Fitness Perfect: Calorie intake suggestion system: Fuzzy System

Description

The daily calorie intake system estimates your daily calories requirements in order to maintain, lose or gain weigh based on your BMR (weight, height, age and gender) and **physical exercise level**. In this system, we use fuzzy logic and we use the BMI, height and physical exercise level to suggest the amount of calories needed.

BMR (Basal Metabolic Rate) represents an estimate of calories burned while resting and it is measured in kilo joules per hour per kilogram of body mass.

A restful state refers to the energy sufficient only for the functioning of the vital organs: the heart, lungs, nervous system, kidneys, liver, intestine, sex organs, muscles, brain and skin.

The referenced formulas used to calculate the daily calorie expenditure based on physical activity levels are listed below along with a section on calories burned based on specific physical activity type.

In this project there are around 12 fuzzy rules implemented which covers almost most the components to find the BMR using Harris-Benedict Equation.

Following are the components under consideration:

- Height
- BMI
- Activity

Weight, gender and age constraints for the formula is contained within the BMI, to make the system simple.

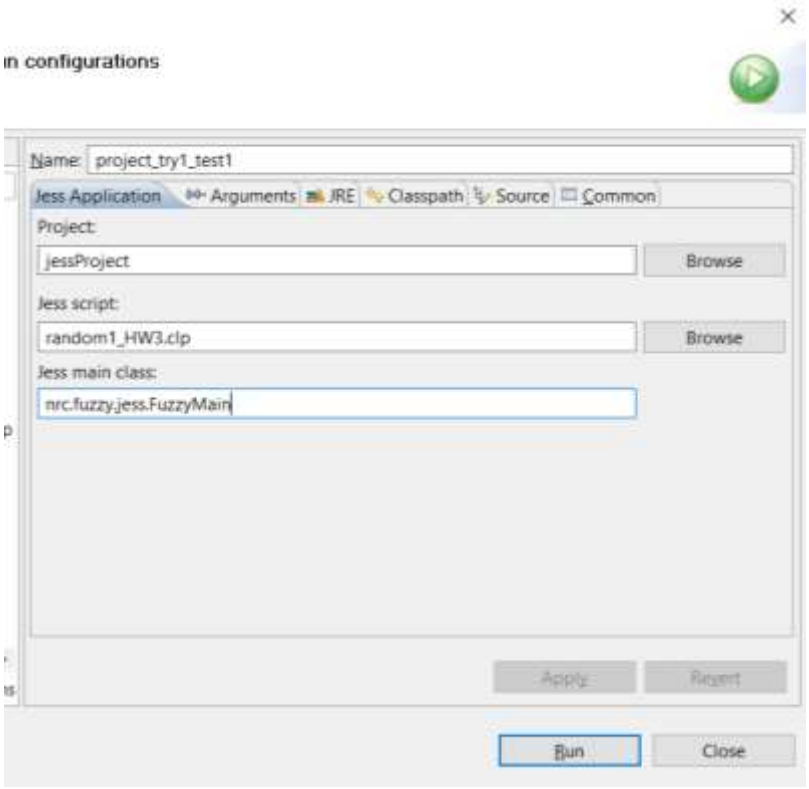
The output of them system gives the total amount of calories required as intake per day.

Testing

Based on the previous suggestions provided by the evaluator, have modified the menu by taking numbers. As taking inputs through strings will be case sensitive and will be tedious for the user to type in input.

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:

```
==============Data initialization  and assertion================
#*#*#*#*#*#*#*#*Initializing the height data
#*#*#*#*#*#*#*#*Initializing the bmi data
#*#*#*#*#*#*#*#*Initializing the acitvity data
#*#*#*#*#*#*#*#*Asserting the data given by the user

======================Rule trigger============================
Following rules are trigged with the given input

Triggering rule 8 for high activity: 9.411458333333332
Triggering rule 6 for medium bmi: 19.5
Triggering rule 4 for tall height: 231.46614583333331

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

Your ideal daily calorie intake should be 1696.6718592549357
```

TEST CASES

1)

Height: tall

BMI: normal

Activity: normal

Output: 1666.477

2)

Height: short

BMI: underweight

Activity: light

Output: 2469.33