

MSc in Business Analytics

Course: Practicum II

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Deadline: Sunday 30-06-2019

Submission Instructions: Please, upload your Qlik Sense application (qvf file) in Dropbox, Google Drive, WeTransfer etc. (wherever you prefer), and share the link with the instructor using e-mail. The name of your application should have the following format: FirstName_LastName_StudentID_FT (ex. Myriam_Sarantea_p123456_FT).

Project Description

Task description

You are working as a business analyst for the human resources department in a company. The company has 7 offices across different countries.

There are five departments: marketing, legal, operations, finance, and HR.

Each department provides a list of its employees combined in an Excel file called **EmployeeHC.xlsx**. This file also contains information about the offices and the management team.

The human resource department wants to analyze the following metrics:

- Number of employees (including the management team) per office, country, department, age, gender, tenure, and job category
- Employee salaries based on department, gender, tenure (in years), job category, education, and gender
- Office headcount and movements in the year
- Office income and cost per location (country and city)
- Comparison between the American offices (Office1 and Office2) and English office (Office3 and Office7).

Create a Qlik Sense app for the company to analyze the office headcount and employee details. Answer the following business questions:

- What's the average salary in the company for each gender? And in the HR department? Compare the average vs the median salary. What is the salary distribution?
- Is there any correlation between the employee education or the tenure, and the salary they earn?
- Which department is most likely to change in the next 5 years?

- Which country has the highest number of employees and what is the ratio of foreign employees in each country?
- Describe the headcount variation during the year for each office and the annual income. Also, display all employee details based on an office.

Process description

1. Review the data provided in the Excel file. Note the employee tables have the same structure but the field names may vary from each department.
2. Create a new Qlik Sense app with all the data. Make sure you transform the data and combine and associate the tables based on the business needs.
3. Create as many sheets and visualizations as you need to cover all the business requirements and analyze the data to answer the company questions. Advanced calculations might be required to answer some of these questions.

Apps and Data files

- No additional apps are needed. You create a new app during the project.
- There is only one data file called EmployeeHC.xlsx. (You can also use an additional file called “CountryMap” to map the cities with countries, or you can manually entry this information.)
- The file EmployeeHC.xlsx contains seven tables:

1. **Offices** - Contains the list of offices, with all the details related:

OfficeID	Unique office identifier for each office (integer) Links with the other employee tables.
City	Office city location (string)
InitialHC	Number of employees in the company at the start of the last year (integer)
NewHires	Employees who were hired by the company during the last year (integer)
TransfersIn	Employees transferred into the office from another office during the last year (integer)
TransfersOut	Employees transferred from the office into another office during the last year (integer)
Exits	Number of employees who left the company in the last year (integer)
OfficeIncome	Amount in euro the office has generated in the last year (money, XXX €)
Taxes	Amount in euro the office had to pay due to taxes in the last year (money, XXX €)

2. **HR** (list of employees from the HR department).
3. **Finance** (list of the employees from the Finance department).
4. **Marketing** (list of the employees from the Marketing department).
5. **Operations** (list of the employees from the Operations department).
6. **Management** (board of chief officers from all the departments, also known as the management team).

Other definitions from the employees tables are:

- **DOB** is the date of birth of each employee. You can calculate the age of the employee based on this field.
- **JoinDate** is the date the employee started in the company. You can calculate the tenure of the employee based on this field.
- **ForeignFlag** is the flag to identify if an employee is a foreign employee (if flag is equal to 1).
- **Education** is the level of studies of the employee. They classified into these groups: *None, Graduate, Bachelor, Master, and Doctor*.
- **JobTitle** contains the department and job category of the employee. The category can be *Assistant, Consultant, Director, and Officer*.
- The employee salary is calculated based on the following formula: **Basic Salary + Bonus - SalaryDeductions**.

Hints

- Use Data Manager to transform and associate the data.
 - ❖ Employees tables can be concatenated together.
 - ❖ Create new fields in the employee table: *EmpName, Age, Tenure, Salary, Department, and JobCategory*. You can use **Age()** and **ReloadTime()** or **Today()** functions to get the number of years between the dates to calculate the employee age and tenure.
 - ❖ Add the *Country* information from a separate table (using a manual entry table).
- Create several sheets and visualizations, including Scatter plot, Combo chart, Pie chart, Bar chart, Waterfall chart, Map, and Table.
- Use set analysis and variables if needed. They can be helpful when analyzing specific or comparing specific data sets (for instance American vs. English offices).
- In some charts you can also use advanced calculations, like the **Aggr()** function.