

# Experiment 2

**Name :** Omkar kore

**Class :** BTech C

**Roll NO :** BTC19

**Batch :** C1

## Q1. Create a super type person

*-- STEP 1: Create the Super Type Person*

```
CREATE OR REPLACE TYPE Person AS OBJECT (  
    fname  VARCHAR2(20),  
    lname  VARCHAR2(20),  
    dob    DATE,  
  
    MEMBER FUNCTION FullName RETURN VARCHAR2,  
    MEMBER FUNCTION OnDate RETURN DATE  
) NOT FINAL;  
/
```

*-- TYPE BODY for Person*

```
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;

/

*-- STEP 2: Create Sub Type EmpObj*

CREATE OR REPLACE TYPE EmpObj UNDER Person (

    job  VARCHAR2(20),

    sal  NUMBER(10,2),

    da   NUMBER(10,2),

    doj  DATE,

    MEMBER FUNCTION Earn RETURN NUMBER,

    OVERRIDING MEMBER FUNCTION OnDate RETURN DATE

);

/

*-- TYPE BODY for EmpObj*

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;

/

*-- STEP 3: Create Table to Store Employees*

```
CREATE TABLE Employee (  
    emp_id VARCHAR2(10) PRIMARY KEY,  
    details EmpObj  
);
```

*-- STEP 4: Insert Sample Data*

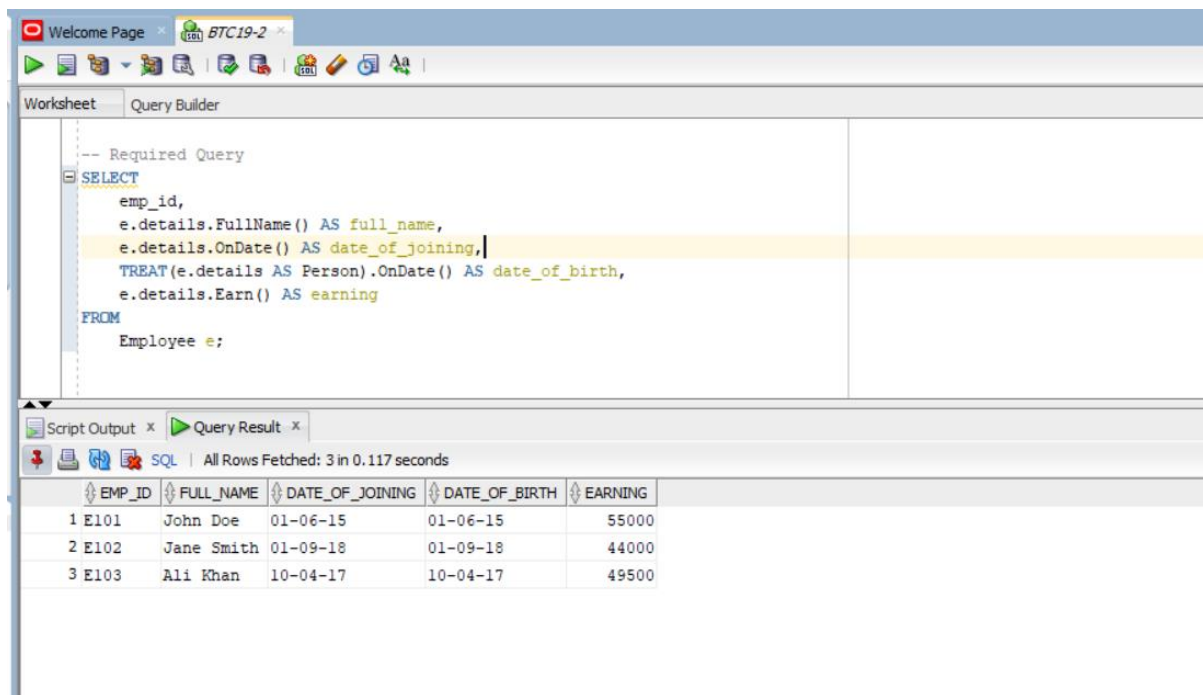
```
INSERT INTO Employee VALUES ('E101',  
    EmpObj('John', 'Doe', DATE '1990-01-01', 'Manager', 50000, 5000, DATE '2015-06-01')  
);
```

```
INSERT INTO Employee VALUES ('E102',  
    EmpObj('Jane', 'Smith', DATE '1992-02-14', 'Analyst', 40000, 4000, DATE '2018-09-01')  
);
```

```
INSERT INTO Employee VALUES ('E103',  
    EmpObj('Ali', 'Khan', DATE '1988-07-20', 'Developer', 45000, 4500, DATE '2017-04-10')  
);
```

*-- Required Query*

```
SELECT  
    emp_id,  
    e.details.FullName() AS full_name,  
    e.details.OnDate() AS date_of_joining,  
    TREAT(e.details AS Person).OnDate() AS date_of_birth,  
    e.details.Earn() AS earning  
FROM  
    Employee e;
```



## Q2. Implementing Table Inheritance in SQL Server

CREATE SEQUENCE person\_seq START WITH 1 INCREMENT BY 1;

```
CREATE TABLE People (
    person_id INT PRIMARY KEY,
    first_name VARCHAR2(50),
    middle_name VARCHAR2(50),
    last_name VARCHAR2(50),
    birth_date DATE,
    person_type VARCHAR2(10) -- 'Student', 'Teacher', or 'Parent'
);
```

```
CREATE TABLE Students (
    student_id INT PRIMARY KEY,
    grade VARCHAR2(10),
    class VARCHAR2(20),
    parent_name VARCHAR2(100),
```

```
    CONSTRAINT fk_student_person FOREIGN KEY (student_id) REFERENCES  
People(person_id)  
);
```

```
CREATE TABLE Teachers (  
    teacher_id INT PRIMARY KEY,  
    subject VARCHAR2(50),  
    employment_date DATE,  
    skill_set VARCHAR2(100),  
    CONSTRAINT fk_teacher_person FOREIGN KEY (teacher_id) REFERENCES  
People(person_id)  
);
```

```
CREATE TABLE Parents (  
    parent_id INT PRIMARY KEY,  
    occupation VARCHAR2(50),  
    no_of_children INT,  
    CONSTRAINT fk_parent_person FOREIGN KEY (parent_id) REFERENCES  
People(person_id)  
);
```

```
INSERT INTO People (person_id, first_name, middle_name, last_name, birth_date,  
person_type)  
VALUES (person_seq.NEXTVAL, 'Rajesh', NULL, 'Sharma', TO_DATE('1980-05-10',  
'YYYY-MM-DD'), 'Parent');
```

```
INSERT INTO Parents (parent_id, occupation, no_of_children)  
VALUES (person_seq.CURRVAL, 'Engineer', 2);
```

```
INSERT INTO People (person_id, first_name, middle_name, last_name, birth_date,  
person_type)
```

```
VALUES (person_seq.NEXTVAL, 'Amit', 'Kumar', 'Singh', TO_DATE('2008-08-15', 'YYYY-  
MM-DD'), 'Student');
```

```
INSERT INTO Students (student_id, grade, class, parent_name)
```

```
VALUES (person_seq.CURRVAL, '8th', '8A', 'Rajesh Sharma');
```

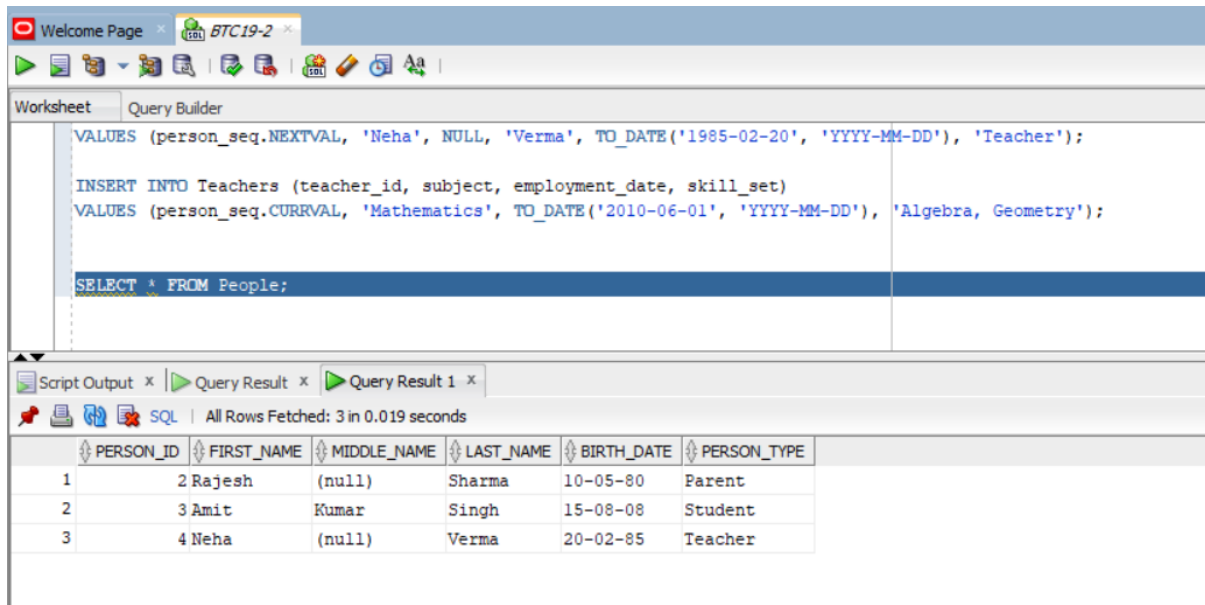
```
INSERT INTO People (person_id, first_name, middle_name, last_name, birth_date,  
person_type)
```

```
VALUES (person_seq.NEXTVAL, 'Neha', NULL, 'Verma', TO_DATE('1985-02-20', 'YYYY-  
MM-DD'), 'Teacher');
```

```
INSERT INTO Teachers (teacher_id, subject, employment_date, skill_set)
```

```
VALUES (person_seq.CURRVAL, 'Mathematics', TO_DATE('2010-06-01', 'YYYY-MM-  
DD'), 'Algebra, Geometry');
```

```
SELECT * FROM People;
```



The screenshot shows a SQL query editor with the following code:

```
VALUES (person_seq.NEXTVAL, 'Neha', NULL, 'Verma', TO_DATE('1985-02-20', 'YYYY-MM-DD'), 'Teacher');  
  
INSERT INTO Teachers (teacher_id, subject, employment_date, skill_set)  
VALUES (person_seq.CURRVAL, 'Mathematics', TO_DATE('2010-06-01', 'YYYY-MM-DD'), 'Algebra, Geometry');
```

The results window shows the output of the SELECT \* FROM People; query, displaying three rows of data:

PERSON_ID	FIRST_NAME	MIDDLE_NAME	LAST_NAME	BIRTH_DATE	PERSON_TYPE
1	2 Rajesh	(null)	Sharma	10-05-80	Parent
2	3 Amit	Kumar	Singh	15-08-08	Student
3	4 Neha	(null)	Verma	20-02-85	Teacher

SELECT

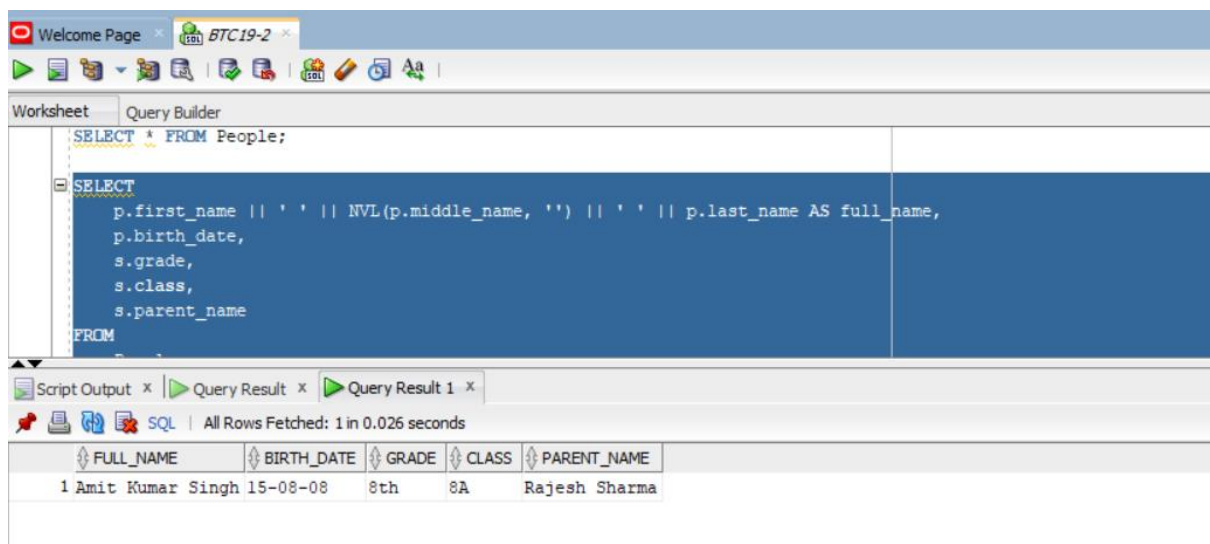
```
p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,  
p.birth_date,  
s.grade,  
s.class,  
s.parent_name
```

FROM

People p

JOIN

Students s ON p.person\_id = s.student\_id;



The screenshot shows a SQL query editor window with a toolbar at the top. The query is entered in the main text area and is highlighted in blue. Below the query, the 'Query Result' tab is active, displaying a table with one row of data. The table has five columns: FULL\_NAME, BIRTH\_DATE, GRADE, CLASS, and PARENT\_NAME. The data in the row is: 1 Amit Kumar Singh, 15-08-08, 8th, 8A, and Rajesh Sharma. The status bar at the bottom indicates 'All Rows Fetched: 1 in 0.026 seconds'.

```
SELECT * FROM People;  
  
SELECT  
  p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,  
  p.birth_date,  
  s.grade,  
  s.class,  
  s.parent_name  
FROM
```

FULL_NAME	BIRTH_DATE	GRADE	CLASS	PARENT_NAME
1 Amit Kumar Singh	15-08-08	8th	8A	Rajesh Sharma

SELECT

```
p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,  
p.birth_date,  
t.subject,  
t.employment_date,  
t.skill_set
```

FROM

People p

JOIN

Teachers t ON p.person\_id = t.teacher\_id;

Worksheet Query Builder

```

SELECT
  p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,
  p.birth_date,
  t.subject,
  t.employment_date,
  t.skill_set
FROM
  People p
JOIN

```

Script Output x Query Result x Query Result 1 x

SQL | All Rows Fetched: 1 in 0.015 seconds

	FULL_NAME	BIRTH_DATE	SUBJECT	EMPLOYMENT_DATE	SKILL_SET
1	Neha Verma	20-02-85	Mathematics	01-06-10	Algebra, Geometry

SELECT

```

p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,
p.birth_date,
pa.occupation,
pa.no_of_children

```

FROM

People p

JOIN

Parents pa ON p.person\_id = pa.parent\_id;

Worksheet Query Builder

```

SELECT
  p.first_name || ' ' || NVL(p.middle_name, '') || ' ' || p.last_name AS full_name,
  p.birth_date,
  pa.occupation,
  pa.no_of_children
FROM
  People p
JOIN
  Parents pa ON p.person_id = pa.parent_id;

```

Script Output x Query Result x Query Result 1 x

SQL | All Rows Fetched: 1 in 0.013 seconds

	FULL_NAME	BIRTH_DATE	OCCUPATION	NO_OF_CHILDREN
1	Rajesh Sharma	10-05-80	Engineer	2