Medical care supply in Graz

Research questions:

- How is the distribution of places for medical care in Graz?
- How is the distribution quality in each district or neighbourhood, which are disadvantaged?
- Where should new facilities be built and which impact would that have on the distribution?

1. Data acquisition and cleaning (use GeoParquet? – Extension B)

- OSM Data for hospitals, rescue stations, pharmacies, GPs
- OSM Street Network & Administrative Data (City, Districts)
- OSM residential areas
- Population raster data (GHSL)
- Clean data

2. Calculate & visualize distribution

- Calculate density of each category (KDE, hexagons, coropleth by district?)
- Visualize distribution

3. Calculate metric for distribution quality

- Evaluate acceptable times or distances to certain facility categories
- Add weights to categories for metric calculation
- Calculate metrics for each node in Graz

4. Calculate and visualize distribution quality

- Interpolate nodes with metric to raster or vector
- Visualize distribution quality
- Calculate areal statistics for residential areas of each district
- Visualize statistics for districts

5. Find optimal position for a new facility (scenario analysis – Extension C)

- Optimize facility type and position to maximize improvement of overall score (raster or node base?)
- Visualize and compare changes for the districts

6. Write Report

- introduction & Research question, Data & Methods, Results, Discussion, Conclusion & Outlook, References

Distribution of tasks:

- **Person 1:** 1, 2, 6 (Methods/Results – density calculation, Parquet & Data)
- **Person 2:** 3, 6 (Introduction & Research question, Methods - metric)
- **Person 3:** 4, 6 (Methods/Results – calculation of distribution,
- **Person 4:** 5, 6 (Methods/Results – optimization, Discussion, Conclusion & Outlook)