

PA220: Database systems for data analytics

# Home Assignment 4

Vlastislav Dohnal

# HA 4: Create reports in Power BI

- Install [Power BI Desktop](#) (it's free)
  - [Tutorials by MS](#), [Jak na Power BI](#), [MS Showcase on YouTube](#)
- Tasks:
  1. Import your Pg tables from Stratus VM
  2. Create reports (in detail in the next slides)
    - Page 1
      - Number of connections per country & slicer on time of connection
    - Page 2
      - Changes in traffic from September to October
    - Page 3
      - Compare traffic during a public holiday to a regular day

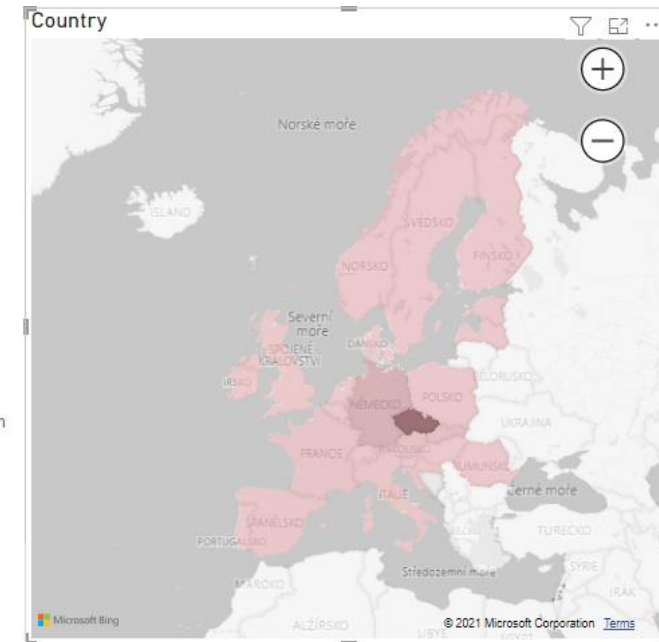
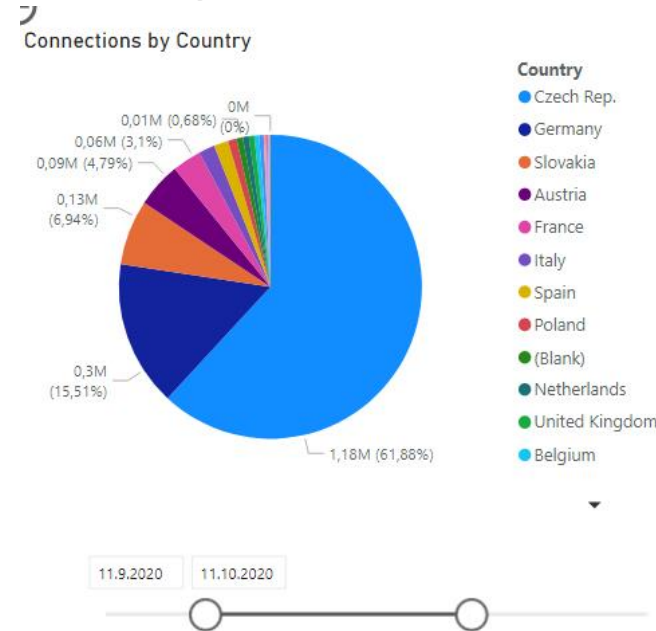
# HA 4: Create reports in Power BI - Tasks

- Tables (2 pts.)
  1. Import your DW's Pg tables (*import*, not direct query)
    - If not possible to load all data, take a subset of the fact table (min. September and October of year 2020)
  2. Check
    1. data type of individual columns
      - you may need to remove some imported columns and add new ones (aka their duplicates), e.g., day of week derived from timestamp and, ...
    2. existence of relationships from dimension tables to the fact table
      - It should be 1:N.

# HA 4: Create reports in Power BI - Tasks

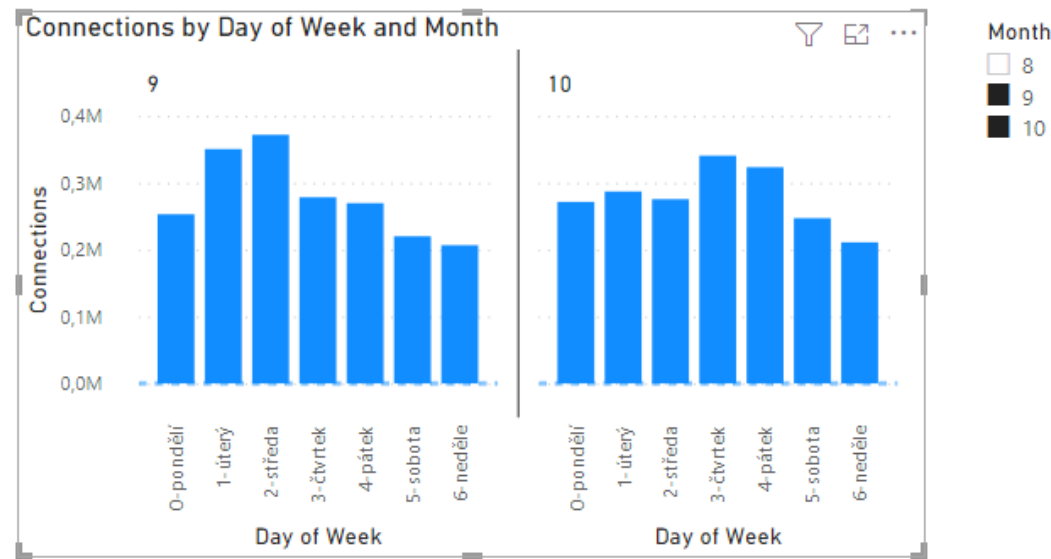
- Page 1 (4 pts.)
  - Create a **chart** for the number of connections per country of data transfer,
  - and display a **map**
    - Filling color intensity will respect the amount of connection in the country
  - Add a data slicer for connection time
    - Pre-set the slicer to limits from Sep. X to Oct. X, 2020, where X is the day of your birthday
      - e.g., X=11 if your birthday is on February 11.
    - Then make the screenshot.

• E.g.,



# HA 4: Create reports in Power BI - Tasks

- Page 2 (2 pts.) – Changing traffic from month to month
  - Create a bar chart for the number of connections per day of the week, separately for individual months
    - At least, you must compare September to October in 2020.
    - E.g.,



# HA 4: Create reports in Power BI - Tasks

- Page 3 (2 pts.) – Compare traffic during a public holiday to a regular day
  - Compare the traffic during Wednesday, Oct 28, 2020 with Wednesday, Oct 21, 2020:
    - in number of connections per country as well as the total number of connections.
    - display it as a table
    - E.g.,

Connections on Oct 28

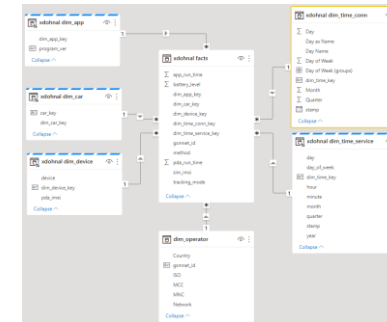
Country	Count
Czech Rep.	29491
Germany	16809
Austria	4686
Slovakia	3542
France	3363
Italy	1475
Spain	1027
United Kingdom	836
Hungary	727
Netherlands	539
Poland	372
Belgium	369
Sweden	230
Denmark	166
	165
Norway	82
Portugal	71
Switzerland	65
Luxembourg	56
<b>Total</b>	<b>64071</b>

Connections on Oct 21

Country	Count
Czech Rep.	36119
Germany	17528
Austria	4745
Slovakia	3577
France	2951
Italy	1149
Belgium	971
Poland	947
United Kingdom	910
Spain	855
Hungary	503
	406
Netherlands	356
Sweden	183
Switzerland	112
Slovenia	66
Serbia	62
Luxembourg	49
Norway	38
Croatia	35
Denmark	6
<b>Total</b>	<b>71568</b>

# Submission of Assignment 4

- Hand into the IS vault:
  - a single ZIP archive containing:
    - reports.pbix – Power BI project
    - model.png – screenshot of your model
    - page1.png – screenshot of Page 1
    - page2.png – screenshot of Page 2
    - page3.png – screenshot of Page 3
- Grading
  - total 10 pts
  - see previous slides for break-ups



# Importing DW data

- Data source is “PostgreSQL database”
  - Mind the faculty’s firewall:
    - use [FI VPN](#) and then PuTTY to log in into your Stratus VM
      - use the private key to authenticate,
      - forward local port 5432 to localhost:5432
- You may use direct query (leave data in DB)
- or import (copy data locally).
  - this is preferred

The image shows two overlapping windows from a PuTTY Reconfiguration dialog. The main window, titled "PostgreSQL database", has the following settings:

- Server:** localhost
- Database:** postgres
- Data Connectivity mode:** Import (selected), DirectQuery
- Advanced options:** expanded, showing "Command timeout in minutes (optional)" as an empty field.
- SQL statement (optional, requires database):** empty text area.
- Include relationship columns:** checked.
- Navigate using full hierarchy:** unchecked.
- Buttons:** OK (yellow) and Cancel (white).

The "Options controlling SSH port forwarding" window is open on top of the main window. It shows:

- Port forwarding:** Local ports accept connections from other hosts (unchecked), Remote ports do the same (SSH-2 only) (unchecked).
- Forwarded ports:** A table with one entry: Source port 5432, Destination localhost:5432. A "Remove" button is next to it.
- Add new forwarded port:** Source port 5432, Destination localhost:5432. An "Add" button is next to it.
- Destination:** Local (selected), Remote, Dynamic, Auto (selected), IPv4, IPv6.



E.g.,

# Choose tables

- Filter by your login
- Select DW tables & load
  - If time dim is referenced multiple times, you will add the next table later by analogy.

Navigator

xdohnal

Display Options

- ☒ ☐ xdohnal.dim\_app
- ☒ ☐ xdohnal.dim\_car
- ☒ ☐ xdohnal.dim\_device
- ☒ ☐ xdohnal.dim\_time
- ☒ ☐ xdohnal.facts

xdohnal.dim\_app

dim_app_key	program_ver	xdohnal.facts
1	A48	Table
2	A45	Table
3	A53	Table
4	A29	Table
5	A39	Table
6	A38	Table
7	A50	Table
8	A47	Table
9	A57	Table
10	A49	Table
11	A46	Table
12	A42	Table
13	A52	Table
14	A56	Table
15	A51	Table
16	A44	Table
17	A54	Table

Select Related Tables

Load Transform Data Cancel

Search results are limited to already expanded items