# Exercises: Data Aggregation

This document defines the **exercise assignments** for the ["Databases Basics - MSSQL" course @ Software University.](https://softuni.bg/courses/databases-basics-ms-sql-server)

Mr. Bodrog is a greedy small goblin who is in charge of **Gringotts** – the biggest wizard bank. His most precious possession is a small database of the deposits in the wizard’s world. Taking money is his hobby. He wants your money as well but unfortunately you are not a wizard. The only magic you know is how to work with **databases**. That’s how you got access to the precious data. Mr. Bodrog wants you to send him some reports otherwise he will send a pack of hungry werewolves after you. You don’t want to confront pack of hungry werewolves, do you?

Before going on the next task make sure to download the **Gringotts** database.

## Records’ Count

Import the database and send the **total count of records** from the one and only table to Mr. Bodrog. Make sure nothing got lost.

### Example:

|  |
| --- |
| **Count** |
| 162 |

## Longest Magic Wand

Select the **size** of the **longest magic wand**. Rename the new column appropriately.

### Example:

|  |
| --- |
| **LongestMagicWand** |
| 31 |

## Longest Magic Wand per Deposit Groups

For wizards in **each deposit group** show the **longest magic wand**. Rename the new column appropriately.

### Example:

|  |  |
| --- | --- |
| **DepositGroup** | **LongestMagicWand** |
| Blue Phoenix | 31 |
| … | … |

## \* Smallest Deposit Group per Magic Wand Size

Select the **two deposit groups** with the **lowest average wand size**.

### Example:

|  |
| --- |
| **DepositGroup** |
| Troll Chest |
| Venomous Tongue |

## Deposits Sum

Select **all deposit groups** and their **total deposit sums**.

### Example:

|  |  |
| --- | --- |
| **DepositGroup** | **TotalSum** |
| Blue Phoenix | 819598.73 |
| Human Pride | 1041291.52 |
| … | … |

## Deposits Sum for Ollivander Family

Select **all deposit groups** and their **total deposit sums** but **only for the wizards** who have their magic wands **crafted by Ollivander family**.

### Example:

|  |  |
| --- | --- |
| **DepositGroup** | **TotalSum** |
| Blue Phoenix | 52968.96 |
| Human Pride | 188366.86 |
| … | … |

## Deposits Filter

Select **all deposit groups** and their total deposit sums but **only for the wizards** who have their magic wands **crafted by Ollivander family**. **Filter** total **deposit amounts lower than 150000**. Order by **total deposit amount** in **descending** order.

### Example:

|  |  |
| --- | --- |
| **DepositGroup** | **TotalSum** |
| Troll Chest | 126585.18 |
| … | … |

## Deposit Charge

Create a query that selects:

* **Deposit group**
* Minimum **deposit charge** for each group

## Age Groups

Write down a query that creates 7 different groups based on their **age**.

**Age groups** should be as follows:

* [0-10]
* [11-20]
* [21-30]
* [31-40]
* [41-50]
* [51-60]
* [61+]

The query should return

* **Age groups**
* **Count** of wizards in it

### Example:

|  |  |
| --- | --- |
| **AgeGroup** | **WizardCount** |
| [11-20] | 21 |
| … | … |

## First Letter

Write a query that returns **all unique wizard first letters** of their **first names** only if they have **deposit of type Troll Chest**. Order them **alphabetically**. Use GROUP BY for uniqueness.

### Example:

|  |
| --- |
| **FirstLetter** |
| A |
| … |

## Average Interest

Mr. Bodrog is highly interested in profitability. He wants to know the **average interest** of all **deposit groups** split by whether the deposit has **expired or not**. But that’s not all. He wants you to select deposits with **start date after** 01/01/1985. Order the data **descending** by **Deposit Group** and **ascending** by **Expiration Flag**.

The output should consist of the following columns:

### Example:

|  |  |  |
| --- | --- | --- |
| **DepositGroup** | **IsDepositExpired** | **AverageInterest** |
| Venomous Tongue | 0 | 16.698947 |
| … | … |  |

## Employees Count Salaries

**Count** the salaries of all **employees** who don’t have a **manager**.

### Example:

|  |
| --- |
| **Count** |
| 4 |

## Problem 13.\*\* Salary Challenge

Write a query that returns:

* **FirstName**
* **LastName**
* **DepartmentID**

Select all **employees** who have salary **higher than the average salary** of their respective **departments**. **Order** by **DepartmentID**.

### Example:

|  |  |  |
| --- | --- | --- |
| **FirstName** | **LastName** | **DepartmentID** |
| Roberto | Tamburello | 1 |
| … | … |  |