

Data Visualization



BINF4234

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Exercise and Homework Completion Requirements

- Exercises and reading assignments are mandatory and must be completed successfully to finish the class and take part in the final exam.
- Exercises are graded coarsely into only two categories: **fail** or **pass**
 - A **pass** has to be achieved to complete an exercise successfully
- Turned in solutions will be scored based on completeness, functionality and readability.
- Do not copy assignments. We will use MOSS to detect plagiarism.

Submission Rules

- Submitted code must compile and run without errors on Mac OS X. Include in your deliverables a separate readme.txt file with a short description about the way you implemented it, the IDE you used and how it can be run.
- The whole project source code must be zipped and submitted within the given deadline, including exactly the files as indicated in the exercise.
- Submit your .zip archive named dvc_ex_1_MATRIKELNUMBER.zip (e.g. dvc_ex_1_01234567.zip) through the OLAT course page.

- **Deadline is Wednesday, 16 November 2016 at 23:59h**

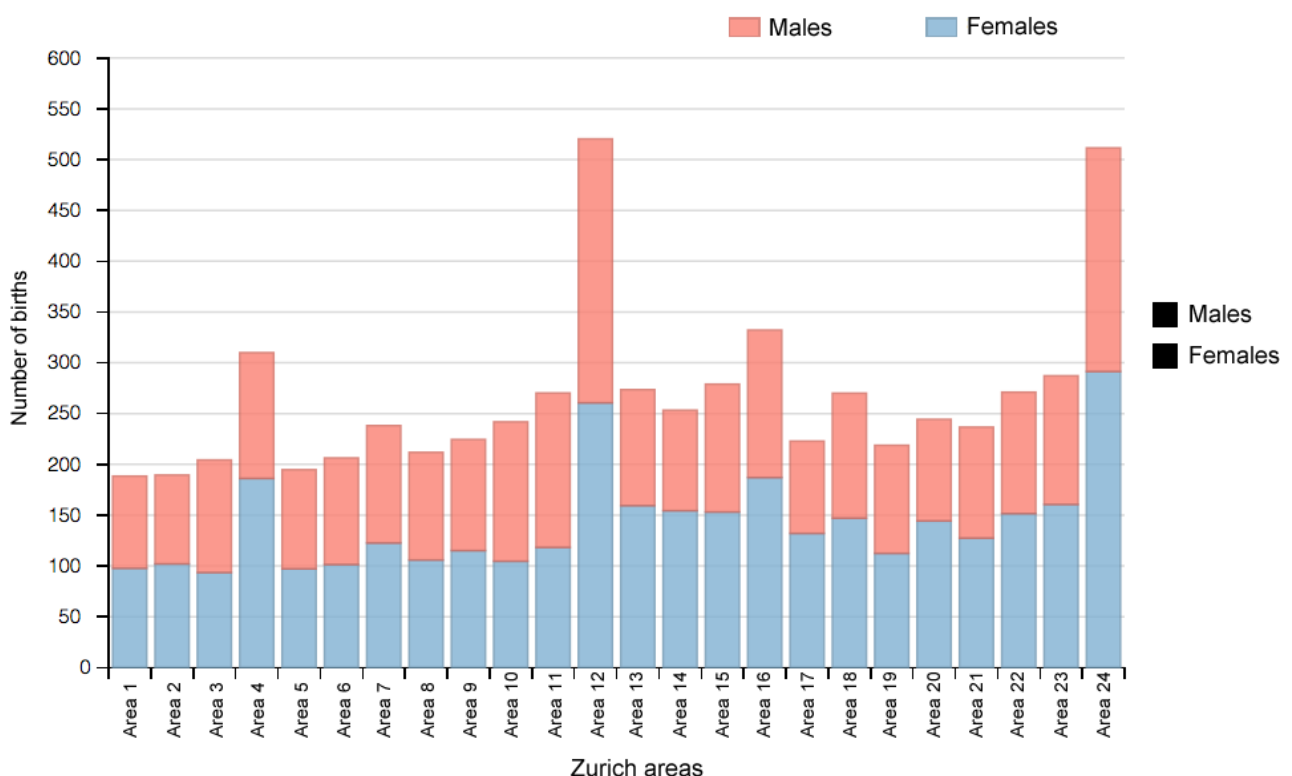
Exercise 1

The aim of this exercise is to get familiarised with various simple visualization techniques that are used for presenting ordinal and nominal data. Your task will be to read the data from an input file and present them in a plausible way using some basic plots. You can use the programming language and the presentation environment (e.g. figures, html webpage, etc.) of your choice for this task.

More specifically, the input file includes the births that occurred in canton of Zurich from 1993 to 2015. Detailed description of the input file and its attributes is provided to the end of this document. Using the data from this file, you are instructed to implement the following:

Plot 1: Create a vertical stacked bar chart as described below and present the total number of births per area in canton of Zurich for each gender for 2015.

Specifically, introduce two checkboxes next to the plot placeholder and let the user decide which data would like to be shown in the plot. The two checkboxes will correspond to the two genders. When both checkboxes are selected, the data will be presented as a stacked bar chart, otherwise as a normal bar chart. Below you can see one such an example with both genders selected.



Plot 2: Aggregate the number of births per gender and create a pie chart in order to present the total number of births for females and males in canton of Zurich for 2015. The pie chart should be presented in the same figure or .html page, next or below from plot 1.

Plot 3: Create a new bar chart for presenting the total number of births for each gender for a selected area in canton of Zurich, in a time interval which will be defined by the user.

For the definition of the time interval, use two text boxes and prompt the user to enter two different annums (e.g. 2010 and 2015).

For the selection of the area you will use a drop-down box, which will display all available areas in canton of Zurich, as they are provided in the dataset.

In addition, for the selected area and time interval display in a plausible way the mean and std. deviation of births. You can select your own way to link the plot and display this information, e.g. using message box, text boxes, etc.

This plot will be presented also in the same figure or .html page.

All plots must have proper chart titles, axis titles, legends and instructive information about what it is displayed. Also, when necessary aggregate the results per statistical zone or area, in order to get the total number of births as required.

Input File Description

File includes births occurred in Zurich

- Period: 1993 - 2015
- Data publication: 2016
- Area: canton of Zurich
- Update interval: yearly
- Data type: aggregated
- File format: csv

File attributes

- StichtagDatJahr (Year)
- SexCd (Sex Code)
- SexKurz (Sex Annotation): M (men), W (women)
- QuarSort: official code of Zurich areas
- QuarLang: official name of Zurich areas
- StatZoneSort: code of statistical zone
- StatZoneLang: name of statistical zone
- AnzGebuWir: Number of births

A	B	C	D	E	F	G	H
StichtagDatJahr ▼	SexCd ▼	SexKurz ▼	StatZoneSort ▼	StatZoneLang ▼	QuarSort ▼	QuarLang ▼	AnzGebuWir ▼
2015	2 W		11501	Affolternstrasse	115	Oerlikon	32
2015	1 M		11501	Affolternstrasse	115	Oerlikon	34
2015	1 M		11502	Holunderhof	115	Oerlikon	8
2015	2 W		11502	Holunderhof	115	Oerlikon	9
2015	1 M		11503	Albin Zollinger-Platz	115	Oerlikon	19