

ARTIFICIAL INTELLIGENCE

CS 6364.501

PROJECT REPORT

Dallas Trip Advisor

Abstract

A desktop application which guides a user to the important places in the city based on his/her interests.

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Problem Description:

This application will come in handy to anyone who's on a trip to Dallas or has moved into the city recently. The application will help it's users to decide upon a destination based upon their interest.

Proposed Solution:

The application works in conjunction with a knowledge bank, which stores and categorizes all the various places in the city into their appropriate classification.

The application starts by asking the user about his/her current location. Once the application sets the source, it goes on to ask the user about his/her interest.

The application will then finally predict the destination based on the heuristic value selected.

Implementation Details & Examples:

- **Informed Search Algorithm:**

The project will make use of A* algorithm to produce an optimal path from the source node to the goal node.

- **Heuristics:**

1. Straight line distance.
2. Straight line distance + Cost of Place (Entry Ticket).

- **Example:**

User enters the location where he/she is currently located. The user will then select the heuristic and tell his/her interest. The application will then check its database and come up with the places of the user's interest. The application finally displays the path and the total distance to be travelled.

- **Input Instance:**

Let us assume that the user enters his/her source location as Dallas Heritage Village and selects his interest as Leisure (Relax).

- **Knowledge Bank:**

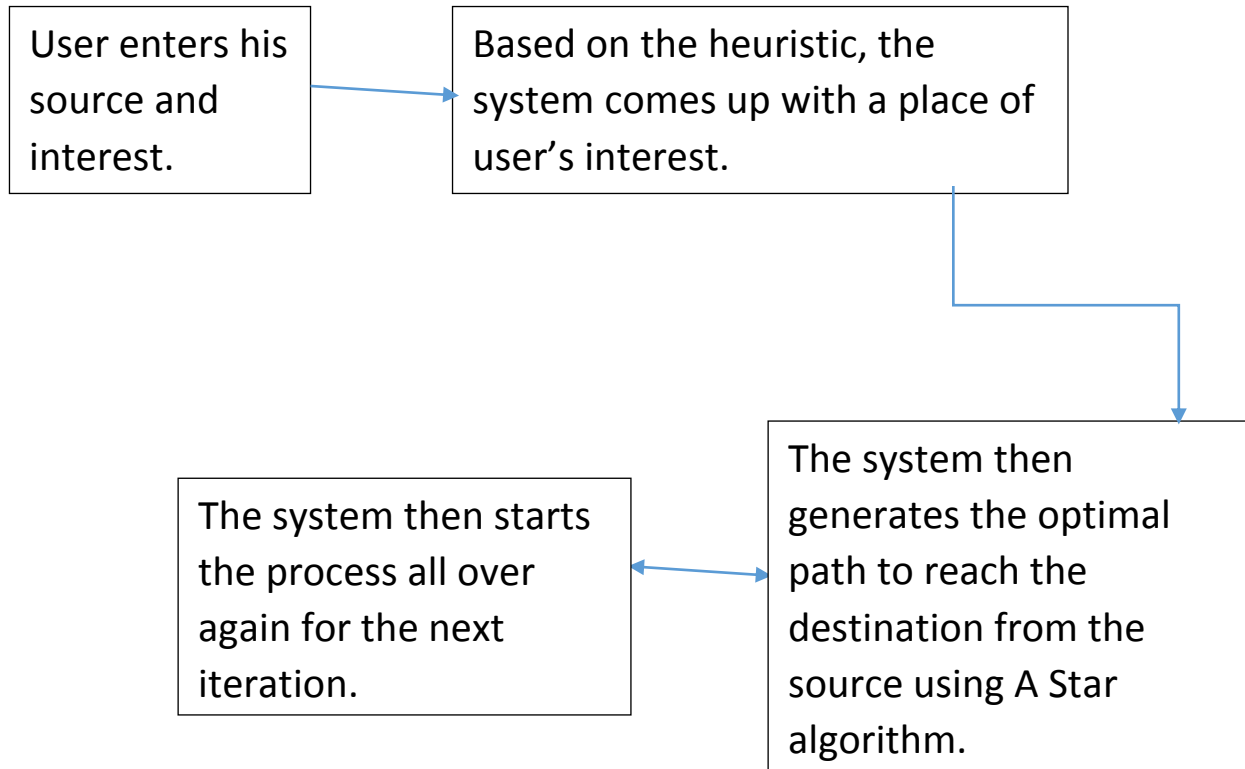
- a. Dallas Museum of Art is_type_of Museum.
- b. Museum is_type_of Art.
- c. Dallas Skyline is_type_of Cityscape.
- d. Cityscape is_type_of Attraction.
- e. Dallas Skyline is_part_of Reunion Tower's Geo Deck.
- f. Reunion Tower's Geo Deck is_part_of Reunion Tower.
- g. Dining is_part_of Reunion Tower.
- h. Dallas Heritage Village is_type_of place with historical importance.
- i. Place of historical importance is_part_of History of the city.
- j. Klyde Warren Park is_type_of Attraction.
- k. Klyde Warren Park is_type_of Park.

- l. Relax is_part_of Park.
 - m. AT&T Performing Arts Center is_type_of attraction.
 - n. Concert is_part_of AT&T Performing Arts Center.
 - o. Music is_part_of Concert.
- **Output:**
 1. Source : Dallas Heritage Village
Interest : Leisure -> Relax
 2. The application will then search the destination based on the heuristic. (Buckner Park)
 3. Once the destination is known to the application, it will run the A Star search algorithm and come up with an optimal path. (Dallas Heritage Village -> Buckner Park)
 4. The application even displays the actual distance travelled by the user to reach the destination from the source.
(Distance Travelled : 75 miles)

Programming Tools:

- Java
- Jena
- Protégé

Architectural Diagram:



Results:

Please select the heuristic you want to follow :

1. Straight Line Distance
2. Straight Line Distance + Entry Fee

1

Which activity are you currently pursuing?

1. Leisure

2. Music

3. History of City

4. Attraction

5. Art

History of City

| History_of_City |

=====

| trip:Places_of_Historical_Importance |

Where are you?

| Place |

=====

| trip:Sixth_Floor_Museum_at_Dealey_Plaza |

| trip:Dallas_Heritage_Village |

Which one? (case sensitive)

Dallas_Heritage_Village

Source : Dallas_Heritage_Village

Which activity do you want to do now?

1. Leisure

2. Music

3. History of City

4. Attraction

5. Art

Leisure

| Leisure |

=====

| trip:Relax |

| trip:Dining |

Which sub-activity under leisure do you want to do?

Relax

| RelaxType |

=====

| trip:Park |

Destination: Buckner_Park

Path Taken : [Dallas_Heritage_Village, Buckner_Park]

Total Distance Travelled to reach Destination : 71.0 miles

Do you want to continue?

Future Scope:

- The application can be developed on different platforms such as Android.
- The application can be extended for different cities.
- Additional categories can be added.
- Additional heuristics such as “rating” can be added. Thus the application will only search for destinations greater or equal to the entered rating.
- User can also insert his/her budget and the application only displays destinations until the user can afford them.