,m\_name,dept,desg,branch\_no)

branch\_mstr(name,b\_no)

List the employee details along with branch names to which they belong

**QUESTIONS:.**

1. What are constraints and types of constraints.
2. What are different types of keys with their difference between them.
3. What is synonym and its use
4. What are DDL and DML commands.
5. What are different types of clauses with their difference.
6. What are the logical operators and its use.

**Problem statement 4.**

1. **Create following Tables with suitable data and solve following query**

cust\_mstr(custno,fname,lname)

acc\_fd\_cust\_dets(codeno,acc\_fd\_no)

fd\_dets(fd\_sr\_no,amt)

List the customer holding fixed deposit of amount more than 5000

1. **Create view on cust\_mstr and acc\_fd\_cust\_dets tables by selecting any one column**

**from each table perform insert update delete operations**

1. **Create following Tables with suitable data and solve following query**

emp\_mstr(emp\_no,f\_name,l\_name,m\_name,dept)

cntc\_dets(code\_no,cntc\_type,cntc\_data)

List the employee details along with contact details using left outer join & right join

**QUESTIONS:.**

1. What are constraints and types of constraints.
2. What are different types of keys with their difference between them.
3. What is synonym and its use
4. What are Predicates.
5. What are the logical operators and its use.
6. What are types of Joins and its difference.

**Problem statement 5.**

Q 1. Write a PL/SQL block code that will accept account no from user check if users balance is less than minimum balance(5000) only then deduct rupees 100 from balance. Consider following ACC\_MSTR table.

|  |  |
| --- | --- |
| ACC\_NO | CURR\_BAL |
| 1 | 10000 |
| 2 | 3000 |
| 3 | 4000 |
| 4 | 20000 |

**QUESTIONS:.**

1. What is the difference between SQL and PL/SQL.
2. Basic syntax of PL/SQL.
3. Why to use “set serveroutput on”,
4. What are the different data types in PL/SQL.
5. What extra features does PL/SQL have.

Q 2. The bank manager has decided to activate all those accounts which were previously marked as

inactive for performing no transaction in last 365 days. Write a PL/SQ block (using implicit cursor) to update the status of account, display an approximate message based on the no. of rows affected by the update. (Use of %FOUND, %NOTFOUND, %ROWCOUNT)

**QUESTIONS:.**

1. What is a cursor.
2. Different types of cursor and its difference.
3. What is the use of %FOUND, %NOTFOUND, %ROWCOUNT.
4. What is the procedure for writing explicit cursor.
5. What is the use of cursors.

**Problem statement 6.**

Q 1. Write PL/SQL block using explicit cursor for following requirements:

College has decided to mark all those students detained (D) who are having attendance less than 75%.

Whenever such update takes place, a record for the same is maintained in the D\_Stud table.

**create table stud21(roll number(4), att number(4), status varchar(1));**

**create table d\_stud(roll number(4), att number(4));**

**QUESTIONS:**

1. What is a cursor.
2. Different types of cursor and its difference.
3. What is the use of %FOUND, %NOTFOUND, %ROWCOUNT.
4. What is the procedure for writing explicit cursor.
5. Why to use two tables in the PL/SQL Program.

**Problem statement 8.**

Q 1. Write a Stored Procedure namely proc\_Grade for the categorization of student. If marks scored by students in examination is <=1500 and marks>=990 then student will be placed in distinction category if marks scored are between 989 and900 category is first class, if marks 899 and 825 category is Higher Second Class.

Write a PL/SQL block for using procedure created with above requirement. Stud\_Marks(name, total\_marks) Result(Roll,Name, Class)

**QUESTIONS:**

1. What is a procedure.
2. Difference between stored procedure and stored functions.
3. What is the use of IN,OUT and INOUT parameters in procedure.
4. How to call a procedure.
5. Why to use two tables in the PL/SQL Program.

**Problem statement 9.**

Q 1. .Write a PL/SQL block of code for the following requirements:

**Borrower(Rollin, Name, DateofIssue, NameofBook, Status)**

**Fine(Roll\_no,Date,Amt)**

Accept roll\_no & name of book from user.

1. Check the number of days (from date of issue), if days are between 15 to 30 then fine amount will be Rs 5per day.

2. If no. of days>30, per day fine will be Rs 50 per day & for days less than 30, Rs. 5 per day.

3. After submitting the book, status will change from I to R.

4. If condition of fine is true, then details will be stored into fine table.

**QUESTIONS:**

1. What is the difference between SQL and PL/SQL.
2. How to use exception handling in PL/SQL Block.
3. How to use conditional loops.

**Problem statement 10.**

Q 1. Write a stored function in PL/SQL for given requirement and use the same in PL/SQL block.

Account no. and branch name will be accepted from user. The same will be searched in table acct\_details. If status of account is active then display appropriate message and also store the account details in active\_acc\_details table, otherwise display message on screen “account is inactive”.

**QUESTIONS:**

1. What is a procedure.
2. Difference between stored procedure and stored functions.
3. What is the use of IN,OUT and INOUT parameters in procedure.
4. How to call a procedure.
5. Why to use two tables in the PL/SQL Program.

**Problem statement 12.**

**Create Database ICEM**

**Create following Collections**

**Teachers(Tname,dno,dname,experience,salary,date\_of\_joining )**

**Students(Sname,roll\_no,class)**

Q1. Find the information about all teachers

Q2. Find the information about all teachers of computer department

Q3. Find the information about all teachers of computer,IT,and e&TC department

Q4. Find the information about all teachers of computer,IT,and E&TC department having salary greater than or equl to 10000/-

Q5. Find the student information having roll\_no = 2 or Sname=xyz

Q6. Update the experience of teacher-praveen to 10years, if the entry is not available in database

consider the entry as new entry.

Q7. Update the deparment of all the teachers working in IT deprtment to COMP

Q8. Find the teachers name and their experience from teachers collection

Q9. Using Save() method insert one entry in department collection

Q10. Using Save() method change the dept of teacher praveen to IT

**QUESTIONS:**

1. What is mongodb

Answer: Mongo-DB is a document database which provides high performance, high availability and easy scalability.

1. What are CRUD opertaions and its use.
2. **What is the syntax to create a collection and to drop a collection in MongoDB?**
3. **What are alternatives to MongoDB?**

**Answer:** Cassandra, CouchDB, Redis, Riak, [Hbase](https://www.guru99.com/hbase-tutorials.html) are a few good alternatives.

1. What is “Namespace” in MongoDB?

Answer: MongoDB stores BSON (Binary Interchange and Structure Object Notation) objects in the collection. The concatenation of the collection name and database name is called a namespace.

1. What is the use of save() method.

**Problem statement 13.**

Consider each document in the zipcode collection has the following form:

{

"\_id": "10280",

"city": "NEW YORK",

"state": "NY",

"pop": 5574,

}

1. Return States with Populations above 1 Lakh.

2. Display the department wise average salary

3. Display the no. Of employees working in each department

4. Display the department wise total salary of departments having total salary greater than or equals to 50000/-

5. Write the queries using the different operators like max, min. Etc.

6. Create the simple index on roll\_no field

7. create unique index on any field for above given collections

8. create compound index on any fields for above given collections

9. Show all the indexes created in the database PCCOE

10. Show all the indexes created in above collections.

**QUESTIONS:**

1. Explain what are indexes in MongoDB?

**Answers:** Indexes are special structures in MongoDB, which stores a small portion of the data set in an easy to traverse form. Ordered by the value of the field specified in the index, the index stores the value of a specific field or set of fields.

2. Mention what is the basic syntax to use index in MongoDB?

**Answers:** The basic syntax to use in MongoDB is >db.COLLECTION\_NAME.ensureIndex ( {KEY:1} ). In here the key is the the name of the COLUMN (or KEY:VALUE pair) which is present in the document

**Problem statements 16.**

**1. Consider the relational database**

**Supplier(Sid,Sname,address)**

**Parts(Pid, Pname, Color)**

**Catalog(Sid,Pid,cost)**

Q. Find name of all parts whose color is green.

Q. Find names of suppliers who supply some red parts.

Q. Find names of all parts whose cost is more than Rs25.

**2. Consider the relational database**

Person(pname,street city)

Company(cname,city)

Works\_for(pname,cname,salary)

Manages(pname,mname)

Q. Find the street and city of all employees who work for “Idea”, live in Pune and earn more than 3000.

**3. Consider the relational database**

Student(Rollno,name,address)

Subject(sub\_code,sub\_name)

Marks(Rollno,sub\_code, marks)

Q. Find out average marks of each student along with the name of student.

Q. Find how many students have failed in the subject “DBMS”

**QUESTIONS:**

1. What are joins and its types with syntax.
2. How to create the objects of tables.
3. What is the use of creating the objects of tables.
4. What are tuple variables and when to use it.

**Problem statements 18**

Write Pl/SQL code block for inverting number 1234 to 4321.

**Problem statements 19**

Write a database trigger on Library table. The System should keep track of the records that are being updated or deleted. The old value of updated or deleted records should be added in Library\_Audit table.

**QUESTIONS:**

1. What are triggers and its use.
2. What is the difference between triggers and assertions.
3. What are assertions.
4. What are row level triggers and column level triggers.
5. What are different types of triggers.

**Problem statements 20**

Create a row level trigger for the CUSTOMERS table that would fire for INSERT or UPDATE or DELETE operations performed on the CUSTOMERS table. This trigger will display the salary difference between the old values and new values.

**Problem statements 21**

 Write PL/SQL block to update the Customer table and increase the salary of each customer by 500 and use the **SQL%ROWCOUNT** attribute to determine the number of rows affected.

**Problem statements 23**

Write a PL/SQL block code to calculate area of circle for value of radius varying from 3 to 7. Store the radius and corresponding values of calculated area in an empty table named AREAS consisting of two columns RADIUS and AREA.

**Problem statement 26**

Write a program to implement MogoDB database connectivity Java.

Implement Database navigation operations (add, delete, edit etc. ) using JDBC.