Travel budget estimator: Fuzzy System

Description

Travel budget estimator is a fuzzy logic control system that estimates the budget for a trip based on various user inputs.

The idea is to effectively estimate the budget for a given scenario.

In the project implemented around 20 fuzzy rules have created which covers scope of this project. Creating more rules just for the sake of it would have made the system cluttered with unnecessary rules.

Following are the things that the system takes into consideration

- Travelling distance
- Number of people
- Number of days
- Food priority (Low, Medium, High)
- Travel priority (Low, Medium, High)
- Accommodation priority (Low, Medium, High)

The fuzzy system changes the following parameters based on the above inputs:

- Approx. Budget

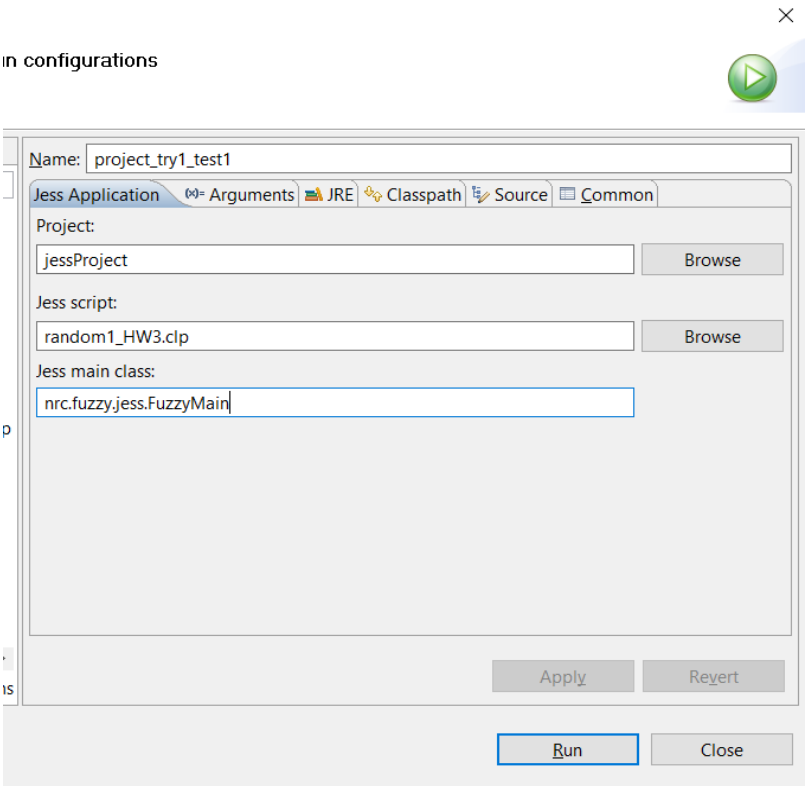
Testing

Based on the previous suggestions provided by the evaluator, the documentation part been majorly updated. This time around the code is very readable with comments on everything that has been done in the project. To help evaluator better understand the code and how it is working printout statements with relevant data has been added in all the places.

Running the application

Assuming you have eclipse with fuzzy jars imported which are mandatory for Fuzzy project to run, please make sure run configuration

of the project is as shown below before you run the project. Otherwise you will run into issues.



Output

Once the project successfully runs, you will get an output like shown below:

The result is calculated based on the value given in the assert statement entered after line. To better understand the working under the hood, printout statements have been placed for each rules and data initialization methods.

```
-------------------------------------------
Welcome to Travel budget estimator!
Please enter the following details and we'll estimate your trip's budget.
---------------------------------------
Enter distance priority: 1.Short 2.Medium 3.Long (Enter choice value):
1
Enter number of days: 1.Small 2.Medium 3.Large (Enter choice value):
2
Enter group of people: 1.Small 2.Medium 3.Large (Enter choice value):
3
Enter food priority: 1.Low 2.Medium 3.High (Enter choice value):
1
Enter travel priority: 1.Low 2.Medium 3.High (Enter choice value):
2
Enter accomodation priority: 1.Low 2.Medium 3.High (Enter choice value):
3


==============Data initialization  and assertion================
Initializing the distance
Initializing numberofdays
Initializing numberofpeople
Initializing foodpriority
Initializing travelpriority
Initializing accomodationpriority
Initializing budget
*********************************************
Asserting the data given by the user. . . . . .
Triggering rule 2 for low distance: 73.56770833333334
Triggering rule 17 for high accomodationpriority: 9.1171875
Triggering rule 15 for medium travel priority: 6.0
Triggering rule 13 for low foodpriority: 1.3296875
Triggering rule 9 for medium number of days: 5.0
Triggering rule 7 for high number of people : 18.528645833333332

 ======================Analysis and result====================

Approx. Budget: 478.816082291315
This estimation is based on a few general assumptions.
Thank you for using travel budget estimator.
```

```
-----------------------------------------------
Welcome to Travel budget estimator!
Please enter the following details and we'll estimate your trip's budget.
---------------------------------------
Enter distance priority: 1.Short 2.Medium 3.Long (Enter choice value):

1
Enter number of days: 1.Small 2.Medium 3.Large (Enter choice value):
2
Enter food priority: 1.Low 2.Medium 3.High (Enter choice value):
2
Enter travel priority: 1.Low 2.Medium 3.High (Enter choice value):
3
Enter group of people: 1.Small 2.Medium 3.Large (Enter choice value):
2
Enter accomodation priority: 1.Low 2.Medium 3.High (Enter choice value):
3

==============Data initialization  and assertion================
Initializing the distance
Initializing numberofdays
Initializing numberofpeople
Initializing foodpriority
Initializing travelpriority
Initializing accomodationpriority
Initializing budget
*********************************************
Asserting the data given by the user. . . . . .
Triggering rule 2 for low distance: 73.56770833333334
Triggering rule 6 for medium number of people: 11.0
Triggering rule 17 for high accomodationpriority: 9.1171875
Triggering rule 14 for high travel priority: 9.1171875
Triggering rule 12 for medium foodpriority: 6.0
Triggering rule 9 for medium number of days: 5.0

 ======================Analysis and result====================

Approx. Budget: 681.6710598006802
This estimation is based on a few general assumptions.
Thank you for using travel budget estimator.
```

```
-------------------------------------------
Welcome to Travel budget estimator!
Please enter the following details and we'll estimate your trip's budget.
---------------------------------------
Enter distance priority: 1.Short 2.Medium 3.Long (Enter choice value):
3
Enter number of days: 1.Small 2.Medium 3.Large (Enter choice value):
3
Enter food priority: 1.Low 2.Medium 3.High (Enter choice value):
3
Enter travel priority: 1.Low 2.Medium 3.High (Enter choice value):
3
Enter group of people: 1.Small 2.Medium 3.Large (Enter choice value):
3
Enter accomodation priority: 1.Low 2.Medium 3.High (Enter choice value):
3


==============Data initialization  and assertion================
Initializing the distance
Initializing numberofdays
Initializing numberofpeople
Initializing foodpriority
Initializing travelpriority
Initializing accomodationpriority
Initializing budget
*********************************************
Asserting the data given by the user. . . . . .
Triggering rule 17 for high accomodationpriority: 9.1171875
Triggering rule 14 for high travel priority: 9.1171875
Triggering rule 11 for high foodpriority: 9.1171875
Triggering rule 8 for high number of days: 9.1171875
Triggering rule 7 for high number of people : 18.528645833333332
Triggering rule 4 for high distance: 897.0052083333333

 ======================Analysis and result====================

Approx. Budget: 858.2569984596634
This estimation is based on a few general assumptions.
Thank you for using travel budget estimator.
```