```
SQL> CREATE TABLE DEPARTMENT1 (
  2  dept_no INT PRIMARY KEY,
  3  dept_name VARCHAR(50) UNIQUE NOT NULL,
  4  location VARCHAR(50)
  5  );

Table created.
```

```
SQL> CREATE TABLE EMP (
  2      emp_id INT GENERATED ALWAYS AS IDENTITY PRIMARY KEY,  -- Auto-incrementing primary key
  3      emp_name VARCHAR(50) NOT NULL,
  4      birth_date DATE NOT NULL,
  5      gender VARCHAR(10) CHECK (gender IN ('Male', 'Female')) NOT NULL,  -- Or ENUM if your DB supports it
  6      dept_no INT,  -- Foreign key
  7      address VARCHAR(255),
  8      designation VARCHAR(20) CHECK (designation IN ('Manager', 'Clerk', 'Leader', 'Analyst', 'Designer', 'Coder', 'Tester')) NOT NULL,
  9      salary DECIMAL(10, 2) CHECK (salary > 0),
 10      experience INT CHECK (experience >= 0),  -- Assuming experience can't be negative
 11      email VARCHAR(100) NOT NULL,
 12      CONSTRAINT fk_dept FOREIGN KEY (dept_no) REFERENCES DEPARTMENT(dept_no) ON DELETE CASCADE, -- Foreign key constraint
 13      CONSTRAINT ck_email CHECK (email LIKE '%@%') -- Email check
 14  );

Table created.

SQL>
SQL> -- Trigger to enforce age restriction (Oracle)
SQL> CREATE OR REPLACE TRIGGER trg_emp_age_check
  2  BEFORE INSERT OR UPDATE ON EMP
  3  FOR EACH ROW
  4  BEGIN
  5      IF ADD_MONTHS(:NEW.birth_date, 18*12) > SYSDATE THEN
  6          RAISE_APPLICATION_ERROR(-20001, 'Employee must be at least 18 years old.');
  7      END IF;
  8  END;
  9  /

Trigger created.
```

```
SQL> INSERT INTO DEPARTMENT (dept_no, dept_name, location) VALUES (10, 'Accounts', 'NY');

1 row created.

SQL> INSERT INTO DEPARTMENT (dept_no, dept_name, location) VALUES (20, 'HR', 'NY');

1 row created.

SQL> INSERT INTO DEPARTMENT (dept_no, dept_name, location) VALUES (30, 'Production', 'DL');

1 row created.

SQL> INSERT INTO DEPARTMENT (dept_no, dept_name, location) VALUES (40, 'Sales', 'NY');

1 row created.

SQL> INSERT INTO DEPARTMENT (dept_no, dept_name, location) VALUES (50, 'IT', 'MU');

1 row created.
```

```
SQL> INSERT INTO EMP (emp_name, birth_date, gender, dept_no, address, designation, salary, experience, email)
  2  VALUES ('Alice', TO_DATE('1990-05-12', 'YYYY-MM-DD'), 'Female', 10, '123 Main St', 'Manager', 60000, 10, 'alice@example.com');

1 row created.

SQL> INSERT INTO EMP (emp_name, birth_date, gender, dept_no, address, designation, salary, experience, email)
  2  VALUES ('Bob', TO_DATE('1995-09-23', 'YYYY-MM-DD'), 'Male', 20, '456 Elm St', 'Clerk', 35000, 5, 'bob@example.com');

1 row created.

SQL> ('Charlie', '1998-02-11', 'Male', 30, '789 Oak St',
  2
SQL> INSERT INTO EMP (emp_name, birth_date, gender, dept_no, address, designation, salary, experience, email)
  2  VALUES ('Charlie', TO_DATE('1998-02-11', 'YYYY-MM-DD'), 'Male', 30, '789 Oak St', 'Analyst', 45000, 3, 'charlie@example.com');

1 row created.

SQL> INSERT INTO EMP (emp_name, birth_date, gender, dept_no, address, designation, salary, experience, email)
  2  VALUES ('David', TO_DATE('2000-07-30', 'YYYY-MM-DD'), 'Male', 40, '321 Maple St', 'Coder', 40000, 2, 'david@example.com');

1 row created.

SQL> INSERT INTO EMP (emp_name, birth_date, gender, dept_no, address, designation, salary, experience, email)
  2  VALUES ('Eve', TO_DATE('1992-10-15', 'YYYY-MM-DD'), 'Female', 50, '654 Pine St', 'Designer', 50000, 8, 'eve@example.com');

1 row created.

SQL> COMMIT;

Commit complete.
```

```
SQL> desc emp;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 EMP_ID                                    NOT NULL NUMBER(38)
 EMP_NAME                                  NOT NULL VARCHAR2(50)
 BIRTH_DATE                                NOT NULL DATE
 GENDER                                    NOT NULL VARCHAR2(10)
 DEPT_NO                                            NUMBER(38)
 ADDRESS                                            VARCHAR2(255)
 DESIGNATION                               NOT NULL VARCHAR2(20)
 SALARY                                             NUMBER(10,2)
 EXPERIENCE                                         NUMBER(38)
 EMAIL                                     NOT NULL VARCHAR2(100)

SQL> desc department1;
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------------------
 DEPT_NO                                   NOT NULL NUMBER(38)
 DEPT_NAME                                 NOT NULL VARCHAR2(50)
 LOCATION                                           VARCHAR2(50)
```

```
SQL> SELECT * FROM EMP ORDER BY emp_name ASC;

   EMP_ID EMP_NAME                                   BIRTH_DAT GENDER       DEPT_NO ADDRESS
                                                                                     DESIGNATION          SALARY EXPERIENCE EMAIL
--------- --------------------------------------- --------- --------- --------- ------------------------------------------------------------
------------------------------------------------------------------------------------------------------------------------ ---------- ---------- ------------------------------
------------------------------------------------------------

         2 Alice                                   12-MAY-90 Female          10 123 Main St
                                                                                     Manager              60000         10 alice@example.com

         3 Bob                                     23-SEP-95 Male            20 456 Elm St
                                                                                     Clerk                35000          5 bob@example.com

         4 Charlie                                 11-FEB-98 Male            30 789 Oak St
                                                                                     Analyst              45000          3 charlie@example.com

         5 David                                   30-JUL-00 Male            40 321 Maple St
                                                                                     Coder                40000          2 david@example.com

         6 Eve                                     15-OCT-92 Female          50 654 Pine St
                                                                                     Designer             50000          8 eve@example.com
```

```
SQL> SELECT * FROM DEPARTMENT ORDER BY dept_name ASC;

   DEPT_NO DEPT_NAME                                          LOCATION
---------- -------------------------------------------------- --------------------------------------------------
        10 Accounts                                           NY
        20 HR                                                 NY
        50 IT                                                 MU
        30 Production                                         DL
        40 Sales                                              NY
```

```
SQL> SELECT * FROM EMP WHERE gender = 'Female';

   EMP_ID EMP_NAME                                   BIRTH_DAT GENDER       DEPT_NO ADDRESS
                                                                                     DESIGNATION          SALARY EXPERIENCE EMAIL
--------- --------------------------------------- --------- --------- --------- ------------------------------------------------------------
------------------------------------------------------------------------------------------------------------------------ ---------- ---------- ------------------------------
------------------------------------------------------------

         2 Alice                                   12-MAY-90 Female          10 123 Main St
                                                                                     Manager              60000         10 alice@example.com

         6 Eve                                     15-OCT-92 Female          50 654 Pine St
                                                                                     Designer             50000          8 eve@example.com
```

```
SQL> SELECT d.dept_name, e.emp_name
  2  FROM EMP e
  3  JOIN DEPARTMENT d ON e.dept_no = d.dept_no
  4  ORDER BY d.dept_name;

DEPT_NAME                                          EMP_NAME
-------------------------------------------------- --------------------------------------------------
Accounts                                           Alice
HR                                                 Bob
IT                                                 Eve
Production                                         Charlie
Sales                                              David
```

```
SQL> SELECT emp_name FROM EMP WHERE salary BETWEEN 2000 AND 5000;

no rows selected
```

```
SQL> SELECT emp_name, designation FROM EMP WHERE gender = 'Female' ORDER BY emp_name DESC;

EMP_NAME                                           DESIGNATION
-------------------------------------------------- --------------------
Eve                                                Designer
Alice                                              Manager
```

```
SQL> SELECT emp_name FROM EMP WHERE emp_name LIKE 'A%A';

no rows selected
```

```
SQL> SELECT emp_name, salary
  2  FROM EMP
  3  WHERE salary = (SELECT MIN(salary) FROM EMP);

EMP_NAME                                                  SALARY
-------------------------------------------------- ----------
Bob                                                        35000
```

```
SQL> UPDATE EMP
  2  SET salary = salary * 1.10
  3  WHERE dept_no = (SELECT dept_no FROM DEPARTMENT1 WHERE dept_name = 'IT');

0 rows updated.
```

```
SQL> SELECT COUNT(*)
  2  FROM EMP
  3  WHERE dept_no = (SELECT dept_no FROM DEPARTMENT1 WHERE dept_name = 'IT');

  COUNT(*)
----------
         0
```

```
SQL> SELECT *
  2  FROM EMP
  3  WHERE EXTRACT(MONTH FROM birth_date) = EXTRACT(MONTH FROM SYSDATE);

   EMP_ID EMP_NAME                                           BIRTH_DAT GENDER       DEPT_NO ADDRESS
                                                                                              DESIGNATION          SALARY EXPERIENCE EMAIL
---------- -------------------------------------------------- --------- ---------- ---------- ------------------------------------------------------------
-------------------- ---------- ---------- --------------------------------------------------
-----------------
         4 Charlie                                            11-FEB-98 Male               30 789 Oak St
                                                                                              Analyst              45000          3 charlie@example.com
```

```
SQL> SELECT d.dept_name, e.emp_name
  2  FROM EMP e
  3  JOIN DEPARTMENT d ON e.dept_no = d.dept_no
  4  WHERE e.experience > 5;

DEPT_NAME                                  EMP_NAME
------------------------------------------ ------------------------------------------
Accounts                                   Alice
IT                                         Eve
```

```
SQL> CREATE SEQUENCE dept_seq START WITH 1 INCREMENT BY 1;

Sequence created.

SQL> CREATE OR REPLACE TRIGGER dept_no_trigger
  2  BEFORE INSERT ON DEPARTMENT
  3  FOR EACH ROW
  4  BEGIN
  5      IF :NEW.dept_no IS NULL THEN
  6          SELECT dept_seq.NEXTVAL INTO :NEW.dept_no FROM DUAL;
  7      END IF;
  8  END;
  9  /

Trigger created.
```

```
SQL> SELECT d.dept_name
  2  FROM DEPARTMENT d
  3  LEFT JOIN EMP e ON d.dept_no = e.dept_no
  4  WHERE e.emp_id IS NULL;

no rows selected
```

```
SQL> SELECT e.emp_name || ' works in department ' || d.dept_name AS employee_info  -- Using concatenation operator || (preferred)
  2  FROM EMP e
  3  JOIN DEPARTMENT d ON e.dept_no = d.dept_no;

EMPLOYEE_INFO
--------------------------------------------------------------------------------------------------------------
Alice works in department Accounts
Bob works in department HR
Charlie works in department Production
David works in department Sales
Eve works in department IT
```