Data Science:

- Expansion of Loki V3 (the chatbot on labs.kadaster.nl) with Named Entity Recognition on deed text. So that we can make it possible to ask questions such as: between which individuals in a deed with a specific deed number has an agreement been made? What type of agreement has been made? On which date?

- Predicting the workload for land surveyors. How can we make this process more efficient? Can we create a model that can assign land surveyors to work close to their place of residence?

- Predictive model for homes that will be sold in the future. What type of houses are these? In which parts of the Netherlands is the probability higher?

- Multi-party computation; an exploration of privacy-preserving technology. There is increasingly more open-source code available on this topic. We would like to perform an analysis or use this to make data publicly available.

Knowledge Graph / Linked Data:

- Data pods & Solid in the context of the real-estate domain. Setting up a prototype and simulation scenario how an exchange of information can take place in the process of buying a house, making use of the SOLID PODs principles and standards and open-source components.

- AR/VR/MR (game) applications on top of our Knowledge Graph. To develop an AR/VR/MR application as learning course on the knowledge graph. While using the application the user gets better understanding of the Kadaster data.

- Benchmarking our Knowledge Graph with other Linked Data publications from European Cadastres. Identifying other SPARQL endpoints. Preferable set up a data story with queries to each of the endpoints.

- An extensive analysis of our data modelling approach, architecture, and implementation of our Knowledge Graph setting, resulting in structured descriptions and recommendations for the future. A user survey may be part of the analysis.

- Ontology-based Access Management. Is it possible to use ontology-based access management for more detailed fine-grained access control mainly in triple stores and SPARQL queries.

- Reasoning and interferencing with Knowledge Graphs Currently we have at Kadaster our first version of the Knowledge Graph, which consists of (parts of) three key registers of the Dutch Government (Key Register Adresses and Buidling, Key Register Topography and Cadaster Parcels. One of the key benefits of a Knowledge Graph (linked data) is reasoning and interferencing. A powerful concept. We want to explore the potential of reasoning and interferencing on our Knowledge Graph. What new insights can we gain? What will be the main use case?

- Automated Linkset creation between Community Data and Authoritive Data. One of the fundamental principles of Linked Data is “Linkability”. Currently there exists two distincts

worlds; the world of formal authorative data (such as the key registers), claiming to be the (legal) truth, and the world of community data (such as Wikipedia, Open Street Map). In this assignment we would like to study and test the approaches by creating (automatically, including updates) linksets between these different kind of datasets to create a knowledge graph consisting of both types of data.

- Tool that helps writing SPARQL queries

Applications / Front-End:

- Map application (via telegram chatbot) that uses OSM, BRT, and LD Wizard created data sources, for example all supermarkets, bunkers or stolpersteiner on a map.

- Map application that allows sharing a location with telegram, and then getting all information about the building from our Knowledge Graph, such as plot area, plot number, floor area, year of construction, etc. (or the possibility to ask the telegram bot: what is the construction year of this house).

- Convert Yasgui to Kadgui. A GUI in which we can send GraphQL queries and then visualize the output. Similar to Yasgui in data stories.

- Visualization tool on top of the "akten bak" for easy analysis of text files of deeds.

- A game to input data improvements through the map.

- A Kadaster game as an AR/VR application.

- Set up a Kadaster Data Game, an online game that teaches the basics about Kadaster data.

- Facetcheck: implementation for districts and neighborhoods or municipalities. Facetcheck is now an open source tool for making data transparent.