Mapping Legal Plunder in Late Medieval Italy

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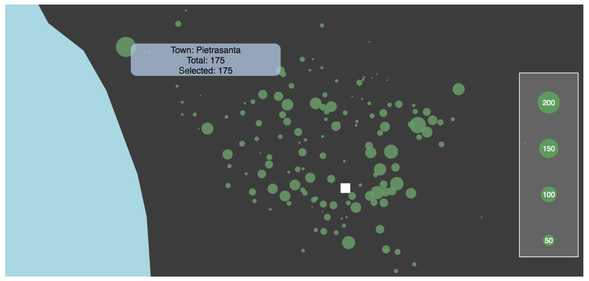
Documentary Archaeology of Late Medieval Europe (DALME)

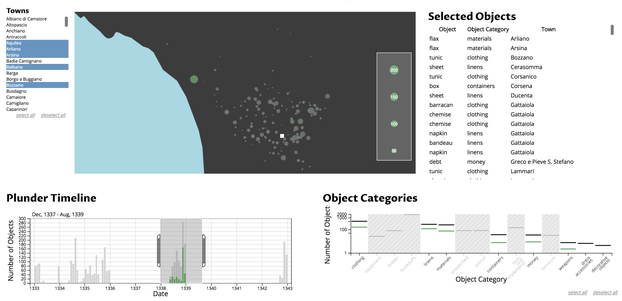
- Online database focused on a corpus of household inventories – lists of objects identified during legal proceedings
- No specialized standards exist for documentary archaeologies – *documents often published without tools necessary for their systematic study*
- Our particular dataset focuses on records of legal plunder in late medieval Lucca, Italy

Map visualization



- Since each record in the database contains geographical coordinates, we wanted to mark all of the records on a map of the region
- Each *town* is marked first as a grey circle, where the radius is proportional to the square root of the total number of records collected from that town in the entire dataset
- Each *town* is then marked again as a green circle, where the radius of the green circle is proportional to the square root of the number of records present in the current filtered selection (see interactive cross-filtering and filtering subsections)
- Tool tip provides *town name, number of total records*, and *number of actively selected records*

• Interactive cross-filtering



- Working with our collaborator, identified three separate ways we would want to be able to filter records: (1) by town, (2) by data, (3) by item category
- Importantly, might want to filter in multiple ways *simultaneously*
- Thus, we implemented *interactive cross-filtering*
- When we change the selection according to one field, we want to interactively display how this changes the selection in other fields
- Brushing and clicking to select on multiple sub-plots

By integrating a set of **interactive filters** for exploratory data analysis with a **cartographic visualization**, we create a tool for documentary archaeologists to **understand a large corpus of household inventories** from late medieval Italy.

QR Code links to our project page:

https://cse512-19s.github.io/FP-Mapping-Legal-Plunder

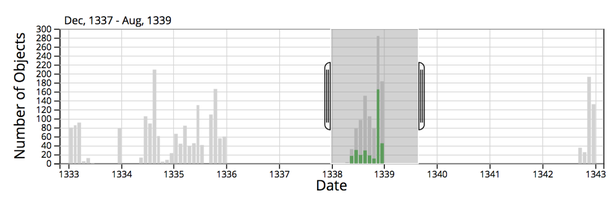
Code repository:

https://github.com/cse512-19s/FP-Mapping-Legal-Plunder

Filtering by town

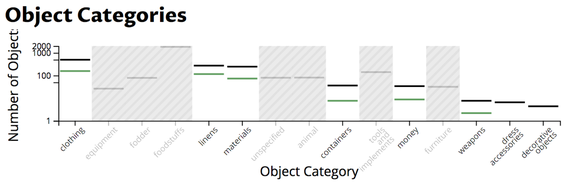
- List of names of all towns in database
- Highlighted (blue) when selected
- No highlighting when deselecting
- Upon selection, only records in the active set will be highlighted in the other data views (i.e. colored green on the two histograms and on the map)

Filtering by timeline



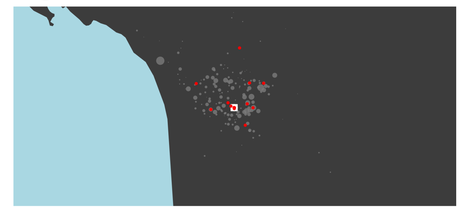
- Histogram displays number of records per month over time range of data
- Brushing on timeline highlights only records from relevant time range on this sub-visualization, as well as on map and object category histogram

Filtering by object category



- Specific object categories can be selected/deselected by clicking directly on the bars in the object category histogram
- Selected bars outlined in red, deselected outlined in gray
- We see that the *vast majority* of plundered objects were food

Animating flow of wealth



- Every 50 ms we *pull a new legal plunder record* sequentially from the dataset, *create a circle* at the geographic location of the former owner, *linearly interpolate* the circle between this location and the location of the new owner, then *remove* the circle
- Large directed graphs tend to be hard to visualize statically
- By animating, we can easily see that plundered wealth tends to flow *into Lucca from the surrounding towns*