Elle Buellesbach
CPSC 490: Senior Project
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Fragment Match Browser

Advisor: Benedict Brown

Proposal Overview:

In reconstructing artifacts which have one primary planar surface, such as frescos, digital tools can aid workers in determining which fragments match together. Existing programs allow for the digitalization of fragments, as well as the creation of proposed matches based on algorithms using computerized visual analysis. However, often these proposed matches are incorrect or multiple proposed matches are made for the same fragment. Therefore, a layer of human approval is necessary. An existing program, which runs locally using Qt 4 displays images of possible matches and allows the user to annotate and approve them. However, this program is both outdated and has limited functionality due to its lack of portability.

In brief, the goal of this project, is to create a web interface to allow for the annotation and approval of proposed matches between pre-scanned and processed fragments. Building off of an existing database, this project will design the web application as a separate program from those already in use.

- The primary functionality will be as follows:
  - The ability to view all proposed matches (as listed in the database)
  - The ability to closely examine, with images, a proposed match
  - The ability for a distinct user to annotate the match, and either approve, reject, or mark the match for further consideration.
  - Once a match has been approved, all proposed matches involving that fragment will be removed from the list of proposed matches
  - The ability to filter based on a particular fragment or the status of the fragment, to view all proposed matches for a singular fragment
- Other functional goals:
- The ability to incorporate more fragment information, such as 3D visualizations
- The ability to mark and adjust real-world location information (i.e. what bin # is the fragment located in)

Primary considerations:
- This website should be optimized to run on both full computers as well as on small tablets and devices, so that workers can use the site while working with the fragments away from their desks
- Considering the extremely large data sets involved with fragments, this website should adjust the loading of information so as not to interfere with the user interface.
- Considering the large number of proposed matches per fragment, the list should be organized in an easy to navigate manner.

Deliverables:
- The code of a website (frontend and backend), which functions as described above.
- Any code necessary to support changes made to the database, or auxiliary functions.

Proposed Timeline:
Week of 2/4:
- Determine principal functions
- Propose user interface/user experience for each function to determine basic layout of website
- Get access to prior code base

Week of 2/11:
- Understand old code base and old database
- Make sure there is a basic set of usable data to test with
- Set up basic web framework

Week of 2/18:
- Make queries to basic data set
- Make API endpoint for necessary queries
- Have basic display of matches

Week of 2/25:
- Work on basic display of matches, i.e. pagination, up close examination
- Work on functionality of annotation, user comments

Week of 3/4:
- Continue work from last week
- If possible, start to work on filters

Spring Break:
- Goal at this point: all basic functionality built out

After Break:
- Set new timeline for last month
- Mobile responsive design
- Improve user experience through improved aesthetics
- If possible, other functional improvements