UNIVERSITÄT STUTTGART
Institut für Visualisierung und Interaktive Systeme (VIS)

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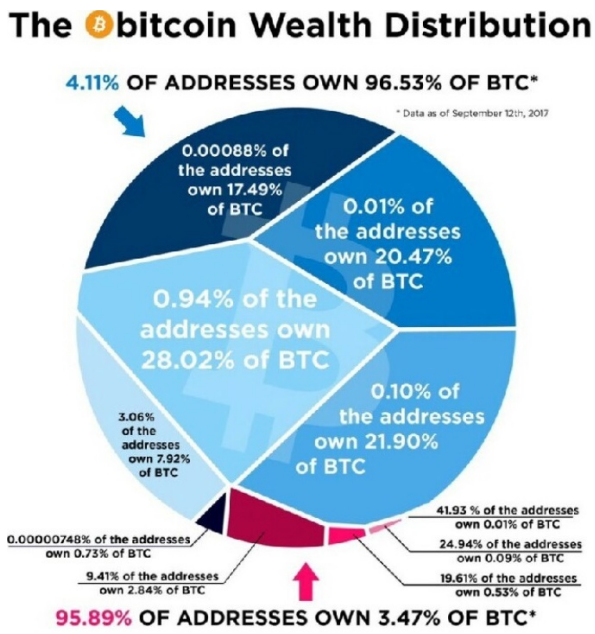
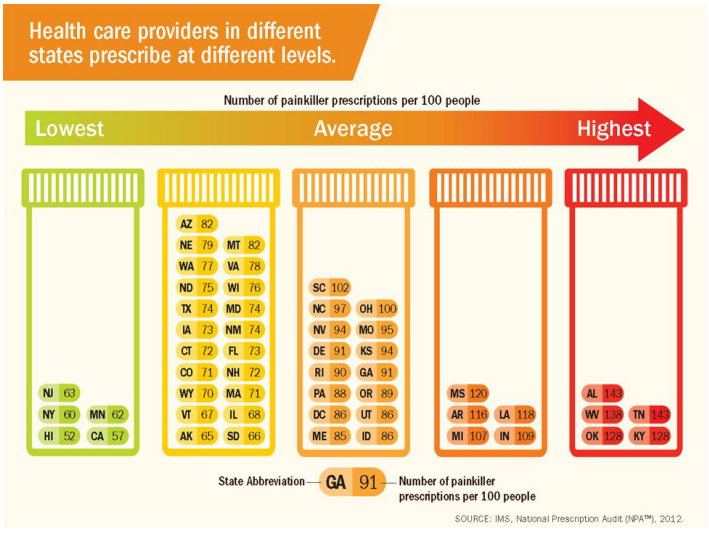
Scientific Visualization (Assignment 1)

Exercise 1. 1 Visualization Examples [3 Points]

Please evaluate the appropriateness of the following visualizations:

sources: (1) `http://viz.wtf/archive` (2) `https://www.hrsa.gov`



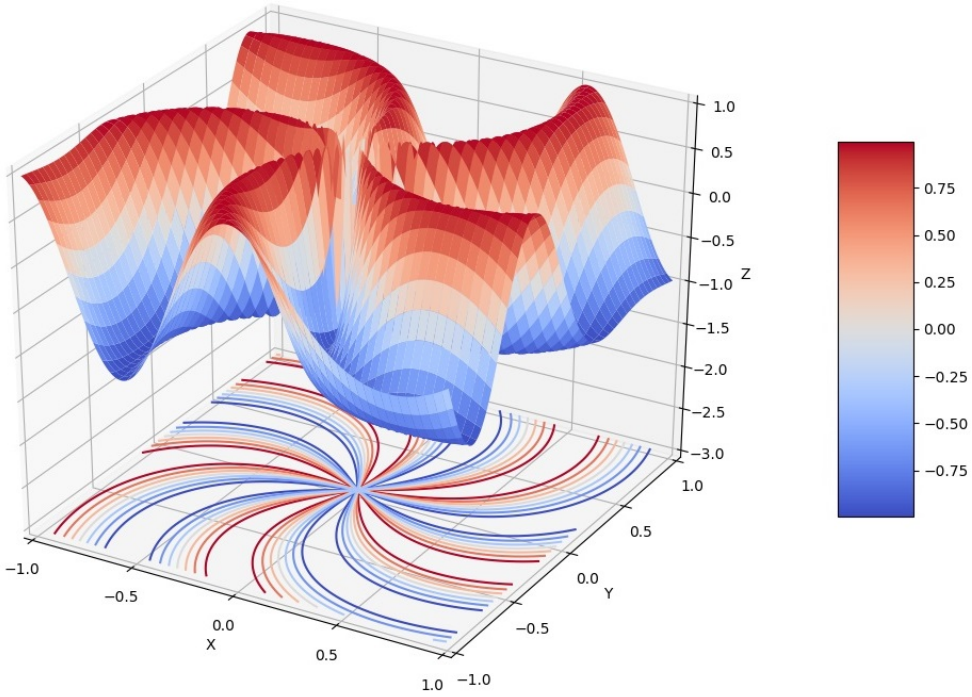


Exercise 1. 2 Matplotlib: Functions [3 Points]

Generate an expressive visualization of the following function using `Matplotlib`:

$$f(x, y) = sin(6 * cos(\sqrt{x^2 + y^2}) + 5 * atan2(y, x))$$

Upload your script and an image of your solution. A possible solution may look like the image below, but you are encouraged to come up with your own alternative visualization:



Following aspects are mandatory:

- the function is drawn correctly,
- axes are labeled,
- a colour bar is drawn.

Downloading and installing Matplotlib:
`https://matplotlib.org/users/installing.html`
PyPlot tutorial:
`https://matplotlib.org/users/pyplot_tutorial.html`
Overview of different plots with source codes:
`https://matplotlib.org/gallery.html`
Colour maps:
`https://matplotlib.org/examples/color/colormaps_reference.html`

Exercise 1. 3 Matplotlib: Data Input [2 Points]

View the data set `Data` (provided through ILIAS), e.g., by using the UNIX command `more` or by opening the file in an editor. Try to localize the maximum.

Then use `Matplotlib` to find the (x, y)-coordinates of the maximum in the data set visually.

Save a representative plot as a postscript or image file and include the coordinates of the maximum as an annotation. Upload your python script, the plot file and the coordinates of the maximum to ILIAS.

Remarks on handing in solutions:

Every team is supposed to only hand in one archive file containing the solution in the form *assignment_<number>_<last_name_1>[_<last_name_2>[_<last_name_3>]].(zip|tar|tar.gz)* with *<number>* being the number of the assignment sheet (here: 01).

Example: assignment_01_knittel_schulz.zip

Submission Deadline: 20.04.2018, 23:59

please hand in your submission through the ILIAS system.

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