Exercises: Introduction to DB Apps

This document defines the exercise assignments for the "Databases Frameworks" course @ SoftUni.

1. Initial Setup

Create a **new database** called "**MinionsDB"**, where we will keep information about our minions and villains.

For each minion you must keep information about its **name**, **age** and **town**. Each town has **name** and **information** about the country it is located in. Villains have **name** and **evilness factor** (**good, bad, evil, super evil**). Each minion can serve to several villains and each villain can have several minions to serve him. Fill all the tables with at least 5 records each.

Write a program that connects to your **localhost** server.

2. Get Villains' Names

Write a program that prints on the console **all villains' names** and their **number of minions**. Get only the villains who have more than 3 minions. **Order** them by number of minions in **descending order**.

Example

Output
Gru 6 Victor 4 Jilly 4

3. Get Minion Names

Write a program that prints on the console **all minion names** and their **age** for given **villain id.** For the output, use the formats given in the examples.

Example

Input	Output
1	Villain: Gru 1. Bob 13 2. Kevin 14 3. Steward 19

Input	Output
3	Villain: Victor 1. Bob 13 2. Simon 22

Input	Output
2	Villain: Victor Jr. <no minions>

Input	Output
10	No villain with ID 10 exists in the database.

4. Add Minion

Write a program that reads information about a minion and its villain and **adds it to the database**. In case the town of the minion is not in the database, insert it as well. In case the villain is not present in the database, add him too with default evilness factor of "evil". Finally, set the new minion to be servant of the villain. Print appropriate messages after each operation – see the examples.

***Bonus task:** Make sure all operations are executed successfully. In case of an error do not change the database.

Example

Input	Output
Minion: Bob 14 Berlin Villain: Gru	Successfully added Robert to be minion of Gru.
Minion: Cathleen 20 Liverpool Villain: Gru	Town Liverpool was added to the database. Successfully added Cathleen to be minion of Gru.
Minion: Mars 23 Sofia Villain: Poppy	Villain Poppy was added to the database. Successfully added Mars to be minion of Poppy
Minion: Carry 20 Eindhoven Villain: Jimmy	Town Eindhoven was added to the database. Villain Jimmy was added to the database. Successfully added Carry to be minion of Jimmy

5. Change Town Names Casing

Write a program that **changes all town names to uppercase** for a given country. **Print the number of towns that were changed** in the format provided in examples. On the next line **print** the **names that were changed**, separated by coma and a space.

Example

Input	Output
Bulgaria	3 town names were affected. [SOFIA, VARNA, BURGAS]
Germany	No town names were affected.

6. *Remove Villain

Write a program that receives an **ID** of a villain, **deletes him from the database** and **releases his minions** from serving him. As an output print the name of the villain and the number of minions released. Make sure all operations go as planned, **otherwise do not make any changes** to the database. For the output use the format given in the examples.

Example

Input	Output
1	Gru was deleted 6 minions released
3	Victor was deleted 0 minions released
101	No such villain was found

7. Print All Minion Names

Write a program that **prints all minion names** from the minions table **in order** first record, last record, first + 1, last – 1, first + 2, last – 2… first + n, last – n.

1	3	5	7	9	10	8	6	4	2

Example

Original Order	Output
Bob Kevin Steward Jimmy	Bob Jully Kevin Becky

Vicky Becky Jully	Steward Vicky Jimmy

8. Increase Minions Age

Read from the console minion IDs, separated by space. **Increment the age** of those minions **by 1** and make their **names title case**. Finally, **print** the **names** and the **ages** of **all minions** that are in the database. See the examples below.

Example

minions		
Id	**name**	**age**
1	bob	14
2	steward	22
3	kevin	13
4	jimmy	49
5	vicky jackson	26

Input	Output
2 1 4	Bob 15 Steward 23 kevin 13 Jimmy 50 vicky jackson 26

Input	Output
5	bob 14 steward 22 kevin 13 jimmy 49 Vicky Jackson 27

9. Increase Age Stored Procedure

Create a stored procedure **`usp_get_older`** (**directly in the database** using **MySQL Workbench** or any other similar tool) that receives a **`minion_id`** and **increases the minion's years by 1**. Write a program that **uses that stored procedure to increase the age** of a minion, whose **`id`** will be given as an input from the console. After that **print the name and the age** of that minion.

Example

minions		
Id	**name**	**age**
1	bob	14
2	steward	22
3	kevin	13
4	jimmy	49
5	vicky jackson	26

Input	Output
1	bob 15
3	kevin 14
5	vicky jackson 27