

User Stories

1. Starting the application
The application begins by loading a map of Rose-Hulman with pre-defined points of interests (at least 80) labeled. There is also a panel to the left of the map that allows input from the user.
2. The user will be able to enter a starting and ending location by selecting this option in the input panel and clicking the locations on the map. The application will then calculate the best path to take based on a selected cost function and/or constraints. The output will be both lines drawn on the map displaying this path as well as written directions that include distances along the path.
3. The user will be able to add points of interest to the map and the locations latitude and longitude will be calculated by the application. This will be done by selecting the "Add Location" button on the input panel and then clicking on the map to indicate the new location. The ability to add new paths between any two locations will also be implemented and done by the user in the same manner. This will all be accomplished with interaction between the user and the map itself, such as drawing new paths on the map.
4. The user can delete points of interest from the map by clicking the "Delete Location" button and then selecting the location from the map. The location and paths to and from it will be deleted from the underlying data structure.
5. The user will be able specify the following constraints for calculating the cost function used to determine the desired path between two points:
 - a. Shortest distance
 - b. Shortest time
 - c. Fewest number of locations visited by the path
 - d. Locations that necessarily need to be on the path
 - e. Activities likely to be seen on the path, such as a higher likelihood of seeing a game of Frisbee

Combinations of any of the constraints listed above can be used at the same time to calculate unique cost functions. This will be done by having radio buttons that the user can select to choose the constraints he or she desires. Locations that necessarily need to be on the path will again be selected by clicking the location on the map. The selection of the intended location(s) will be confirmed to the user by a new window that displays all the locations with checkboxes that allows individual locations to be removed or all of them to be cleared. Special events that can be seen along the path will chosen as follows: the user will enter a string representing the activity in which they wish to see, such as "Frisbee", then a new windows listing all of the locations with the activity are is displayed. These locations will also be highlighted on the map, and the user can click which locations they wish to visit, which will be added to the list of locations that necessarily need to be in the path.

6. The user will be able to rate points of interest selecting this option on the input panel and then clicking a location on the map. A pop-up box will allow the user to enter a rating.

7. The user will be able to search for the top attractions based on pre-defined ratings as well as any ratings the user has defined. The interface will allow them to enter the number of attractions they wish to see, such as the top 50 attractions.
8. The user will be able to zoom the map in and out in order to better see the path. This will be done by clicking buttons at the bottom of the map.