Name: Pushkaraj Yadav

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Subject: Advanced Database Systems Labs

Experiment No.: 2

1. 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)

Answer below query.

1. Display employee Id, Employee Full Name, Employee Date of joining, Employee Date of Birth and Employee Earning for all employees.

CODE:

```
CREATE OR REPLACE TYPE PersonType AS OBJECT (
   person_id varchar(10),
   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 PersonType AS
   MEMBER FUNCTION FullName RETURN VARCHAR2 IS
   BEGIN
      RETURN fname || ' ' || lname;
   END;

   MEMBER FUNCTION OnDate RETURN DATE IS
   BEGIN
      RETURN dob;
   END;
END;

create type EmpObjType under PersonType (
   job VARCHAR2(50),
   salary NUMBER,
   da NUMBER,
   doj date,

   OVERRIDING MEMBER FUNCTION OnDate RETURN DATE,
   MEMBER FUNCTION Earn RETURN NUMBER
)

CREATE OR REPLACE TYPE BODY EmpObjType AS
   OVERRIDING MEMBER FUNCTION OnDate RETURN DATE IS
   BEGIN
      RETURN doj;
   END;
```

```
   MEMBER FUNCTION Earn RETURN NUMBER IS
   BEGIN
      RETURN salary + da;
   END;
END;

create table Employee of EmpObjType(
   CONSTRAINT emp_id PRIMARY KEY(person_id)
)

INSERT INTO employee VALUES('1', 'Pushkaraj', 'Yadav', DATE '2003-04-04',
'Developer', 20000, 5000, DATE '2025-05-05');

INSERT INTO Employee VALUES ('2', 'Aryan', 'Mangrule', DATE '1990-02-20',
'Engineer', 40000, 4000, DATE '2015-07-10');

INSERT INTO Employee VALUES ('3', 'Dhairyasheel', 'Phalke', DATE '1988-03-10',
'Analyst', 35000, 3500, DATE '2012-09-20');

INSERT INTO Employee VALUES ('4', 'Ankita', 'Desai', DATE '1992-04-05',
'Developer', 42000, 4200, DATE '2018-01-15');

INSERT INTO Employee VALUES ('5', 'Arya', 'Mane', DATE '1983-05-22', 'Consultant',
48000, 4800, DATE '2011-11-01');

INSERT INTO Employee VALUES ('6', 'Anjali', 'Sharma', DATE '1995-06-18', 'Tester',
37000, 3700, DATE '2019-08-25');

INSERT INTO Employee VALUES ('7', 'Shivraj', 'Patil', DATE '1993-07-11', 'HR
Specialist', 39000, 3900, DATE '2017-03-10');

INSERT INTO Employee VALUES ('8', 'Shri', 'Nashte', DATE '1986-08-30', 'Team Lead',
53000, 5300, DATE '2013-05-20');

INSERT INTO Employee VALUES ('9', 'Sujay', 'Gangan', DATE '1991-09-15', 'Support
Engineer', 41000, 4100, DATE '2016-10-05');

INSERT INTO Employee VALUES ('10','Sandeep', 'Patil', DATE '1987-10-25', 'Project
Manager', 55000, 5500, DATE '2009-04-15');
```

select e.FullName() as Employee_Name, e.OnDate() as Join_Date, e.Earn() as Earning from Employee e;

```
59  select e.FullName() as Employee_Name, e.OnDate() as Join_Date, e.Earn() as Earning from Employee e;
60
61
```

Query... ×

SQL | All Rows Fetched: 10 in 0.042 seconds

	EMPLOYEE_NAME	JOIN_DATE	EARNING
1	Pushkaraj Yadav	05-MAY-25	25000
2	Aryan Mangrule	10-JUL-15	44000
3	Dhairyasheel Phalke	20-SEP-12	38500
4	Ankita Desai	15-JAN-18	46200
5	Arya Mane	01-NOV-11	52800
6	Anjali Sharma	25-AUG-19	40700
7	Shivraj Patil	10-MAR-17	42900
8	Shri Nashte	20-MAY-13	58300
9	Sujay Gangan	05-OCT-16	45100
10	Sandeep Patil	15-APR-09	60500

2. 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.

CODE:

```
CREATE OR REPLACE TYPE People AS OBJECT (
   fname VARCHAR2(50),
   lname VARCHAR2(50),
   mname VARCHAR2(50),
   birth_date DATE
)NOT FINAL;

CREATE OR REPLACE TYPE Student UNDER People (
   grade NUMBER,
   class VARCHAR2(50),
   parent_name VARCHAR2(100)
);

CREATE OR REPLACE TYPE Teacher UNDER People (
   classes_taught VARCHAR2(100),
   skills VARCHAR2(100),
   employment_info VARCHAR2(100)
);

CREATE OR REPLACE TYPE Parent UNDER People (
   children VARCHAR2(100)
);

CREATE TABLE students OF Student (
   PRIMARY KEY (fname, lname)
);
```

```
CREATE TABLE teachers OF Teacher (
   PRIMARY KEY (fname, lname)
);

CREATE TABLE parents OF Parent (
   PRIMARY KEY (fname, lname)
);

INSERT INTO students VALUES ('Pushkaraj', 'Yadav', 'D', DATE '2003-07-10', 9, 'Class A', 'Dilip Yadav');
INSERT INTO students VALUES ('Aryan', 'Mangrule', 'S', DATE '2003-05-22', 8, 'Class B', 'Sachin Mangrule');
INSERT INTO students VALUES ('Aditya', 'Patil', 'S', DATE '2003-11-15', 10, 'Class C', 'Suresh Patil');
INSERT INTO students VALUES ('Ankita', 'Desai', 'B', DATE '2003-01-05', 7, 'Class D', 'Babaso Desai');
INSERT INTO students VALUES ('Ishaan', 'Deshmukh', 'R', DATE '2003-08-12', 11, 'Class E', 'Ramesh Deshmukh');
INSERT INTO students VALUES ('Avdhut', 'Pailwan', 'S', DATE '2003-02-18', 12, 'Class F', 'Sanjay Pailwan');
INSERT INTO students VALUES ('Ritesh', 'Bakare', 'R', DATE '2003-09-25', 6, 'Class G', 'Ramesh Bakare');

INSERT INTO parents VALUES ('Dilip', 'Yadav', 'K', DATE '1975-04-10', 'Pushkaraj Yadav');
INSERT INTO parents VALUES ('Sachin', 'Mangrule', 'M', DATE '1972-07-23', 'Aryan Mangrule');
INSERT INTO parents VALUES ('Suresh', 'Patil', 'S', DATE '1979-05-15', 'Aditya Patil');
INSERT INTO parents VALUES ('Babaso', 'Desai', 'L', DATE '1980-09-17', 'Ankita Desai');
```

INSERT INTO parents VALUES ('Ramesh', 'Deshmukh', 'N', DATE '1982-11-02', 'Ishaan Deshmukh');

INSERT INTO parents VALUES ('Sanjay', 'Pailwan', 'R', DATE '1976-03-22', 'Avdhut Pailwan');

INSERT INTO parents VALUES ('Ramesh', 'Bakare', 'P', DATE '1978-10-10', 'Ritesh Bakare');

INSERT INTO teachers VALUES ('Pooja', 'Reddy', 'T', DATE '1985-05-10', 'Math, Science', 'Math Expert', '10 Years');

INSERT INTO teachers VALUES ('Sonal', 'Mishra', 'A', DATE '1980-04-20', 'English, History', 'Literature Specialist', '12 Years');

INSERT INTO teachers VALUES ('Ankita', 'Bose', 'D', DATE '1983-08-30', 'Physics, Chemistry', 'Science Expert', '8 Years');

INSERT INTO teachers VALUES ('Meera', 'Iyer', 'F', DATE '1981-12-11', 'Computer Science', 'Tech Expert', '6 Years');

INSERT INTO teachers VALUES ('Radhika', 'Desai', 'P', DATE '1978-03-09', 'Physical Education', 'Fitness Expert', '15 Years');

INSERT INTO teachers VALUES ('Sangeeta', 'Kapoor', 'G', DATE '1986-06-19', 'Biology, Environmental Science', 'Biology Specialist', '9 Years');

INSERT INTO teachers VALUES ('Shalini', 'Menon', 'L', DATE '1984-07-07', 'Geography, Economics', 'Social Studies Expert', '11 Years');

SELECT * FROM students;

```
120
121 SELECT * FROM students;
122
```

Script Output × Query Result ×

SQL | All Rows Fetched: 7 in 0.015 seconds

	FNAME	LNAME	MNAME	BIRTH_DATE	GRADE	CLASS	PARENT_NAME
1	Pushkaraj	Yadav	D	10-JUL-03	9	Class A	Dilip Yadav
2	Aryan	Mangrule	S	22-MAY-03	8	Class B	Sachin Mangrule
3	Aditya	Patil	S	15-NOV-03	10	Class C	Suresh Patil
4	Ankita	Desai	B	05-JAN-03	7	Class D	Babaso Desai
5	Ishaan	Deshmukh	R	12-AUG-03	11	Class E	Ramesh Deshmukh
6	Avdhut	Pailwan	S	18-FEB-03	12	Class F	Sanjay Pailwan
7	Ritesh	Bakare	R	25-SEP-03	6	Class G	Ramesh Bakare

SELECT * FROM teachers;

```
122
123 SELECT * FROM teachers;
124
125
```

Script Output | Query Result

SQL | All Rows Fetched: 7 in 0.005 seconds

	FNAME	LNAME	MNAME	BIRTH_DATE	CLASSES_TAUGHT	SKILLS	EMPLOYMENT_INFO
1	Pooja	Reddy	T	10-MAY-85	Math, Science	Math Expert	10 Years
2	Sonal	Mishra	A	20-APR-80	English, History	Literature Specialist	12 Years
3	Ankita	Bose	D	30-AUG-83	Physics, Chemistry	Science Expert	8 Years
4	Meera	Iyer	F	11-DEC-81	Computer Science	Tech Expert	6 Years
5	Radhika	Desai	P	09-MAR-78	Physical Education	Fitness Expert	15 Years
6	Sangeeta	Kapoor	G	19-JUN-86	Biology, Environmental Science	Biology Specialist	9 Years
7	Shalini	Menon	L	07-JUL-84	Geography, Economics	Social Studies Expert	11 Years

SELECT * FROM parents;

```
124
125 SELECT * FROM parents;
126
```

Script Output | Query Result

SQL | All Rows Fetched: 7 in 0.004 seconds

	FNAME	LNAME	MNAME	BIRTH_DATE	CHILDREN
1	Dilip	Yadav	K	10-APR-75	Pushkaraj Yadav
2	Sachin	Mangrule	M	23-JUL-72	Aryan Mangrule
3	Suresh	Patil	S	15-MAY-79	Aditya Patil
4	Babaso	Desai	L	17-SEP-80	Ankita Desai
5	Ramesh	Deshmukh	N	02-NOV-82	Ishaan Deshmukh
6	Sanjay	Pailwan	R	22-MAR-76	Avdhut Pailwan
7	Ramesh	Bakare	P	10-OCT-78	Ritesh Bakare