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## Assignment 2

Q1. Create a super type person Person: attributes ->fname (first name), lname (last name) dob (date of birth) Methods ->FullName(to return full name), OnDate(return dob)

Create a sub type EmpObj which will inherit the person type attributes and methods. Empobj (inherits Person): attributes -> job, sal, da(allowance), doj (date of joining) Methods - > Earn (return earning), OnDate(overriding return doj)

```
CREATE OR REPLACE TYPE Person AS OBJECT (
```

```
    fname VARCHAR2(50),
```

```
    lname VARCHAR2(50),
```

```
    dob DATE,
```

```
    MEMBER FUNCTION FullName RETURN VARCHAR2,
```

```
    MEMBER FUNCTION OnDate RETURN DATE
```

```
) NOT FINAL;
```

```
/
```

```
CREATE OR REPLACE TYPE BODY Person AS
```

```
    MEMBER FUNCTION FullName RETURN VARCHAR2 IS
```

```
    BEGIN
```

```
        RETURN fname || ' ' || lname;
```

```
    END;
```

```
    MEMBER FUNCTION OnDate RETURN DATE IS
```

```
    BEGIN
```

```
        RETURN dob;
```

END;

END;

/

CREATE OR REPLACE TYPE EmpObj UNDER Person (

  job VARCHAR2(50),

  sal NUMBER,

  da NUMBER,

  doj DATE,

  MEMBER FUNCTION Earn RETURN NUMBER,

  OVERRIDING MEMBER FUNCTION OnDate RETURN DATE

);

/

CREATE OR REPLACE TYPE BODY EmpObj AS

  MEMBER FUNCTION Earn RETURN NUMBER IS

  BEGIN

    RETURN sal + da;

  END;

  OVERRIDING MEMBER FUNCTION OnDate RETURN DATE IS

  BEGIN

    RETURN doj;

  END;

END;

/

CREATE TABLE EmployeeTable OF EmpObj;

```
INSERT INTO EmployeeTable VALUES (  
    EmpObj(  
        'John',          -- fname  
        'Doe',           -- lname  
        TO_DATE('1985-01-15', 'YYYY-MM-DD'), -- dob  
        'Developer',     -- job  
        70000,            -- sal  
        5000,            -- da  
        TO_DATE('2020-07-01', 'YYYY-MM-DD') -- doj  
    )  
);
```

```
INSERT INTO EmployeeTable VALUES (  
    EmpObj(  
        'Jane',          -- fname  
        'Smith',         -- lname  
        TO_DATE('1990-02-25', 'YYYY-MM-DD'), -- dob  
        'Analyst',       -- job  
        65000,           -- sal  
        4000,           -- da  
        TO_DATE('2021-01-10', 'YYYY-MM-DD') -- doj  
    )  
);
```

```
INSERT INTO EmployeeTable VALUES (  
    EmpObj(  
        'Alice',         -- fname  
        'Johnson',      -- lname  
        TO_DATE('1988-06-12', 'YYYY-MM-DD'), -- dob
```

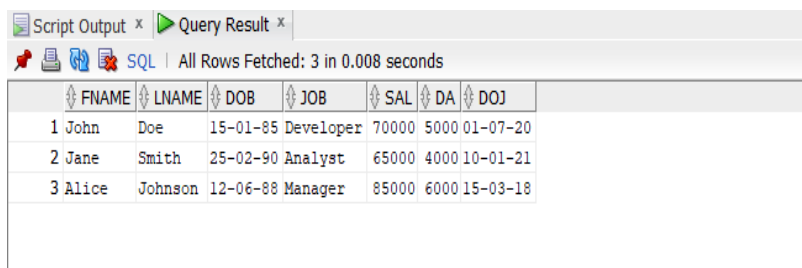
```

        'Manager',          -- job
        85000,              -- sal
        6000,              -- da
        TO_DATE('2018-03-15', 'YYYY-MM-DD') -- doj
    )
);

SELECT * FROM EmployeeTable;

```

## OUTPUT :



Script Output x Query Result x

SQL | All Rows Fetched: 3 in 0.008 seconds

	FNAME	LNAME	DOB	JOB	SAL	DA	DOJ
1	John	Doe	15-01-85	Developer	70000	5000	01-07-20
2	Jane	Smith	25-02-90	Analyst	65000	4000	10-01-21
3	Alice	Johnson	12-06-88	Manager	85000	6000	15-03-18

## Q2. Implementing table inheritance in SQL server

The following entities in a "School" database:

Super type: People

Sub types: Students, Teachers, Parents

Each of those entities has many of the same attributes, such as first name, last name, middle name, and birth date. Yet, we must separate them into multiple tables because we need to store and track different data for students, teachers and parents: students have grades and classes and parents; teachers have classes taught, skills, employment information, and so on.

```

CREATE TABLE People (
    PersonID NUMBER PRIMARY KEY,
    FirstName VARCHAR2(50),
    LastName VARCHAR2(50),
    MiddleName VARCHAR2(50),
    BirthDate DATE,

```

Type VARCHAR2(20) -- This column can be used to identify the subtype (e.g., 'Student', 'Teacher', 'Parent')

);

CREATE TABLE Students (

StudentID NUMBER PRIMARY KEY,

PersonID NUMBER REFERENCES People(PersonID),

Grade VARCHAR2(10),

Class VARCHAR2(50)

);

CREATE TABLE Parents (

ParentID NUMBER PRIMARY KEY,

PersonID NUMBER REFERENCES People(PersonID),

ChildID NUMBER REFERENCES Students(StudentID) -- Assuming a relationship to Students

);

CREATE TABLE Teachers (

TeacherID NUMBER PRIMARY KEY,

PersonID NUMBER REFERENCES People(PersonID),

Subject VARCHAR2(50),

Skills VARCHAR2(200),

EmploymentDate DATE

);

-- Insert into People table

INSERT INTO People (PersonID, FirstName, LastName, MiddleName, BirthDate, Type)  
VALUES

(1, 'John', 'Doe', 'A', TO\_DATE('2005-01-15', 'YYYY-MM-DD'), 'Student');

INSERT INTO People (PersonID, FirstName, LastName, MiddleName, BirthDate, Type)  
VALUES

(2, 'Jane', 'Smith', 'B', TO\_DATE('1980-02-20', 'YYYY-MM-DD'), 'Teacher');

```
INSERT INTO People (PersonID, FirstName, LastName, MiddleName, BirthDate, Type)
VALUES
```

```
(3, 'Alice', 'Johnson', 'C', TO_DATE('1975-03-10', 'YYYY-MM-DD'), 'Parent');
```

```
INSERT INTO People (PersonID, FirstName, LastName, MiddleName, BirthDate, Type)
VALUES
```

```
(4, 'Michael', 'Brown', 'D', TO_DATE('2005-04-25', 'YYYY-MM-DD'), 'Student');
```

```
-- Insert into Students table
```

```
INSERT INTO Students (StudentID, PersonID, Grade, Class) VALUES
```

```
(1, 1, '10', 'Science');
```

```
INSERT INTO Students (StudentID, PersonID, Grade, Class) VALUES
```

```
(2, 4, '9', 'Math');
```

```
-- Insert into Parents table
```

```
INSERT INTO Parents (ParentID, PersonID, ChildID) VALUES
```

```
(1, 3, 1); -- Alice Johnson is the parent of John Doe
```

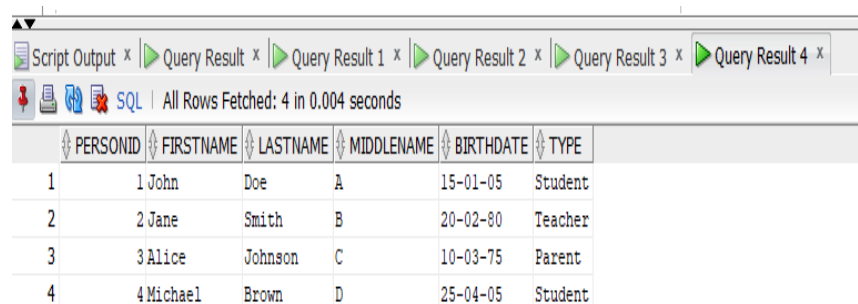
```
-- Insert into Teachers table
```

```
INSERT INTO Teachers (TeacherID, PersonID, Subject, Skills, EmploymentDate) VALUES
```

```
(1, 2, 'Mathematics', 'Algebra, Calculus', TO_DATE('2010-08-01', 'YYYY-MM-DD'));
```

```
-- View People
```

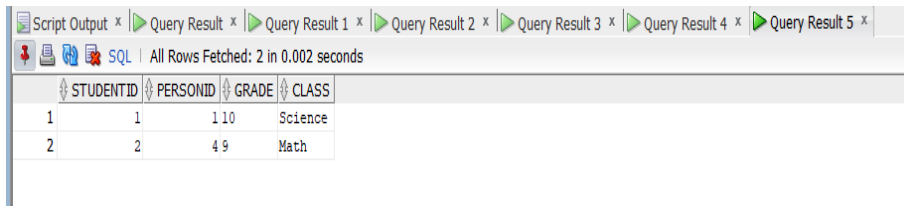
```
SELECT * FROM People;
```



PERSONID	FIRSTNAME	LASTNAME	MIDDLENAME	BIRTHDATE	TYPE
1	John	Doe	A	15-01-05	Student
2	Jane	Smith	B	20-02-80	Teacher
3	Alice	Johnson	C	10-03-75	Parent
4	Michael	Brown	D	25-04-05	Student

## -- View Students

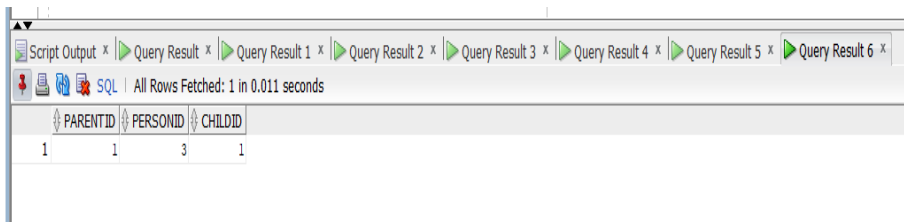
```
SELECT * FROM Students;
```



STUDENTID	PERSONID	GRADE	CLASS
1	1	110	Science
2	2	49	Math

## -- View Parents

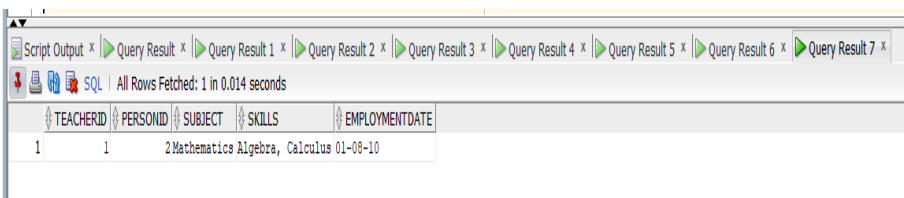
```
SELECT * FROM Parents;
```



PARENTID	PERSONID	CHILDID
1	1	3

## -- View Teachers

```
SELECT * FROM Teachers;
```



TEACHERID	PERSONID	SUBJECT	SKILLS	EMPLOYMENTDATE
1	1	2	Mathematics Algebra, Calculus	01-08-10