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1 User area

1.1 Search and browsing

Through the search and browsing interface the user can perform keyword search to retrieve points of interest, photos and events collected from various Web sources and stored in the Geostream database. To further filter the results, a set of facets is provided, from which the user can select to narrow down the search.

**Step 1:** Type a keyword, e.g. “Acropolis”, and click “search”. The results corresponding to the word “Acropolis” are retrieved and displayed in a list as well as on the map.

![Search and browsing interface](image)

**Step 2:** From the left panel select more filtering options for the term “Acropolis”. For example, select Type = “poi” (point of interest). Notice that the search results include now only POIs that contain the term “Acropolis”.

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**Step 3:** Click on a search result, e.g. “Hilton Athens”, to display the details of this particular item.

**Step 4:** Click on the hyperlink to navigate to the original source (e.g. Foursquare) from which this particular item was collected.
1.2 Creating trips

1.2.1 Login

Before creating trips, the user needs to login to his/her account (or create a new one).

**Step 1:** Click Login.

**Step 2:** Enter username and password for existing user or choose to sign up for a new user.
Step 3: Verify that your username is visible in the main menu. A “Log out” button is also provided to end the session.

1.2.2 Creating trips from search results

The following steps describe how to create a trip from search results. As an example, the steps show how to create a trip based on locations of different kinds of music venues and then how to add or modify information of the trip and the locations visited.

Step 1: In the search and browsing interface search for “rock music” (including quotation marks). Select any of the results and click the “Add to Trip” button.
Step 2: A new trip is created, containing only one visit. Verify that in section “My Visits” the selected visit is displayed. Verify also that the map displays correctly the location of the visit and that the message “You have 1 visits in your trip” is shown.
**Step 3:** Repeat step 1 with the search term: “Mozart” and click “Add to trip” Vienna Mozart Concerts.

**Step 4:** Now that the trip contains two visits, you can see a default route connecting them. On the right of the map there is also a panel providing directions. The entries are clickable and give more detailed information, such as which turn to take, on which road, for how many kilometers. You may repeat step 1, if you wish to add more items.
**Step 5:** Click the “Edit” button on the bottom of the trip details screen in order to add or modify the information of the trip.

**Step 6:** Once in edit mode, you can modify the trip details. You may also modify the default route of the trip, e.g. to indicate that the path should include Hamburg as an intermediate point. This is done via drag-and-drop.
functionality directly on the path displayed on the map. A “reset map” button is provided to undo any modifications.

Editing route

**Step 7:** Drag the location of the second visit and verify that on the map the directions have changed. If necessary press the reset map button.

**Step 8:** Update the trip details and click the submit button on the bottom of the page.
Step 9: Verify that all the details are displayed correctly in the view mode.
Step 10: Select to view one of “My visits”.

Step 11: View the details of Visit, and click Edit to update its details.
**Step 12:** Update the information of the visit and click the Submit button.

**Step 13:** View the updated visits:
Step 14: Click the “Back to Trips” button.

Step 15: View the list of trips you have created. You may select a trip as “current trip” in order to add any additional visits by clicking “Click to Add to this Trip”.

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Step 16: To display an overview of the visits included in your trips, go to “Authoring Tools → My Visits”

Step 17: The list of visits is presented.
1.2.3 Creating trips from text

Another feature provided by the web application is the geocoding of locations in text documents. The following steps show how this is performed, and how the results can be used as input to create a trip and its visits, which can then be further edited and enhanced as described above.

**Step 1:** Select “Light Tools” from the menu.

**Step 2:** Edit the trip title and edit the comment box with text, e.g.: “I went to London and then to Berlin.” Click the “Geocode” button. After a few seconds the same text is presented on the right box. In the new presented text, the city names “London” and “Berlin” have been hyper-linked by the geocoding module. When the geocoding module identifies a token (a word or a sequence of words) as a possible location, it hyperlinks them with relevant geodata from the back-end database.
Step 3: Click on the “London” hyperlink and notice how the map displays locations of places containing the word “London”. Use left click to view the information of the place and right click to select the desired location among the provided alternatives (selected marker becomes green). Use “Reset selection” button to unselect the location(s).
**Step 4:** Repeat step 3 for hyperlink “Berlin”.

**Step 5:** (Optional Step) Fill the “Geocode Place” text field and click “Geocode Place” button to fine tune the selection of location(s).

**Step 6:** Click the “Generate Trip” button. A trip is created with the selected locations in Edit mode.
Editing route

My Visits

<table>
<thead>
<tr>
<th>No</th>
<th>Image</th>
<th>Title</th>
<th>Category</th>
<th>Comment</th>
<th>Rating</th>
<th>Price($)</th>
<th>Arrival</th>
<th>Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>London</td>
<td>City/settlement/Populated Place</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Faversham</td>
<td>named place</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Update Trip Details

Title
Trip from London to Berlin

Comment
I went to London and then to Berlin.

Select Trip Type (click):
- Night Life
- Culture
- Gastronomy
- Site Seeing
- Shopping
- Walking
- Recycling
- Activities
- Sports
- Educational
- By the sea
- Road Trip

Select Rating

Select Transportation

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2 Admin area

For the actions presented in this section, the user must be logged in, and he/she must have administrator rights.

2.1 Creating areas for data collection

The first step for data collection is to specify the target area. This can be done visually by drawing on the map a rectangle that encloses the target area. The specific steps are presented below.

Step 1: The user can create an area by the admin option “Areas”. A list of already available areas is displayed. Click “New Area” button to define a new area for data collection.

Step 2: Specify the name of a location, for example “Berlin” in the field “Go to” and notice how the map zooms to Berlin. You can also set the “Name” and “Country” fields to characterize the area. Finally, click “Create Area”.

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Add a new area

Step 3: Once an area has been created, an admin panel is displayed, where you can view information about the area, and you can start, monitor and manage the data collection process for the supported sources.
2.2 Consolidating the categories of collected data

Geostream collects data from multiple sources, each one using its own classification or taxonomy to categorize entities. To integrate the collected data, a category mapping process is performed on the back-end, mapping source categories to a common categorization defined in Geostream. The following steps explain how to view, validate and modify the automatically computed results via the Web interface.

**Step1:** Click on “Category Mappings” from the main menu and browse the mappings between several categories. Check that when the score indicator is 2.0 the mapping of Geostream resolves in a high probability match while the low score -1 is for unmatched categories. Use the Next / Previous buttons to navigate through the results.
Step 2: Click on Match Statistics to display statistics columns on how high is the confidence that the categories per provider have been matched with Geostream categories.

Step 3: Click on “Category Distribution” and view, for each provider, how many entities correspond to each of the top-level categories.
Step 4: Click on “List of categories” in order to browse the Geostream categorization schema, which can also be exported in various formats.
2.3 Validating entity matching results

Often, the same entity can be found in multiple sources. This results in duplicates in the Geostream database. Geostream employs a module that automatically identifies potential duplicates. The following steps explain how to view and validate the results via the Web interface.

**Step 1:** Click “Matched Entities” and view in the “components” section the list of entities identified as potential duplicates.

![Image of Geostream interface showing matched entities and statistics]

**Step 2:** Click the “Statistics” button to browse through statistic graphics regarding (I) number of downloaded data per provider, (ii) percentage of POIs also available from other providers (iii) percentage of overlap of POIs among providers.
2.4 Displaying extracted Regions of Interest

Geostream employs a module that performs density-based clustering of the collected data to identify 'regions of interest'. The results can be displayed on the map, as explained by the following steps. This is aimed for identifying, for example, 'hot spots' in a city, or more generally areas having high concentration of certain types of POIs.

**Step1:** Click “Regions of Interest” from the main menu.
Step 2: Select a category, e.g. “Shops”, and notice how the map zooms to display clusters that correspond to shopping areas.

Step 3: Repeat the process for other categories.