

Exercises: PostgreSQL Introduction

Data Types and Table Basics

This document defines the **exercise assignments** for the [PostgreSQL course @ Software University](#).

Submit your solutions in the SoftUni [Judge Contest](#).

As you know, the former supervillain Gru is now the leader of the Minions. Given their large number, he needs your help to create a database to store important information for them.

0. Create a Database

You have already learned how to create a database using the pgAdmin interface. Now it's time to use a **SQL query** to create a **new database** named **"minions_db"**.

1. Create a Table

In the newly created database, add a new table. Write **SQL statement** to create table **"minions"** including columns:

- **"id"** - should be a **primary key**, and **automatically incremented**;
- **"name"** - with a **max length** of **30 characters**;
- **"age"** - should be a **whole number**;

Submit your query for the table in the Judge system.

2. Rename the Table

To avoid confusion, rename the newly created table to **"minions_info"**.

Submit your query for this task in the Judge system.

3. Alter the Table

As Gru builds a new weapon, he must delegate responsibilities to the Minions and give them tasks. For this reason, you need to update the table by adding new columns:

- **"code"** - represents the place where the Minion works and is **exactly 4 characters** long;
- **"task"** - **text** with **no length limit**;
- **"salary"** - specify to the **third decimal place** and has **8 digits**;

Submit your query for this task in the Judge system.

4. Rename Column

Gru does not like the name of the column **"salary"**, so he wants to change the name of this column to **"banana"**.

Submit your query for this task in the Judge system.

5. Add New Columns

You need to update the table again because Gru forgot to mention that he needs to store emails to send Minions their schedules for the week. He also asks for information on whether Minions have the necessary equipment. Add two new columns with the following data:

- "email" - with a **max length** of **20 characters**;
- "equipped" - state of **true** or **false**;

*** Note, PostgreSQL offers three states of **BOOLEAN** data type: **TRUE**, **FALSE**, or **NULL**. Therefore, add a **constraint** to the **BOOLEAN** type.

Submit your query for this task in the Judge system.

6. Create ENUM Type

An enum type is a data type whose value is chosen from an enumerated list of possibilities. This will help Gru to understand how the Minions feel. Create type "**type_mood**" that contains the following set of values:

- ('happy', 'relaxed', 'stressed', 'sad')

In the table add another column "**mood**" of type "**type_mood**".

Submit your query for this task in the Judge system.

7. Set Default

To maintain data accuracy and reliability in the table, it is necessary to establish specific rules. By default, columns **allow NULL** values. To enforce the columns to **disallow NULL** values, the following rules should be implemented:

- "age" - should have a **DEFAULT 0**;
- "name" and "code" - should have an **empty string** as the **default** value;

*** Note, in this case, you need to use **ALTER COLUMN** to update/edit specific columns.

Submit your query for this task in the Judge system.

8. Add Constraints

Constraints can be specified when the table is created or afterward. Please use the syntax below to add constraints to the given columns:

```
ALTER TABLE <table_name>
ADD CONSTRAINT <constraint_name> <constraint_definition> (<column1>, <column2>,
... <column_n>);
```

Add them to the following columns:

- "id" and "email"- should be **UNIQUE** across all the table rows. The constraint name for this column is "**unique_containt**";
- "banana" - should always be a **positive number** and **greater than 0**. The constraint name for this column is "**banana_check**";

Submit your query for this task in the Judge system.

9. Change Column's Data Type

Gru has noticed that Dr. Nefario is taking too much time to write about the daily tasks of the Minions. He wants to change the data type of the "**task**" column and **limit** its **length** to **150 characters**.

Submit your query for this task in the Judge system.

10. Drop Constraint

Gru has realized that he needs to give the Minions two days off per week and wants to update the database accordingly. To do this, you need to remove the constraint that prevents the **"equipped"** column from having a **NULL** value.

Submit your query for this task in the Judge system.

11. Remove Column

Dr. Nefario decided to create another table and move some data there. Help him by writing a **SQL query** to **DROP** the column **"age"**.

Submit your query for this task in the Judge system.

12. Table Birthdays

Assist Dr. Nefario in creating a **new table** to store information about the Minions' birthdays and organize surprise parties. Make sure to add constraints to the data types, the **"id"** must be **UNIQUE**, and be cautious of **non-NULL** and **DEFAULT** values. The table should be named **"minions_birthdays"** and include the following columns:

- **"id"**;
- **"name"** - with a **max length** of **50 characters**;
- **"date_of_birth"** - should be of type **Date**;
- **"age"**;
- **"present"** - with a **max length** of **100 characters**;
- **"party"** - should contain **both date and time, with time zone** because the guests are coming from different countries;

Submit your query for the table in the Judge system.

13. * Insert Into

Let's **INSERT** data into the **"minions_info"** table.

name	code	task	banana	email	equipped	mood
Mark	GKYA	Graphing Points	3265.265	mark@minion.com	false	happy
Mel	HSK	Science Investigation	54784.996	mel@minion.com	true	stressed
Bob	HF	Painting	35.652	bob@minion.com	true	happy
Darwin	EHND	Create a Digital Greeting	321.958	darwin@minion.com	false	relaxed
Kevin	KMHD	Construct with Virtual Blocks	35214.789	kevin@minion.com	false	happy
Norbert	FEWB	Testing	3265.500	norbert@minion.com	true	sad
Donny	L	Make a Map	8.452	donny@minion.com	true	happy

Submit your query for this task in the Judge system.

14. * Select

Gru has a specific requirement to fetch information from the "**minions_info**" table. Therefore, he has approached you to write a **SQL query** that can retrieve the "**name**", "**task**", "**email**", and "**banana**" columns for him.

Submit your query for this task in the Judge system.

15. Truncate the Table

Kevin has shown you what he learned in the PostgreSQL course and deleted all data stored in the database. Can you utilize the query he wrote to **TRUNCATE** all the records in the "**minions_info**" table?

Submit your query for this task in the Judge system.

16. Drop the Table

Gru disagrees with Dr. Nefario's idea for the parties and requests that you delete the "**minions_birthdays**" table.

Submit your query for this task in the Judge system.

17. Drop the Database

As Gru's weapon is ready, you can delete the "**minions_db**" database because it will no longer be needed.

*** Note, the database can only be executed by the database owner. It cannot be executed while you are connected to the target database. You can connect to "**postgres**" or any other database to issue this command. Also, if anyone else is connected to the target database, this command will fail unless you use the **FORCE** option.