

Quiz 2 Solution

1a. What value is returned by the call q3(10)? 0

Stored Procedure for Problem 1

```
create or replace function q3(manager integer)
returns integer AS
$$
Declare
    num integer;
    empId integer;
Begin
    select mid into empId from Staff where sid = manager;
    if empId is null then
        num = 0;
    else
        num = 1 + q3(empId);
    end if;
    return num;
End;
$$ Language plpgsql;
```

Staff table content for problem 1

sid	first	last	libnum	mid
1	Gladys	Davis	1	
2	Bonnie	Baker	1	1
3	Thelma	Eisen	1	1
4	Doris	Sams	1	2
5	Norm	Derringer	1	2
6	Ruth	Lessing	1	2
7	Dave	Bancroft	1	2
8	Jimmie	Foxx	1	6
9	Dorothy	Kamenshek	1	6
10	Mary	Baker	2	
11	Sophie	Kurys	2	10
20	David	Hilbert	2	10
12	Clerk	Maxwell	2	11
13	Bertrand	Russell	2	11
14	Ada	Byron	2	11
15	Mary	Everest	2	11
16	Gottlob	Frege	2	11
17	Ludwig	Wittgenstein	2	16
18	Alan	Turing	2	16
19	John	Mauchly	2	16
28	Winifred	Merrill	2	16
21	Sophie	Germain	2	19
22	Leonhard	Euler	2	15
23	Maxwell	Weber	2	15
24	Alonzo	Church	2	15
25	Kurt	Godel	2	24
26	Sofia	Kovalevskaya	2	24
27	Emmy	Noether	2	24

1b. What value is returned by the call q3(16)? 2

Stored Procedure for Problem 1

```
create or replace function q3(manager integer)
returns integer AS
$$
Declare
    num integer;
    empId integer;
Begin
    select mid into empId from Staff where sid = manager;
    if empId is null then
        num = 0;
    else
        num = 1 + q3(empId);
    end if;
    return num;
End;
$$ Language plpgsql;
```

Staff table content for problem 1

sid	first	last	libnum	mid
1	Gladys	Davis	1	
2	Bonnie	Baker	1	1
3	Thelma	Eisen	1	1
4	Doris	Sams	1	2
5	Norm	Derringer	1	2
6	Ruth	Lessing	1	2
7	Dave	Bancroft	1	2
8	Jimmie	Foxx	1	6
9	Dorothy	Kamenshek	1	6
10	Mary	Baker	2	
11	Sophie	Kurys	2	10
20	David	Hilbert	2	10
12	Clerk	Maxwell	2	11
13	Bertrand	Russell	2	11
14	Ada	Byron	2	11
15	Mary	Everest	2	11
16	Gottlob	Frege	2	11
17	Ludwig	Wittgenstein	2	16
18	Alan	Turing	2	16
19	John	Mauchly	2	16
28	Winifred	Merrill	2	16
21	Sophie	Germain	2	19
22	Leonhard	Euler	2	15
23	Maxwell	Weber	2	15
24	Alonzo	Church	2	15
25	Kurt	Godel	2	24
26	Sofia	Kovalevskaya	2	24
27	Emmy	Noether	2	24

1c. What value is returned by the call q3(27)? 4

Stored Procedure for Problem 1

```
create or replace function q3(manager integer)
returns integer AS
$$
Declare
    num integer;
    empId integer;
Begin
    select mid into empId from Staff where sid = manager;
    if empId is null then
        num = 0;
    else
        num = 1 + q3(empId);
    end if;
    return num;
End;
$$ Language plpgsql;
```

Staff table content for problem 1

sid	first	last	libnum	mid
1	Gladys	Davis	1	
2	Bonnie	Baker	1	1
3	Thelma	Eisen	1	1
4	Doris	Sams	1	2
5	Norm	Derringer	1	2
6	Ruth	Lessing	1	2
7	Dave	Bancroft	1	2
8	Jimmie	Foxx	1	6
9	Dorothy	Kamenshek	1	6
10	Mary	Baker	2	
11	Sophie	Kurys	2	10
20	David	Hilbert	2	10
12	Clerk	Maxwell	2	11
13	Bertrand	Russell	2	11
14	Ada	Byron	2	11
15	Mary	Everest	2	11
16	Gottlob	Frege	2	11
17	Ludwig	Wittgenstein	2	16
18	Alan	Turing	2	16
19	John	Mauchly	2	16
28	Winifred	Merrill	2	16
21	Sophie	Germain	2	19
22	Leonhard	Euler	2	15
23	Maxwell	Weber	2	15
24	Alonzo	Church	2	15
25	Kurt	Godel	2	24
26	Sofia	Kovalevskaya	2	24
27	Emmy	Noether	2	24

2. Write a stored procedure (function) that is passed a customer id and a copy number and returns a 1 if the customer has borrowed the copy, otherwise the function returns a 0.

```
create or replace function q4(custId integer, cnum integer)
returns integer AS $$
```

```
Declare
```

```
    cnt integer;
```

```
Begin
```

```
    select count(loannum) into cnt from Loan where cid = custId and copynum = cnum;
```

```
    if cnt >= 1 then
```

```
        cnt = 1;
```

```
    end if;
```

```
    return cnt;
```

```
End;
```

```
$$ language plpgsql;
```