# SQL Questions

# You are given a table with 3 rows. The table has the same ID value for every row. If you join the table to itself on the ID, how many rows will be in the result?

1. 0
2. 1
3. 3
4. 9

Answer: A. I tried it is MySQL, it will return error.

2. Paste the code below in a mySQL environment. Now answer the following question:  Assuming annual\_salary is the only cost of each project, which project is the most over budget? By how much is it over budget? (round to the nearest thousand and express your answer as a positive value)

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employees                             projects

+---------------+---------+           +---------------+---------+

| id            | int     |<----+  +->| id            | int     |

| first\_name    | varchar |     |  |  | title         | varchar |

| last\_name     | varchar |     |  |  | start\_date    | date    |

| annual\_salary | int     |     |  |  | end\_date      | date    |

| department\_id | int     |--+  |  |  | budget        | int     |

+---------------+---------+  |  |  |  +---------------+---------+

                             |  |  |

departments                  |  |  |  employees\_projects

+---------------+---------+  |  |  |  +---------------+---------+

| id            | int     |<-+  |  +--| project\_id    | int     |

| name          | varchar |     +-----| employee\_id   | int     |

+---------------+---------+           +---------------+---------+

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create table employees

(

  id            int AUTO\_INCREMENT,

  first\_name    varchar(255),

  last\_name     varchar(255),

  annual\_salary        int,

  department\_id int,

  primary key(id),

  key(department\_id)

);

insert into employees

  (first\_name, last\_name, annual\_salary, department\_id)

values

  ('John',   'Smith',     20000, 1),

  ('Ava',    'Muffinson', 10000, 5),

  ('Cailin', 'Ninson',    30000, 2),

  ('Mike',   'Peterson',  20000, 2),

  ('Ian',    'Peterson',  80000, 2),

  ('John',   'Mills',     50000, 3);

create table projects

(

  id            int AUTO\_INCREMENT,

  title         varchar(255),

  start\_date    date,

  end\_date      date,

  budget        int,

  primary key(id)

);

insert into projects

  (title, start\_date, end\_date, budget)

values

  ('Build a cool site',        '2011-10-28', '2012-01-26', 10000),

  ('Update TPS Reports',       '2011-07-20', '2011-10-28',  5000),

  ('Design 3 New Silly Walks', '2009-05-11', '2009-08-19',     100);

create table departments

(

  id            int auto\_increment,

  name          varchar(255),

  primary key(id)

);

insert into departments

  (name)

values

  ('Reporting'),

  ('Engineering'),

  ('Marketing'),

  ('Biz Dev'),

  ('Silly Walks');

create table employees\_projects

(

  project\_id    int,

  employee\_id   int,

  key(project\_id),

  key(employee\_id)

);

insert into employees\_projects

  (project\_id, employee\_id)

values

  (2, 1),

  (3, 2),

  (1, 3),

  (1, 4),

  (1, 5);

Answer:

There are 3 projects needs to be done:

For project 2, only employee 1 can do that. The budget of project 2 is 5000, the annual salary of employee 1 is 20000, the project period is 3 months and employee 1 should get a quarter of 20000 which is 5000. So project 2 is exactly balanced and not out of budget.

For project 3, only employee 2 can do that. The budget of project 3 is 100, the annual salary of employee 2 is 10000, the project period is 3 months and employee 2 should get a quarter of 10000 which is 2500. So project 3 will be out of budget of: 2500 – 100 = 2400

For project 1, the employees 3, 4, 5 can all do that. However, the cheapest salary is employee 4 which is 20000, the project period is 3 months and employee 3 should get a quarter of 20000 which is 5000. The budget of project 1 is 10000. So project 1 will not be out of budget.

Conclusion:

Project 3 is the most out of budget. It will be 2400 out of budget. If we round it to nears thousand, it is 2000 out of budget.

Here are the table results when I input the code in the question:

Graphical user interface, text, website

Description automatically generated

Graphical user interface, text

Description automatically generated

Graphical user interface, text, email

Description automatically generated

Graphical user interface, text, email

Description automatically generated