```
create type Person as object (

FirstName varchar(20),

LastName varchar(20), DOB date, member

function FullName return varchar, member

function OnDate return date

)

not final;


create or replace type body Person as

member function FullName return varchar is

begin return FirstName || ' ' || LastName;

end; member function OnDate return date

is begin return DOB; end; end;




create or replace type EmpObj under Person (

Job varchar(40),

Salary number,

DA number, DOJ date, member function Earn

return number, overriding member function

OnDate return date

);


create type body EmpObj as member function

Earn return number is begin return Salary; end;
```

```sql
overriding member function OnDate return date is

begin return DOJ; end; end;


create table Employee ( emp_id

varchar(10) primary key,

personal_details Person,

job_details EmpObj

);


insert into Employee values(

'E01',

Person('Sam', 'Smith', to_date('2003-09-10', 'YYYY-MM-DD')), EmpObj('Sam', 'Smith', to_date('2003-
09-10', 'YYYY-MM-DD'), 'Manager', 65000, 15000, to_date('2024-09-01', 'YYYY-MM-DD'))

);


insert into Employee values(

'E02',

Person('Taylor', 'Swift', to_date('1995-05-11', 'YYYY-MM-DD')),

EmpObj('Taylor', 'Swift', to_date('1995-05-11', 'YYYY-MM-DD'), 'Manager', 65000, 15000,

to_date('2024-09-01', 'YYYY-MM-DD'))

);


insert into Employee values(

'E03',

Person('Selena', 'Gomez', to_date('1992-03-28', 'YYYY-MM-DD')),

EmpObj('Selena', 'Gomez', to_date('1995-03-28', 'YYYY-MM-DD'), 'Full-Stack-Devloper', 95000, 15000,

to_date('2024-09-01', 'YYYY-MM-DD'))

);


insert into Employee values(

'E04',
```

```
Person('Charlie', 'Puth', to_date('2000-07-15', 'YYYY-MM-DD')),

EmpObj('Charlie', 'Puth', to_date('2000-07-15', 'YYYY-MM-DD'), 'Senior Software', 105000, 15000,

to_date('2024-09-01', 'YYYY-MM-DD'))

);


insert into Employee values(

'E05',

Person('John', 'charles', to_date('2001-08-15', 'YYYY-MM-DD')),

EmpObj('John', 'charles', to_date('2001-08-15', 'YYYY-MM-DD'), 'Junior Software', 55000, 11000,

to_date('2024-09-01', 'YYYY-MM-DD'))

);


select

E.emp_id,

E.personal_details.FullName() as Emp_name,

E.personal_details.OnDate() as Date_Of_Birth,

E.job_details.job as job_description,

E.job_details.OnDate() as Date_of_joining,

E.job_details.Earn() as Earning from

Employee E;
```
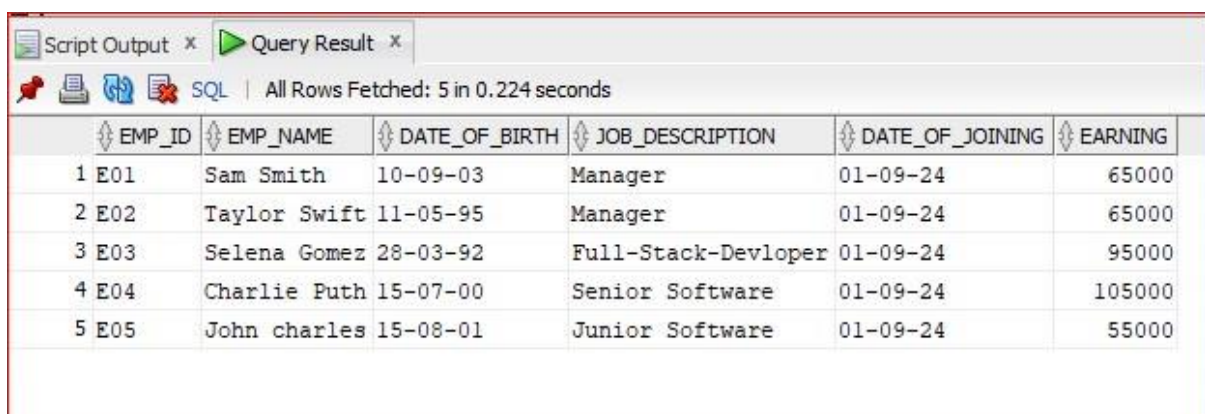


Script Output × ▶ Query Result ×

📌 🖨 🔁 🗒 SQL | All Rows Fetched: 5 in 0.224 seconds

| | EMP_ID | EMP_NAME | DATE_OF_BIRTH | JOB_DESCRIPTION | DATE_OF_JOINING | EARNING |
|---|---|---|---|---|---|---|
| 1 | E01 | Sam Smith | 10-09-03 | Manager | 01-09-24 | 65000 |
| 2 | E02 | Taylor Swift | 11-05-95 | Manager | 01-09-24 | 65000 |
| 3 | E03 | Selena Gomez | 28-03-92 | Full-Stack-Devloper | 01-09-24 | 95000 |
| 4 | E04 | Charlie Puth | 15-07-00 | Senior Software | 01-09-24 | 105000 |
| 5 | E05 | John charles | 15-08-01 | Junior Software | 01-09-24 | 55000 |

```
create type PeopleInfo as object( firstname varchar(20), lastname varchar(20), birthdate date

)
```

```sql
    not final;

    create table People( person_ID varchar(10) primary key, personal_info
    PeopleInfo, phone int, personType varchar(20) check (personType in
    ('Student', 'Teacher', 'Parent'))
    );

    create table Students( student_ID varchar(10)
    primary key, person_ID varchar(10) references
    People(person_ID), grade char, class varchar(50),
    unique(person_ID)
    );

    create type SubjectSet as varray(4) of varchar(20);
    create table Teachers( teacher_ID varchar(10)
    primary key, person_ID varchar(10) references
    People(person_ID),
    skill varchar(20),
    subjects_taught SubjectSet,
    employment_date date, salary
    number, unique(person_ID)
    );

    create  table  Parents(  parent_ID
    varchar(10) primary key, person_ID
    varchar(10)              references
    People(person_ID),        child_ID
    varchar(10)              references
    students(student_ID),        salary
    number, unique(person_ID)
    );
```

```sql
insert into people values('101', peopleinfo('ed', 'shreen', to_date('2003-02-27', 'yyyy-mm-dd')),
9045782198, 'student');

insert into people values('102', peopleinfo('ellie', 'goulding', to_date('1990-09-10', 'yyyy-mm-dd')),
7745678901, 'teacher');

insert into people values('103', peopleinfo('dua', 'lipa', to_date('1992-04-13', 'yyyy-mm-dd')),
8045678901, 'parent');

insert into people values('104', peopleinfo('justin', 'bieber', to_date('2001-01-17', 'yyyy-mm-dd')),
9145762198, 'student');

insert into people values('105', peopleinfo('harry', 'style', to_date('1993-05-21', 'yyyy-mm-dd')),
9745671201, 'teacher');

insert into people values('106', peopleinfo('anne', 'marie', to_date('1992-12-13', 'yyyy-mm-dd')),
8995678901, 'parent');


select * from People; insert into Students

values('S01', '101', 'A', 'Maths'); insert into Students

values('S02', '104', 'B', 'Science'); insert into Students

values('S03', '107', 'C', 'History'); insert into Students

values('S04', '108', 'A', 'English'); insert into Students

values('S05', '111', 'B', 'Physics');


select * from Students; insert into Teachers values('T01', '102', 'PhD', SubjectSet('Maths',

'Physics'), to_date('2005-08-

01', 'YYYY-MM-DD'), 60000); insert into Teachers values('T02', '105', 'MS', SubjectSet('Science',

'Biology'), to_date('2008-03-

15', 'YYYY-MM-DD'), 55000); insert into Teachers values('T03', '109', 'MA',

SubjectSet('English', 'Literature'), to_date('2010-

06-20', 'YYYY-MM-DD'), 52000); insert into Teachers values('T04', '112', 'MSc',

SubjectSet('Physics', 'Chemistry'), to_date('2011-

09-25', 'YYYY-MM-DD'), 56000); insert into Teachers values('T05', '114', 'MEd',

SubjectSet('History', 'Sociology'), to_date('2013- 11-30', 'YYYY-MM-DD'), 53000);


select * from Teachers;
```
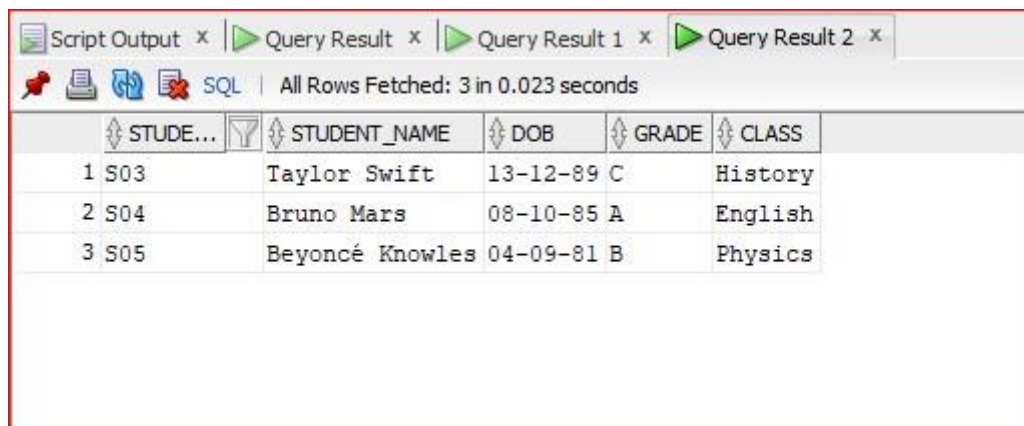
insert into Parents values('P01', '103', 'S01', 75000); insert

into Parents values('P02', '106', 'S03', 64000); insert into

Parents values('P03', '110', 'S02', 57000); insert into

Parents values('P04', '113', 'S05', 95000); insert into

Parents values('P05', '115', 'S04', 80000); select * from

Parents;


S.student_id,

P.personal_info.firstname || ' ' || P.personal_info.lastname as student_name,

P.personal_info.birthdate as DOB,

S.grade, S.class

from Students

S

inner join People P on S.person_ID = P.person_ID;



T.teacher_id,

P.personal_info.firstname || ' ' || P.personal_info.lastname as teacher_name,

P.personal_info.birthdate as DOB,

T.salary,

T.skill,

SB.column_value as subjects_taught from Teachers T inner join

People P on T.person_ID = P.person_ID left join

table(T.subjects_taught) SB on T.teacher_id = T.teacher_id;

Script Output × | Query Result × | Query Result 1 × | Query Result 2 ×

All Rows Fetched: 6 in 0.013 seconds

| TEACHER_ID | TEACHER_NAME | DOB | SALARY | SKILL | SUBJECTS_TAUGHT |
|---|---|---|---|---|---|
| 1 T03 | Ariana Grande | 26-06-93 | 52000 | MA | English |
| 2 T03 | Ariana Grande | 26-06-93 | 52000 | MA | Literature |
| 3 T04 | Rihanna Fenty | 20-02-88 | 56000 | MSc | Physics |
| 4 T04 | Rihanna Fenty | 20-02-88 | 56000 | MSc | Chemistry |
| 5 T05 | Camila Cabello | 03-03-97 | 53000 | MEd | History |
| 6 T05 | Camila Cabello | 03-03-97 | 53000 | MEd | Sociology |

PR.parent_ID,

P.personal_info.firstname || ' ' || P.personal_info.lastname as parent_name,

C.personal_info.firstname || ' ' || C.personal_info.lastname as child_name,

P.personal_info.birthdate as parent_DOB,

P.phone as parent_phone, PR.salary as

parent_salary from Parents PR inner join People P

on PR.person_ID = P.person_ID inner join Students

S on PR.child_ID = S.student_ID inner join People C

on S.person_ID = C.person_ID order by

PR.parent_ID



Script Output × | Query Result × | Query Result 1 × | Query Result 2 × | Query Result 3 ×

All Rows Fetched: 2 in 0.176 seconds

| PARENT_ID | PARENT_NAME | CHILD_NAME | PARENT_DOB | PARENT_PHONE | PARENT_SALARY |
|---|---|---|---|---|---|
| 1 P04 | Shawn Mendes | Beyoncé Knowles | 08-08-98 | 9445762198 | 95000 |
| 2 P05 | Sam Smith | Bruno Mars | 19-05-92 | 9745671203 | 80000 |