LAB ASSIGNMENT 1

Write PL/SQL queries for the following

1) Create tables for - Student(student_id, first_name, last_name, dept, Date_of_birth, gender, religion), Employee, Product, Customer, and Account. Identify relevant attributes for each table and make sure each table has at least four columns. Ensure each table has a _ID column e.g. Employee should have EMPLOYEE_ID column, Student should have STUDENT_ID column etc.

➔

i) **Student table**

```
CREATE TABLE Student (
   student_id INT,
   first_name VARCHAR(10),
   last_name VARCHAR(10),
   dept VARCHAR(10),
   Date_of_birth DATE,
   gender CHAR(6),
   religion VARCHAR(10)
);
```

```
SQL> DESC STUDENT
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 STUDENT_ID                                         NUMBER(38)
 FIRST_NAME                                         VARCHAR2(10)
 LAST_NAME                                          VARCHAR2(10)
 DEPT                                               VARCHAR2(10)
 DATE_OF_BIRTH                                      DATE
 GENDER                                             CHAR(6)
 RELIGION                                           VARCHAR2(10)
```

II)**Employee table**

```
CREATE TABLE Employee (
   EMPLOYEE_ID NUMBER,
   FIRST_NAME VARCHAR2(10),
   LAST_NAME VARCHAR2(10),
   DEPT VARCHAR2(10),
   DATE_OF_BIRTH DATE,
   GENDER VARCHAR2(6),
   RELIGION VARCHAR2(10)
);
```

```
SQL> desc employee
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMPLOYEE_ID                                        NUMBER
 FIRST_NAME                                         VARCHAR2(10)
 LAST_NAME                                          VARCHAR2(10)
 DEPT                                               VARCHAR2(10)
 DATE_OF_BIRTH                                      DATE
 GENDER                                             VARCHAR2(6)
 RELIGION                                           VARCHAR2(10)
```

III) Product table

```
CREATE TABLE Product (
   PRODUCT_ID NUMBER,
   PRODUCT_NAME VARCHAR2(10),
   CATEGORY VARCHAR2(10),
   PRICE NUMBER(10, 2),
   MANUFACTURER VARCHAR2(10)
);
```

```
SQL> desc product
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 PRODUCT_ID                                         NUMBER
 PRODUCT_NAME                                       VARCHAR2(10)
 CATEGORY                                           VARCHAR2(10)
 PRICE                                              NUMBER(10,2)
 MANUFACTURER                                       VARCHAR2(10)
```

iv) Customer table

```
CREATE TABLE Customer (
   CUSTOMER_ID NUMBER ,
   FIRST_NAME VARCHAR2(10),
   LAST_NAME VARCHAR2(10),
   EMAIL VARCHAR2(15),
   PHONE_NUMBER VARCHAR2(10)
);
```

```
Table created.

SQL> desc customer
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 CUSTOMER_ID                                        NUMBER
 FIRST_NAME                                         VARCHAR2(10)
 LAST_NAME                                          VARCHAR2(10)
 EMAIL                                              VARCHAR2(15)
 PHONE_NUMBER                                       VARCHAR2(10)
```

v) Account table

```
CREATE TABLE Account (
   ACCOUNT_ID NUMBER,
   ACCOUNT_NUMBER VARCHAR2(10),
   ACCOUNT_TYPE VARCHAR2(10),
   BALANCE NUMBER(15, 2),
   OPEN_DATE DATE
);
```

```
Table created.

SQL> desc account
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 ACCOUNT_ID                                         NUMBER
 ACCOUNT_NUMBER                                     VARCHAR2(10)
 ACCOUNT_TYPE                                       VARCHAR2(10)
 BALANCE                                            NUMBER(15,2)
 OPEN_DATE                                          DATE
```

2. Describe each table.

➔

1. **Student Table:**
    - **STUDENT_ID:** Unique identifier for each student.
    - **FIRST_NAME:** First name of the student.
    - **LAST_NAME:** Last name of the student.
    - **DEPT:** Department to which the student belongs.
    - **DATE_OF_BIRTH:** Date of birth of the student.
    - **GENDER:** Gender of the student.
    - **RELIGION:** Religion of the student.
2. **Employee Table:**
    - **EMPLOYEE_ID:** Unique identifier for each employee.
    - **FIRST_NAME:** First name of the employee.
    - **LAST_NAME:** Last name of the employee.
    - **DEPT:** Department to which the employee belongs.
    - **DATE_OF_BIRTH:** Date of birth of the employee.
    - **GENDER:** Gender of the employee.
    - **RELIGION:** Religion of the employee.
3. **Product Table:**
    - **PRODUCT_ID:** Unique identifier for each product.
    - **PRODUCT_NAME:** Name of the product.
    - **CATEGORY:** Category to which the product belongs.
    - **PRICE:** Price of the product.
    - **MANUFACTURER:** Manufacturer of the product.
4. **Customer Table:**
    - **CUSTOMER_ID:** Unique identifier for each customer.
    - **FIRST_NAME:** First name of the customer.
    - **LAST_NAME:** Last name of the customer.
    - **EMAIL:** Email address of the customer.
    - **PHONE_NUMBER:** Phone number of the customer.
5. **Account Table:**
    - **ACCOUNT_ID:** Unique identifier for each account.
    - **ACCOUNT_NUMBER:** Account number associated with the account.
    - **ACCOUNT_TYPE:** Type of the account (e.g., savings, checking).
    - **BALANCE:** Current balance in the account.
    - **OPEN_DATE:** Date when the account was opened.

3. Insert at least 5 distinct rows to each table.

➔ Student table

insert into Student values (01, 'Bibek', 'Sah', 'CSE', '02-jan-2002', 'Male', 'Hinduism');

```
SQL> insert into Student values (01, 'Bibek', 'Sah', 'CSE', '02-jan-2002', 'Male', 'Hinduism');

1 row created.

SQL> insert into Student values (1, 'John', 'Doe', 'CSE', '02-jan-2002', 'Male', 'Hindu');

1 row created.

SQL> insert into Student values (2, 'Jane', 'Smith', 'Civil', '02-feb-2003', 'Female', 'Christian');

1 row created.

SQL> insert into Student values (3, 'Sam', 'Johnson', 'Electron', '02-mar-2001', 'Male', 'Muslim');

1 row created.

SQL> insert into Student values (4, 'Emily', 'Brown', 'CSE', '02-feb-2001', 'Female', 'Hindu');

1 row created.
```

Employee table

INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION) VALUES (101, 'Alice', 'Johnson', 'HR', '02-mar-1980', 'Female', 'None');

```
SQL> INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION)
  2  VALUES (101, 'Alice', 'Johnson', 'HR', '02-mar-1980', 'Female', 'None');

1 row created.

SQL>
SQL> INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION)
  2  VALUES (102, 'Bob', 'Smith', 'IT', '18-dec-1985', 'Male', 'Christian');

1 row created.

SQL>
SQL> INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION)
  2  VALUES (103, 'Eva', 'Clark', 'Finance', '25-aug-1978', 'Female', 'Buddhist');

1 row created.

SQL>
SQL> INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION)
  2  VALUES (104, 'James', 'Miller', 'Marketing', '12-mar-1982', 'M', 'Hinduism');

1 row created.

SQL>
SQL> INSERT INTO Employee (EMPLOYEE_ID, FIRST_NAME, LAST_NAME, DEPT, DATE_OF_BIRTH, GENDER, RELIGION)
  2  VALUES (105, 'Sophia', 'Brown', 'Legal', '05-oct-1987', 'F', 'Jewish');

1 row created.
```

Product table

INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER) VALUES (501, 'Laptop', 'Electronic', 1200.00, 'HP');

```
SQL> INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER)
  2  VALUES
  3  (501, 'Laptop', 'Electronic', 1200.00, 'HP');

1 row created.

SQL>
SQL> INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER)
  2  VALUES
  3  (502, 'Smartphone', 'Electronic', 800.00, 'Samsung');

1 row created.

SQL>
SQL> INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER)
  2  VALUES
  3  (503, 'Coffee Mk', 'Appliances', 50.00, 'Cuisinart');

1 row created.

SQL>
SQL> INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER)
  2  VALUES
  3  (504, 'Running Sh', 'Footwear', 80.00, 'Nike');

1 row created.

SQL>
SQL> INSERT INTO Product (PRODUCT_ID, PRODUCT_NAME, CATEGORY, PRICE, MANUFACTURER)
  2  VALUES
  3  (505, 'Digital C', 'Electronic', 500.00, 'Canon');

 row created.
```

Customer table

INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1001, 'David', 'Johnson', 'david@em.co', '1234567890');

```
SQL> INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1001, 'Dav
id', 'Johnson', 'david@em.co', '1234567890');

1 row created.

SQL>
SQL> INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1002, 'Emm
a', 'Williams', 'emma@em.co', '4567890123');

1 row created.

SQL>
SQL> INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1003, 'Oli
ver', 'Smith', 'oliver@em.co', '7890123456');

1 row created.

SQL>
SQL> INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1004, 'Ava
', 'Davis', 'ava@em.co', '0123456789');

1 row created.

SQL>
SQL> INSERT INTO Customer (CUSTOMER_ID, FIRST_NAME, LAST_NAME, EMAIL, PHONE_NUMBER) VALUES (1005, 'Noa
h', 'Jones', 'noah@em.co', '2345678901');

1 row created.
```

Account table

INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10001, 'A123456', 'Savings', 5000.00, '01-jan-2022');

```
SQL> INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10001,
 'A123456', 'Savings', 5000.00, '01-jan-2022');

1 row created.

SQL>
SQL> INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10002,
 'C789012', 'Checking', 1500.00, '15-feb-2022');

1 row created.

SQL>
SQL> INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10003,
 'A456789', 'Savings', 8000.00, '10-mar-2022');

1 row created.

SQL>
SQL> INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10004,
 'C012345', 'Checking', 3000.00, '22-apr-2022');

1 row created.

SQL>
SQL> INSERT INTO Account (ACCOUNT_ID, ACCOUNT_NUMBER, ACCOUNT_TYPE, BALANCE, OPEN_DATE) VALUES (10005,
 'A678901', 'Savings', 6000.00, '05-may-2022');

1 row created.
```

4. Fetch all data from the respective tables.

➔student table:- select * from student;

```
SQL> select * from student;

STUDENT_ID FIRST_NAME LAST_NAME  DEPT       DATE_OF_B GENDER RELIGION
---------- ---------- ---------- ---------- --------- ------ ----------
         1 Bibek      Sah        CSE        02-JAN-02 Male   Hinduism
         1 Bibek      Sah        CSE        02-JAN-02 Male   Hinduism
         1 John       Doe        CSE        02-JAN-02 Male   Hindu
         2 Jane       Smith      Civil      02-FEB-03 Female Christian
         3 Sam        Johnson    Electron   02-MAR-01 Male   Muslim
         4 Emily      Brown      CSE        02-FEB-01 Female Hindu
```

Employee table:- select * from employee;

```
SQL> select * from employee;

EMPLOYEE_ID FIRST_NAME LAST_NAME  DEPT       DATE_OF_B GENDER RELIGION
----------- ---------- ---------- ---------- --------- ------ ----------
        101 Alice      Johnson    HR         02-MAR-80 Female None
        102 Bob        Smith      IT         18-DEC-85 Male   Christian
        103 Eva        Clark      Finance    25-AUG-78 Female Buddhist
        104 James      Miller     Marketing  12-MAR-82 M      Hinduism
        105 Sophia     Brown      Legal      05-OCT-87 F      Jewish
```

Product table :- select * from product;

```
SQL> select * from product;

PRODUCT_ID PRODUCT_NA CATEGORY        PRICE MANUFACTUR
---------- ---------- ---------- ---------- ----------
       501 Laptop     Electronic       1200 HP
       502 Smartphone Electronic        800 Samsung
       503 Coffee Mk  Appliances         50 Cuisinart
       504 Running Sh Footwear           80 Nike
       505 Digital C  Electronic        500 Canon
```

Customer table :- select * from customer;

```
SQL> select * from customer;

CUSTOMER_ID FIRST_NAME LAST_NAME  EMAIL          PHONE_NUMB
----------- ---------- ---------- -------------- ----------
       1001 David      Johnson    david@em.co    1234567890
       1002 Emma       Williams   emma@em.co     4567890123
       1003 Oliver     Smith      oliver@em.co   7890123456
       1004 Ava        Davis      ava@em.co      0123456789
       1005 Noah       Jones      noah@em.co     2345678901
```

Account table :- select * from account;

```
SQL> select * from account;

ACCOUNT_ID ACCOUNT_NU ACCOUNT_TY    BALANCE OPEN_DATE
---------- ---------- ---------- ---------- ---------
     10001 A123456    Savings          5000 01-JAN-22
     10002 C789012    Checking         1500 15-FEB-22
     10003 A456789    Savings          8000 10-MAR-22
     10004 C012345    Checking         3000 22-APR-22
     10005 A678901    Savings          6000 05-MAY-22
```

5. Fetch Employee ids and their names from the Employee table.

➔ select employee_id, first_name from employee;

```
EMPLOYEE_ID FIRST_NAME
----------- ----------
        101 Alice
        102 Bob
        103 Eva
        104 James
        105 Sophia
```

6. Create table YOUTH (f_name, l_name, sex, DOB) from the Student table.

➔ CREATE TABLE YOUTH AS SELECT FIRST_NAME AS f_name, LAST_NAME AS l_name, GENDER AS sex, DATE_OF_BIRTH AS DOB FROM Student;

```
SQL> CREATE TABLE YOUTH AS
  2  SELECT FIRST_NAME AS f_name, LAST_NAME AS l_name, GENDER AS sex, DATE_OF_BIRTH AS DOB
  3  FROM Student;

Table created.

SQL> select * from youth;

F_NAME     L_NAME     SEX    DOB
---------- ---------- ------ ---------
Bibek      Sah        Male   02-JAN-02
Bibek      Sah        Male   02-JAN-02
John       Doe        Male   02-JAN-02
Jane       Smith      Female 02-FEB-03
Sam        Johnson    Male   02-MAR-01
Emily      Brown      Female 02-FEB-01

6 rows selected.
```

7. Delete all data from the customer table.

➔ DELETE FROM Customer;

```
SQL> DELETE FROM Customer;

5 rows deleted.

SQL> select * from customer;

no rows selected
```

8. Delete the Account table.

➔ drop table account;

```
SQL> drop table account;

Table dropped.

SQL> select * from account;
select * from account
              *
ERROR at line 1:
ORA-00942: table or view does not exist
```

9. Fetch the f_name and DOB from YOUTH table.

➔ SELECT f_name, DOB FROM YOUTH;

```
SQL> SELECT f_name, DOB FROM YOUTH;

F_NAME     DOB
---------- ---------
Bibek      02-JAN-02
Bibek      02-JAN-02
John       02-JAN-02
Jane       02-FEB-03
Sam        02-MAR-01
Emily      02-FEB-01

6 rows selected.
```

10. Insert a new record into the Youth table. And keep NULL value in the l_name column.

➔ INSERT INTO YOUTH (f_name, l_name, sex, DOB) VALUES ('John', NULL, 'Male', '15-jan-2000');

```
SQL> INSERT INTO YOUTH (f_name, l_name, sex, DOB) VALUES ('John', NULL, 'Male', '15-jan-2000');

1 row created.

SQL> select * from youth;

F_NAME     L_NAME     SEX    DOB
---------- ---------- ------ ---------
Bibek      Sah        Male   02-JAN-02
Bibek      Sah        Male   02-JAN-02
John       Doe        Male   02-JAN-02
Jane       Smith      Female 02-FEB-03
Sam        Johnson    Male   02-MAR-01
Emily      Brown      Female 02-FEB-01
John                  Male   15-JAN-00

7 rows selected.
```

11. Insert a new record into the Employee table. And keep NULL value in the employee_id column.

➔ insert into Employee (Employee_id, Employee_name, Product, Customer, Account) values ('null', 'Raman', 'Charger', 'Rajkumar', 2000);

```
SQL> insert into employee (Employee_id, Employee_name, Product, Customer, Account) values (null, 'Raman', 'Charger', 'Ra
jkumar', 2000);
insert into employee (Employee_id, Employee_name, Product, Customer, Account) values (null, 'Raman', 'Charger', 'Rajkuma
r', 2000)
                                                                                    *

ERROR at line 1:
ORA-01400: cannot insert NULL into ("BIBEK"."EMPLOYEE"."EMPLOYEE_ID")
```

12. Change the name of the employee table to workers.

➔RENAME EMPLOYEE TO WORKERS;

```
SQL> RENAME EMPLOYEE TO WORKERS;

Table renamed.
```

13. Increase the size of the dept field in the student table by 10.

➔ALTER TABLE STUDENT MODIFY DEPT VARCHAR(10);

```
SQL> ALTER TABLE STUDENT  MODIFY DEPT VARCHAR(10);

Table altered.
```

14. Add a column ph_no in the student table.

➔ ALTER TABLE STUDENT ADD PH_NO VARCHAR(10);

```
SQL> ALTER TABLE STUDENT ADD PH_NO VARCHAR(10);

Table altered.
```

15. Drop the religion attribute from the student table.

➔ ALTER TABLE STUDENT SET UNUSED COLUMN RELIGION;

```
SQL> ALTER TABLE STUDENT SET UNUSED COLUMN RELIGION;

Table altered.
```

16. Rename the student_id field to roll_no in the student table.

➔ ALTER TABLE STUDENT RENAME COLUMN STUDENT_ID TO ROLL_NO;

```
SQL> ALTER TABLE STUDENT RENAME COLUMN STUDENT_ID TO ROLL_NO;

Table altered.
```

17. Change the datatype and size of the product id column in the product table.

➔